Emerging Trends in Waste Management In The Indian Era

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INTRODUCTION

The Municipal Corporation of Delhi (MCD) has chalked out a Rs 170-crore plan to utilize the latest solid waste management technologies, including generating power from garbage as followed in Bangalore. Unveiling the civic body's garbage management plans in a conference at the Associated Chambers of Commerce and Industry of India (ASSOCHAM), Mayor Arti Mehra said, "The Delhi government has invited tenders to convert solid waste into Refuse Drive Fuel (RDF) in order to generate electricity in Bawana."

The conference was held in conjunction with the 'Cool the Earth' initiative as on 15th January, 2008:

Delhi Environment Secretary, JK Dadoo said the Delhi Pollution Control Committee has authorized three plants in Okhla, Timarpur and Ghazipur to convert solid waste into RDF. Drawing attention to "overflowing" landfill sites at Ghazipur, Okhla and Bhalaswa, Mehra said the Delhi government has asked the Centre to consider the use of thermal plasma technology to dispose solid waste in Delhi. Mehra said Rohini and Civil Lines zones would become the first 'zero dhalao areas' in Delhi: private solid waste management companies would take waste from homes to landfill sites. While making a presentation on the initiative, Sanjeev Agarwal of the Central Pollution Control Board (CPCB) said the MCD's plan of action includes implementing collection of door-to-door waste, fines for littering and creating sanitary landfills to process waste. The MCD also plans to conduct awareness campaigns on segregation and composting, Sanjeev added.

SOLID WASTE MANAGEMENT TO BE PART OF CURRICULUM

Soon, solid waste management could be part of school textbooks. The government is working on a proposal to incorporate waste management in school curriculum to sensitize the younger generation about managing municipal solid waste in a hygienic and scientific manner.

Urban development secretary, M Ramachandran has written to the secretary, secondary and higher education, pointing out the need to incorporate the subject in school curriculum.

Stressing that the issue deserved to be addressed in a holistic manner, Ramachandran said, "The matter has assumed immense importance in view of the volume of municipal waste generated per day and its impact on environment of cities and towns."

The ministry wants the curriculum to have accurate waste management information that encourages the principle of "reduce, reuse, and recycle" in the classroom and at home while making it exciting and interesting for both teachers and students.

In India, solid waste management has emerged as a major environmental issue in recent times. According to conservative estimates, more than 45 million tones of waste are generated from urban centers in India. A senior official said that municipal waste was collected poorly as the average collection efficiency was only about 72%. Waste was transported inadequately as 70% cities lacked required transportation capacities and was disposed of unscientifically in the absence of sanitary landfills. Concerned with the urgency of the problem, the UD ministry is giving utmost importance to sanitation and solid waste management projects under Jawaharlal Nehru Urban Renewal Mission (JNNURM). Under the mission, the ministry has sanctioned solid waste management projects for 23 cities worth Rs 1,469 crore.

INDIA NO. 2 ON POOR SANITATION LIST

An international NGO, WaterAid, has put India in second place on the list of the world's worst places for sanitation. China is number one in the 2007 WaterAid report on the Status of the World's toilets. While we have made progress since Independence, even now, over half of the population does not have access to safe sanitation. From 1 per cent rural and 50 per cent urban population having access to sanitation in 1998, the coverage has jumped to 48 per cent (rural) and 93 per cent (urban). But as Depinder S. Kapur, country representative, Water Aid India argues, these are merely figures of infrastructure and do not reflect the actual access and usage of latrines by individuals or families. "Given the large population of slum dwelling and unaccounted for urban populations and

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their exclusion from formal urban sanitation and sewerage systems, we believe the coverage status is about the same for both urban and rural India," he said. The government remains committed to making India open defecation-free by 2012 and has increased the funds for the Total Sanitation Campaign by 43 per cent from Rs 7.40 billion in 2006-07 to Rs 10.6 billion in 2007-08. Today, with new components like Solid and Liquid Waste Management, the programme has crossed the Rs 120 billion mark in its total outlay, making it one of the largest sanitation programmes in the world. Nonetheless, Water Aid points out that even if the sanitation Millennium Development Goals (MDG) goals are met, more than half-a-billion people will still remain uncovered. It calculates that the MDG 7, Target 10 states that it aims only to halve by 2015 from the 1990 levels the proportion of people without sustainable access to safe drinking water and adequate sanitation. So, even if the MDGs are reached in 2015, almost half of the rural population (some 388 million people) and 28 per cent of the urban population (112 million people) would still be without basic sanitation.

SIMS EXPANDS RECYCLING INTO INDIA WITH TRISHYIRAYA

SCRAP metal recycler, Sims has made its first foray into India through the acquisition of Trishyiraya Recycling in a bid to expand its recycling solutions division.Trishyiraya is a small recycler of electrical and electronic equipment located in the southern Indian city of Chennai. Sims group chief executive Jeremy Sutcliffe said the "modest" acquisition would allow the company to service the burgeoning electronic manufacturing sector in Chennai. "India, because it is the home of so much electronic manufacturing these days, is an obvious place to start serving those manufacturers,"Mr. Sutcliffe said. "We have multi-national OEM's (original equipment manufacturers), like Cisco, perpetually saying, 'we've got a problem in India, can you help us solve it?' "So we've set out to solve those problems."Mr. Sutcliffe said. Sims has had a representative office in India for a number of years but the Trishyiraya business is the company's first physical operation in the country. "It is a small piece of a very large jigsaw,"he added. Sims said the growing awareness and development of legislation, similar to that in Europe, dealing with waste electronic and electrical equipment in India would offer further opportunities for the group."Increasingly, people will follow Europe's lead in introducing legislation," Mr. Sutcliffe said. Sims, the world's largest recycler of scrap metal, is in the process of US $ 1.6 billion ($A1.84 billion) merger with US-based Metal Management Inc. The combined entity will have more than 200 global operations in its portfolio. Sims shares gained 17c to close at $26.38.

MINISTRIES OF S & T, URBAN, ENVI & FORESTS TO LAUNCH PILOT PROJECT ON CONVERSION OF SOLID WASTE

The Minister said that keeping this in view, the national alliances should be built among those countries that adhered to conclusions of Kyoto Protocol as most of the times, it has been seen that in economies of scale, men is up against his own nature. Ministries of Science & Technology and Earth Sciences, Urban Development, Environment & Forests and New & Renewable Energy Sources will shortly forge an alliance to launch a Pilot Project for converting municipal solid wastes into energy generation with efficient imported technologies from economies of scale. Disclosing this at ASSOCHAM organized `Environment Summit 2007', Kapil Sibal, Minister for Science & Technology and Earth Sciences said that urban India produced 42mn tons of municipal solid wastes annually in 423 class I cities which is hardly recycled for power generation. The four Ministries, therefore, would shortly come together and launch a pilot project on lines of one such project at Hyderabad, which is generating 6.2 megawatt of power by converting solid wastes into solid energy. 'On successful commissioning of the proposed project in one of the large cities, the centre will emulate it for other large cities with grants and funds from Ministry of Science & Technology and Earth Sciences so that such a huge amount of solid wastes is converted into energy and environment degradation is prevented', said Kapil Sibal.

He announced that energy generation would be effected with imported efficient technologies as he felt that currently, defunct technologies are used for power generation out of solid wastes of large cities which generate 115000 metric tons per day (TPD) of solid waste. Of this, 83300 TPD is generated in 423 class I cities which is equivalent to 72.42% of total waste generated each day and this needs to be tackled on priority, pointed out the Minister. He also mooted the idea that future government alliances should be built bilaterally with countries that have equal concern towards environment as the issue of environment is directly linked with the development. The developed world, held Sibal, has not adhered to conditionalities of Kyoto Protocol for reducing their emission levels from 99% to 5% and now most of it claims that they would curtail their emission levels to the suggested scale of 5% by 2030 or sometimes by 2050. The Minister said that keeping this in view, the national alliances should be built among those countries that adhered to conclusions of Kyoto Protocol as most of the times, it has

been seen that in economies of scale, men is up against his own nature.

Speaking on the occasion, Secretary in the Ministry of Urban Development, M. Ramachandran said that his Ministry along with Ministries of Science & Technology and Earth Sciences, besides Environment & Forests, New & Renewable Energy and Agriculture would jointly fight the menace arising out of solid waste dumping and generate energy.

Ramachandran said that the 12th Finance Commission has allocated an amount of US$ 2450mn to his Ministry for local and municipal governments in 423 large cities so that their waste is recycled in a manner that its by-product comes out in the form of energy. The amount would be utilized in a proper and scientific manner for producing power as the time for use of allocated amount expires on March 31, 2010, pointed out the Secretary. He said that the urban population has grown from 17.3% of the total population in the year 1951 to 27.8% in 2001. It is expected that it would rise to about 432.61 million or 32.3% by 2021 and 534.8% or 38.2% by 2026. The rise in the population and its percentage would create adequate facilities to tackle solid waste problems which would be handled by putting up series of waste recycling plant which will create numerous employment opportunities and keep metros and large cities neat and tidy, indicated Mr. Ramachandran. Among those who also spoke on the occasion included the ASSOCHAM President, its Immediate Past President, Venugopal N. Dhoot, Anil K Agarwal, the Charge-de-Affairs of Japan, Ryiochi Horie, Rahul Sharma, Chairman, ASSOCHAM Cool the Earth Initiative and its Secretary General, D S Rawat.

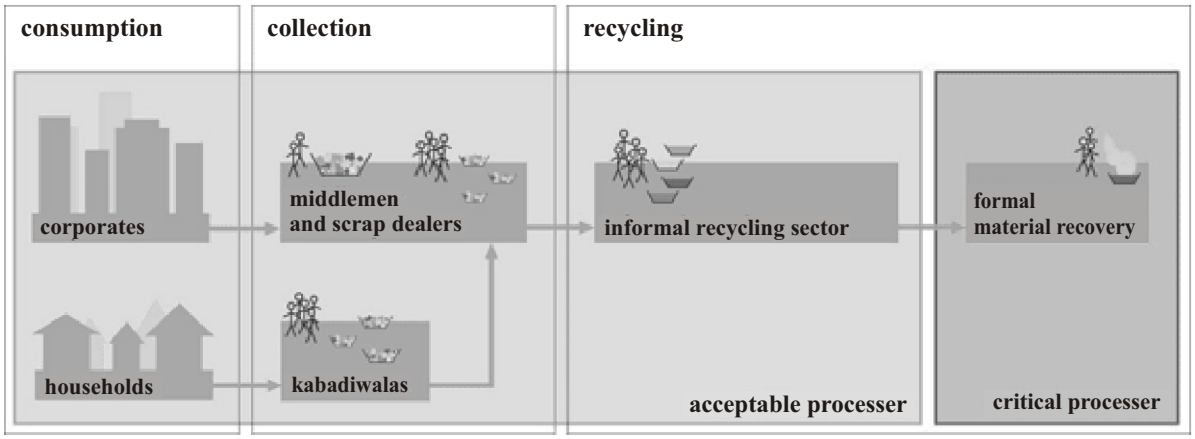
INDIA IS FACING E-WASTE PROBLEM

The country is facing the problem of electronic waste management (e-waste) due to the developments in the field of IT, a top government official said. Addressing the two-day capacity building workshop on solid and bio-medical waste management organized jointly by the Pollution Control Committee and C.P.R. Environmental Education Centre in Chennai here, Dr A B Harapana Hailli, Director, Ministry of Environment and Forest, South Zone Office said since e-waste was hazardous to the environment, the Centre was formulating a draft bill for its proper management. The Southern States fared better in solid waste management compared to those in the North. As many as 200 direct or indirect laws were there to protect environment 'but only on paper.' Dr Hailli said 300 million tones of waste would be generated each day by 2047 when 170 sq km would be required to dump it. The mindset of the people on use and throw should change and there should be co-ordinated efforts in storage, transportation and disposal of waste.

E-WASTE SITUATION IN INDIA

In India, e-waste is mostly generated in large cities like Delhi, Mumbai and Bangalore. In these cities, a complex e-waste handling infra-structure has been developed mainly based on a long tradition of waste recycling. This is operated by a very entrepreneurial informal sector. Rag pickers and waste dealers found it easy to adapt to the new waste stream, resulting in a large number of new businesses focusing on the re-use of components or extraction of secondary raw materials. So far, the e-waste recycling system is purely market driven.

Some of the recycling processes are extremely harmful and have negative impacts on the workers'health and the environment. A study on the burning of printed wiring boards that was conducted in 2004 showed an alarming concentration of dioxins in the surrounding areas in which open burning was practiced. These toxins cause an increased risk of cancer if inhaled by workers and local residents or by entering the food chain via crops from the surrounding fields.



INITIAL E-WASTE SITUATION IN INDIA

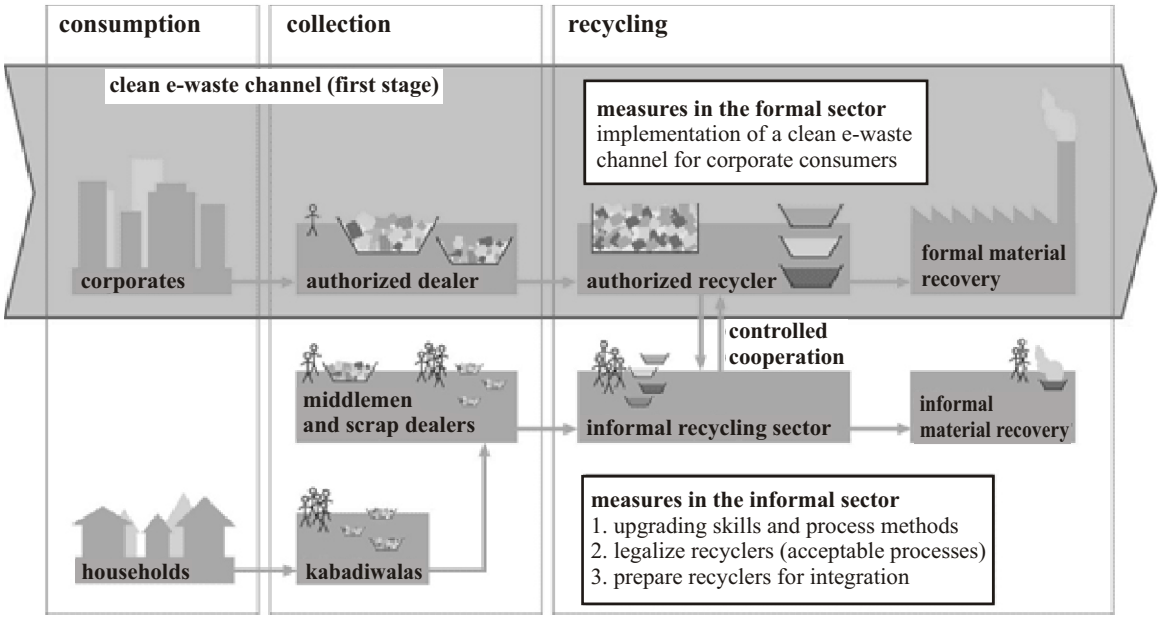
The e-waste from corporate consumers and households enters a city specific informal e-waste recycling system. The collection and allocation of e-waste is done by middlemen, scrap dealers and rag pickers, also known as 'kabadiwalas'. The informal recycling system includes acceptable processes such as dismantling and sorting but also very harmful processes such as burning and leaching in order to extract metals from electronic equipment.

E-WASTE -A GLOBAL CHALLENGE

Electronic waste, abbreviated as e-waste, consists of discarded old computers, TVs, refrigerators, radios, basically any electrical or electronic appliance that has reached its end-of-life. While e-waste contains both valuable materials such as gold, platinum, silver and copper, it also contains harmful substances like lead, cadmium and mercury. In the absence of suitable techniques and protective measures, recycling e-waste can result in toxic emissions to the air, water and soil and pose a serious health and environmental hazard. To overcome India's e-waste challenge (an e-waste stream of about 1, 46,000 tones per year!), the Indo-German-Swiss Initiative was launched in 2004.

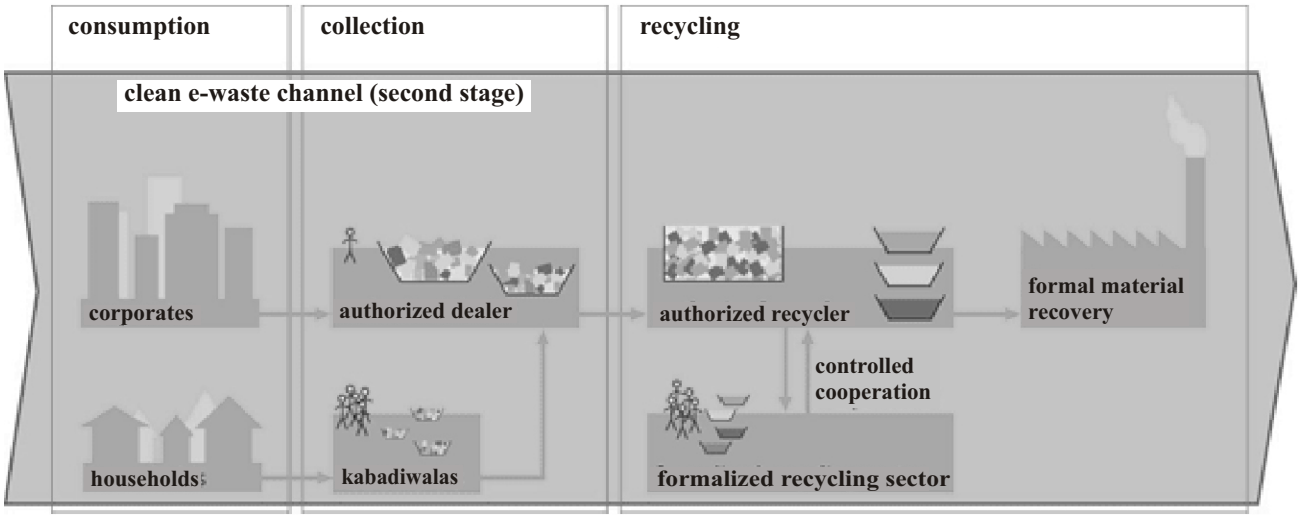
IMPLEMENTATION OF CLEAN E-WASTE CHANNELS

For the implementation of the Clean e-Waste Channels in India's large cities, EMPA follows a two-stage strategy. In a first stage, a clean e-Waste Channel for corporate consumers is implemented while taking necessary measures in the informal recycling sector. During this project stage, EMPA helps to gather experiences for setting up and running a clean e-Waste Channel. Simultaneously, the informal sector can be trained to handle the critical recycling processes and is prepared for the second project stage to be integrated in the improved e-waste management system. In a second stage, private households and SME's are linked to the established Clean e-Waste Channels for instance by integrating the existing door to door informal collection system (kabadiwalas) and buying back their collected e-waste at dedicated collection points. Furthermore, the informal recyclers are integrated in the formal recycling processes for labor intensive manual operations such as dismantling and material segregation. As all actors in the foreseen system, they receive a license after attending the required training.



First stage of the implementation strategy: A Clean e-Waste Channel for corporate consumers is implemented by diverting the corporate e-waste stream to a formal recycling system including authorized dealers (collection), authorized recyclers (dismantling, sorting, shredding) and formal material recovery plants. In the informal sector, the harmful impacts of the critical recycling processes are reduced by training the recyclers in improved e-waste handling. As a step by step process, the recyclers should be legalized and motivated by economic incentives to join the Clean e-Waste Channel in the second stage of the implementation strategy.

Fully operational Clean e-Waste Channel. After the second stage of the implementation strategy, the informal

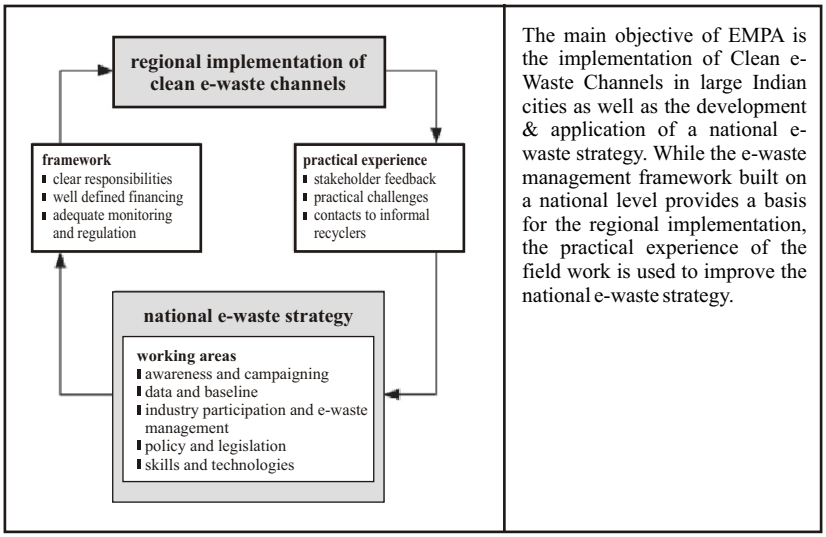


sector is formalized and fully integrated in the Clean e-Waste Channel. This situation represents a long term vision.

CONCLUSION:

A national framework is required as a basis for the implementation and more importantly, for the replication of Clean e-Waste Channels. This framework is developed in a joint effort of all relevant stakeholders. The cooperation platform, led by the Ministry of Environment (MoEF), is the National e-Waste Strategy Group which is subdivided into five committees that work in the following crosscutting areas:

- **Policy & Legislation:** Building up a legal framework to support the national e-waste strategy.
- **Data & Baseline:** Studying the present e-waste recycling system in India, assessing the e-waste quantities in Indian cities and establishing relationships with the informal recycling sectors.
- **Skills & Technologies:** Transferring expert knowledge in e-waste management and recycling technologies to India.
- **Industry Participation & e-Waste Management:** Establishing a national e-waste management strategy to be accepted by the relevant stakeholders. This includes a stakeholder agreement on the applied e-waste management concept (responsibilities, financing, control and regulation of Clean e-waste Channels).
- **Awareness & Campaigning:** Increasing the public awareness for the e-waste problem in India, especially in the large cities.



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CONCLUSION

The farmers of the country face multifarious problems. Water problem is the main reason for decrease in the yielding of the land. The farmers use traditional method of farming which is not suitable for modern crops. Using Bio-fertilizer will minimize the expenses. The government should try to eliminate such types of problems frequently faced by farmers. That will be the proper remedy to safeguard the farmers. The landlords only borrow huge amount of loans from various banks as they have more influence in the local areas. Only limited small farmers will be benefited through this scheme. The debt waiver scheme in the budget is announced for Rs.60, 000 crores. It will not benefit all the farmers. It will be more useful only to the land lords who have influence in the local areas and in banks. So the government should find a permanent solution to solve the problems of the farmers. What is needed is an integrated bottom to top approach for increasing the productivity, reducing the cost, and fetching remuneration prices for the farm products, and to ensure a decent life to the food provider of the nation - the farmer.

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