

# A Paradigm Shift for Integrated Solid Waste Management- A Case Study of Delhi

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**Abstract**— Municipal Solid Waste (MSW) Management is a huge challenge, especially for mega cities such as Delhi where existing landfills are overflowing and there is hardly any space left to build a new landfill. SWM challenges are manifold as they begin right from collection of household waste and keep on piling up till the waste is disposed. Unmanaged solid waste deteriorates the quality of life by causing nuisance and exposing public to several negative health impacts. To identify specific challenges and opportunities in MSW management, several interactions with municipalities, private consultants and social groups has been done. Major challenges facing Integrated Solid Waste Management (ISWM), highlighted during the interactions with municipal officials, are land unavailability for setting up decentralized waste treatment plants/landfills, lack of financial assistance for paying salaries and disposal facilities and most importantly, people’s reluctance towards waste segregation at source. The primary data collected through design questionnaire for selected colonies based on population density, socio-economic profile and other influencing parameters. The selected colonies from 12 administrative zones led in apprehending zonal variability and trends of waste generation. Industry professionals are offering various innovative decentralized technologies like composting, pellet making and waste to energy plants which minimizes waste reaching landfill. Prioritizing of appropriate and affordable technologies can be done on the basis of waste generated per day and the availability of land for setting up the facilities.

**Keywords:** *Integrated Solid Waste Management, Waste minimization, Decentralization, New Moti Bagh*

## I. INTRODUCTION

In the National capital Territory (NCT) of Delhi, rural to urban migration is extensively advancing land-use transformations in order manage consumptions levels of increasing population. The speedy physical and unplanned growth in Delhi has increased exponentially generation of thousand tons of Municipal solid waste (MSW). Further change in lifestyles and rise in general standard of living aggravate the situation. The collection efficiency of MSW varies dramatically in Delhi primarily due to variation in tipping fees, frequency of solid waste pickup and availability of adequate collection centers. Figure 1, shows the continuous increase in MSW generation in Mega city, Delhi against other mega cities namely, Mumbai and Kolkata.

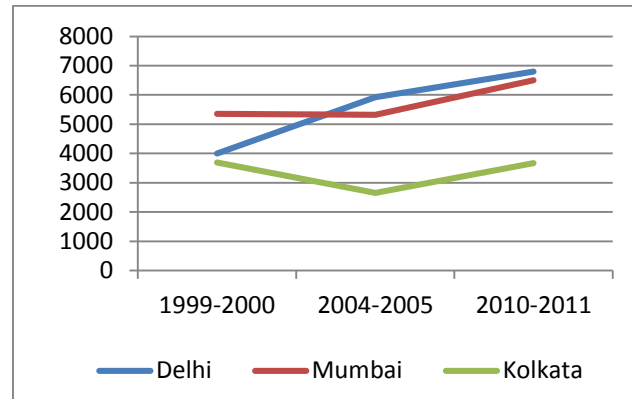


Fig. 1. Municipal Solid waste generation (Tonnes per day) trend analysis in Mega cities of India. Source - [http://www.cpcb.nic.in/divisionsofheadoffice/pcp/MSW\\_Report.pdf](http://www.cpcb.nic.in/divisionsofheadoffice/pcp/MSW_Report.pdf)

In Delhi, over 800 metric tonnes of waste generated per day of which around 94% reach existing three landfill sites. The rate of increase in municipal waste generation can be better understood through Zonal variation analysis and apprehend composition of MSW generation with socioeconomic status of the household, making municipalities to face discrete challenges in individual zone. With the burgeoning population, urbanization and changing life styles, solid waste generation is acquiring larger and complex dimensions. An integrated approach is required such as deploying decentralized technologies, GIS applications, policies, planning and regulations to minimize load on existing landfills in Delhi (Subhash Anand, 2010). Figure 2, illustrates the location of three existing not scientific landfill sites in Delhi which are oversaturated.

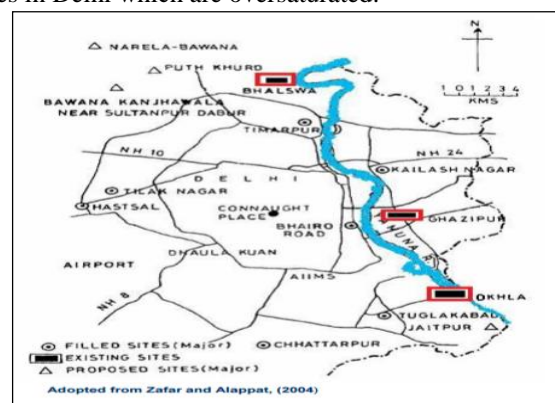


Fig. 2. Proposed and existing landfill sites in Delhi. Source – Zafar and Alappat, (2004).

Table I, illustrates the existing three landfills with present condition and proposed Landfill site in Delhi. The three existing landfills namely Bhalsawa, Ghazipur and Okhla are in risky condition with the average present height above 40 meters. Further, continuous methane emissions and Leachate formation pose menace to the public health of communities surrounding landfill. The envisaged Narela - Bawana landfill site is name to be the first ‘scientifically engineered’ landfill site in Delhi. It is expected to treat 1300 metric tonnes of MSW; supplying Refuse derived fuel (RDF), compost and recyclable material.

TABLE I. EXISTING AND PROPSOED LANDFILLS IN DELHI

Name of Landfill site	Area (Acres)	Current Zones supplying waste	Remarks
Bhalsawa (North Delhi)	40	Civil Lines, Karol Bagh, Rohini, Narela, Najafgarh and West	Receives maximum MSW from 6 zones of MCD. Landfill reached saturation, requires renewal
Ghazipur (East Delhi)	70	Shahdara (south and north), Karol Bagh, Rohini, Narela, Najafgarh, Sadar Paharganj and NDMC	It receives major portion of MSW after Bhalsawa. Landfill reached saturation, requires renewal
Okhla (South Delhi)	56	Central, Najafgarh, South and Cantonment Board	Landfill reached saturation, requires renewal
Proposed			
Narela-Bawana (North Delhi)	150	Rohini and Civil Line	

Source – CDP 2006, Delhi - JnNURM

I. CHALLENGES

Municipalities are facing enormous challenges from the collection, segregation to the disposal of solid waste. Interaction with municipal officials of Department of Environment Management Service (DEMS) of North Delhi Municipal Corporation (NDMC) and South Delhi Municipal Corporation (SDMC) identified peculiar challenges faced by MCD. The ‘Delhi Municipal Corporation (DMC) Act, 1957, states that residents should segregate waste at household level and send it to collection centres (Dhlalaos, receptacles, dustbins and open sites). Currently minimal segregation is being practiced at solid waste generation source which is first challenge for Municipalities. The daily average per capita MSW generation is nearly 500 grams, third highest (WTERT Report 2012) in the country. MCD doesn’t have adequate facilities to send MSW to compost and Waste to Energy (WtE) plants. DDA is not providing new land parcels to MCD for disposal of MSW. The matter was filed in Supreme Court which is currently lying unsettled in High court and National Green Tribunal (NGT).

East Delhi Municipal Corporation (EDMC) is facing distinct and complex challenges particularly in MSW particularly due to high population density and inappropriate solid waste disposal. Door to door collection is not possible due to narrow lanes which make small trucks unreachable to many households. In such case, residents dispose solid waste on roads and open spaces. Residents are arrogant and carefree regarding the MSW disposal. Other challenges to name few are financial Crunch and land crunch.

II. AFFECTING FACTORS

The MSW management gets affected by multiple small factors like unplanned placement of waste collection-bins, poor route planning and lack of information like exact time of solid waste collection among the people. Further quantifying the MSW collected, recycled and disposed in annual reports available online encourages people for segregation of waste. Listing out materials suitable for recycling among people makes recycling a common practice in households. The three components which are directly influencing segregation in urban areas are awareness, knowledge and required equipment for segregation.

III. INTEGRATED SOLID WASTE MANAGEMENT

Integrated Solid waste management (ISWM) is an approach to analyze the complex and multifaceted issues like generation and segregation, collection, treatment, recycling and final disposal (ISSOWAMA Consortium, 2009) in an integral method. ISWM approach assesses local conditions and needs along with identifying stakeholders (WASTE, 2004) while developing or advancing a solid waste management system. Figure 3, shows the layout of ISWM model layout establish on ‘3R namely reduce, reuse and recycle.

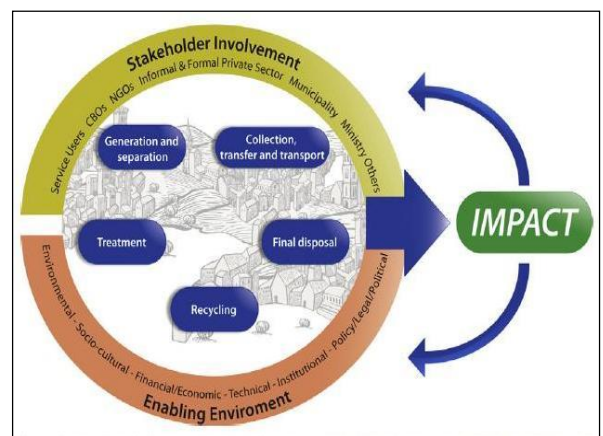


Fig. 3. The Integrated Solid Waste Management model (WASTE, 2004). Source -ISSOWAMA Consortium, 2009.

IV. OBJECTIVES OF THE STUDY

This study has been undertaken to:

- Understand zonal variation in MSW generation using socioeconomic, demographic and existing available physical infrastructure.

- Analyze the challenges and opportunities of Integrated Solid Waste management in Delhi.
- Suitable cost efficient technologies for decentralized treatment of municipal waste in order to shift from conventional landfill disposal.

V. DATABASE AND RESEARCH METHODOLOGY

The paper makes use of primary and secondary data collection. Secondary data has been advanced through literature review of publications for best practices in MSW and case studies of urban areas facing similar solid waste management problems that exist in Delhi. Moreover, data collection from government data sources like Census 2011 and MCD website. Open ended discussions with NGOs like Toxic link, Vatavaran and TERI for collection of good practices for decentralized waste management. The analysis of Public interest litigation (PIL) to understand the auxiliary effects of unmanaged MSW on Public Health.

For primary data collection, interviews have been conducted with municipal officials in NDMC, SDMC, EDMC and New Delhi Municipal Council to generate existing and previous data for municipal solid waste trend analysis in Delhi. In the year 2012, MCD has trifurcated into NDMC (6 zones), SDMC (4 zones) and EDMC (2 zones) for collection and transportation of solid waste having an area of 1399 square kilometers.

Further, interaction with solid waste management consultants in Delhi namely, Waste Ventures India, Vegma Enviro Consultants India Private Limited and Green Planet waste management to know various decentralized solid waste treatment options in terms of capital and operational cost, land required for setting up treatment plants and livelihood options.

Lastly, ground truth survey through solid waste survey form consisting structure and Semi-structured questionnaire. Prior commencing the ground truth survey solid waste survey form was pre-tested from officials in the MCD to criticize the same for uncertainty. For the purpose of study Municipal waste comprises of the waste generated by households and wastes of near constitution obtain from offices, shops and other commercial establishments including treated bio-medical waste. Two colonies have been selected from twelve administrative zones of MCD based on six parameters described further. From each zone selected, minimum 100 households have been surveyed from each selected colony mentioned Table- II. The various parameters taken into consideration for selection of the colony as under –

- Parameter (I\*) - Age of colony
- Parameter (II\*) - Road on which colony is established
- Parameter (III\* ) -Level of existing Physical infrastructure
- Parameter (IV\*) - Level of Social assessment
- Parameter (V\*) - Economic status of occupants
- Parameter (VI\*) - Location of colony

TABLE II. COLONIES SELECTED FOR SURVEY

Colony name	Zone <sup>1</sup>	Parameters <sup>2</sup>					
		I	II	III	IV	V	VI
CC Colony (Rajpura)	CLZ	B	A	B	B	B	B
Ajit Vihar, Burari	CLZ	C	C	C	C	C	C
Agar Nagar, Mubarkapur Road	N	C	C	C	C	C	C
Anand Vihar, Nithari	N	C	C	C	C	C	C
Alaknanda	CZ	A	B	B	B	B	A
Ahera Kishan	CZ	C	C	C	C	C	C
Anand Parbat	KBZ	C	C	C	B	B	C
Beadonpura	KBZ	B	C	B	B	C	B
Abhey Garden	RZ	C	C	C	C	C	C
Amba Enclave	RZ	A	C	B	B	B	B
Achraya Niketan	Shah.(S)	A	B	B	B	B	C
Ajit Nagar	Shah.(S)	C	C	C	B	B	C
Amrit Nagar	Shah.(N)	C	B	B	C	C	C
Balbir Nagar	Shah.(N)	B	B	B	B	C	C
Bali Nagar	WZ	A	B	B	B	C	C
Amrit Puri Ranhola	WZ	C	C	C	C	C	B
Ajmere Gate	C	B	C	C	B	C	B
Anna Nagar	C	C	C	B	B	B	C
Air India Colony	NGZ	C	C	C	C	B	A
Amber Vihar	NGZ	C	C	C	C	C	B
Aram Nagar	SPZ	B	C	C	B	C	B
Aram Bagh	SPZ	B	C	B	B	B	B
Ahinsha Enclave, Mehrauli	S	C	C	C	C	B	A
Anupam Apartment	S	B	A	B	B	B	A

\* Zone<sup>1</sup>- CLZ – Civil Lines Zone, C – City Zone, CZ – Central Zone, N – Narela Zone, NGZ – Najafgarh Zone, KBZ – Karol Bagh Zone, RZ – Rohini Zone, Shah.(S) – Shahadara South, Shah.(N) – Shahadara North, SPZ – Sadar pahar ganj zone, S – South Zone, WZ – West Zone.

\*\*Parameters<sup>2</sup> - Category on point scale (0 – 100), A: ≥ 80, B: 70 – 79, C: 60 – 69, Source - Categorisation of Colonies (Matrix Classification), MVC list by Census 2011.

VI. PARAMETER SELECTED

A brief description of the parameters adopted to select colonies for the municipal solid waste survey. These are examined below:

A. Age of colony

Age of the colony parameter is selected for the purpose of estimating socio-economic status, MSW generation trend

analysis and any possible improvements in the MSW collection. It has been observed that among the respondents, many are living on rent. The parameter of Age can differentiate between old constructed colonies and new colonies instead of considering in the same bracket.

*B. Road on which the colony is established*

Road width is one of the factors for designing solid waste facilities and optimizing travel time to transfer station or disposal facility. Further good road conditions (W. Pferdehirt, 1994) allow vehicles to operate in a broad range of speeds.

*C. Level of existing Physical infrastructure*

Physical infrastructure refers to accessibility to basic facilities such as water supply, sewerage, storm water drainage, solid waste management and power. In most of the colonies, these existing facilities are under critical pressure along with several deficiencies. Physical infrastructure is dependent on each other and indirectly associated for their function and output. For advancing towards to an integrated Solid waste management (ISWM) approach supportive physical infrastructure is required instead of focusing namely on one.

*D. Social assessment*

Solid waste is not merely an environmental issue, but social and cultural issue (Justine Anshütz, May 1996). Since the focus is on ISWM, the evaluation of the social awareness and possible contribution from the public to deal with MSW needs to be apprehended. Community participation and management form an integral part to operate solid waste service.

*E. Economic status of occupants*

Economic status of household has reflected in the generation of solid waste since a change in lifestyles and rise in the general standard of living have increased solid waste generation significantly. Further socioeconomic status helps in understanding the zonal variation of municipal solid waste collection, paying capacity of respondents, recycling and disposal. Literature review summarizes extend of recycling and composting can be an indicator to economic status (Glenn, 1998) of the household.

*F. Location of Colony*

The Colonies developed by Delhi Development Authority (DDA) have a definite and a different character in terms of civic facilities like transfer stations for solid waste collection and disposal and composting facilities compared to other colonies within the Zone. Further colonies situated near water bodies like ponds and urban lakes are disposing solid waste into them.

**VII. ZONAL VARIATION**

The secondary data collection reflects, South zone producing maximum MSW on average daily basis, followed by Central zone and Shahdara (South). Rohini zone comes on the fourth rank followed by Shahdara (North). Next in the rank are City zone and Civil Lines zone with almost similar MSW generation. Narela zone has least MSW generation among

remaining zones. There is affirmative link between MSW generation and socio-economic status of respondents. The zones namely Karol Bagh, Shahdara (South), Sadar Pahar ganj and City zone where population density is high among other zones, the MSW generation increase exponentially. Seasonal variation is another factor escalating MSW generation in all zones particularly from march to July and typical festive season months from October to December.

**VIII. FINDINGS**

Apart from Zone wise categorization, respondents have been categorized based on income groups into High income Group (HIG), Medium income Group (MIG) and Low income Group (LIG). The variance of biodegradable content in waste is synchronizing with the land use assigned for carrying out economic or social functions. The residential land use like HIG, MIG and LIG are producing similar organic waste but recyclable content decrease dramatic since advanced lifestyle reduces reuse and recycle. Similarly inert material, mainly includes non recyclable fraction especially construction and demolition waste is maximum generated by economically weaker section of society due to use of low cost materials for construction. Calorific value of waste generated by MIG housing is high since moisture content is low due to fewer biodegradable. Waste collected from LIG households has lesser calorific value as an inherited recycling practice exists.

**IX. INSTITUTIONAL INVOLVED**

Table III, elucidates various agencies, categorized into municipalities and parastatals involved in MSW in Delhi.

TABLE III. INSTITUTIONS INVOLVED IN MSW

Institution name	Responsibility
MCD	1. Collection from Door to Door and garbage collection centre. 2. Segregation of waste and improvements in practices. 3. Privatization for collection and transportation (Karol Bagh Zone, West Zone, Central Zone, South Zone, City Zone and SP Zone). 4. Provide places and receptacles for waste disposal and collection.
New Delhi Municipal Council (NDMC)	Collection from Door to Door, road side collection and segregation.
Delhi Energy Development Agency (DEDA)	Setting up solid waste utilization projects aiming at Bio-gas or energy generation
Department of Irrigation and Flood control	Supply of soil to MCD to be used as cover for landfills.
DDA	Sitting and allotment of land to MCD for sanitary land filling.

Source – CDP 2006, Delhi – JnNURM



## X. POTENTIAL OF DECENTRALIZED SOLID WASTE MANAGEMENT

In the context of MSW generation in Delhi, Decentralized solid waste management as an alternative solution, shows promising results. It represents the shift from believe that only municipalities should handle solid waste collection and disposal. The objective is to reduce the quantity of waste at source by involving the community to adopt practices like segregation of waste, composting, bio-meth nation etc. The decentralized systems not only reduce the cost incurred in the collection, transportation and disposal of waste by the municipal authority, but also, enhance environmental awareness of the beneficiaries and provide employment to the members of informal waste sector. The concept of decentralization is based on the fact that the waste stream is made up of distinct components that can be managed and disposed of separately. The purpose of this study was to explore the feasibility of decentralized solid waste management in Delhi, by looking at various studies (which shows that 50% of our waste is organic) and community waste management projects of NGOs.

## XI. WASTE TO ENERGY PLANT SCOPE

The first commercial Waste to energy (WtE) project (towmcl.com) in India is located at Okhla (Delhi), owned by Timarpur Okhla Waste Management Company Ltd. of Jindal ITF Urban Infrastructure Ltd. The need for setting of WTE is to prevent dumping of MSW at Bhati Mines and aiming for the least waste concept. Further, to reduce the amount of Methane gas from Okhla Landfill. The various stakeholders involved for clearance of WTE plant are MCD, CPCB, Public Hearing, The Ministry of Environment and Forests (MoEF) for Environmental Clearance and Delhi Jal Board (DJB). It aims at integrated waste management by Zero Waste Concept. The CPCB has laid certain requirements for WtE plant. The Ambient air Quality Data should be Available online along with Segregation Plant Operational Efficiency (%) to varying between 50 to 65%. Additionally, Plant Generation Efficiency (%) needs to be approximately 96%.

Few salient features of WtE Okhla plant look forward to process one-third of the total MSW garbage in Delhi. The output aims at the generation of Clean Renewable Energy, enough to serve approximately six lakh households. It has been operational since January 2012. Few advantages of WtE facility are higher recycling with only ash left behind after the Solid Waste is burnt. Table IV, illustrates the existing and proposed WtE plants in Delhi along with operating agencies and potential electricity generation.

TABLE IV. EXISTING AND PROPOSED WASTE TO ENERGY PLANTS IN DELHI

Location	Capacity (TPD)	Electricity generation (MW)	Agency	Status
Okhla	2500	16	Jindal ITF Urban Infrastructure Ltd.	Operational
Ghazipur	1300	10 - 12	IL&FS	Under installation
Narela - Bawana	1000 - 4000	24 - 35	M/s Delhi MSW Solutions Ltd.	Under installation

Source - <http://mcdonline.gov.in/>

Lot of employment opportunities are expected to be generated by setting of WtE plants. Setting of WtE energy plants will create alternative livelihoods for rag pickers and providing them jobs at the WtE plant. Moreover, transform the life of Rag pickers and convert them to skilled entrepreneurs. The challenges faced by WtE plant, particularly in the context of MSW generation in Delhi require a net calorific value of at least 1462.5 kcal/kg for the operational WtE, but the calorific value of the supplied waste was in the range of 600-700 kcal/kg.

## XII. DECENTRALIZED TECHNOLOGICAL OPTIONS

In the context of MSW generation in Delhi, the following technologies are identified for processing of MSW:-

1. Biomethanation for wet biodegradable wastes
2. Conventional microbial windrow/mechanized/Vermi composting for wet biodegradable wastes
3. Preparation of briquette/ pellets/ fluff as Refuse Derived Fuel (RDF) from dry high-calorific value combustible wastes
4. Incineration / Gasification / Pyrolysis for dry high-calorific value combustible wastes
5. Plastic wastes to fuel oil.

## XIII. NEW MOTI BAGH ZET WSTE PROJECT

The New Moti Bagh, GPRA complex spread over an area almost 110 acres, housing nearly 1000 households. Roughly, one ton of horticultural waste generation per day which is around 40% of the total waste generation per day. The household waste generation per day is almost 1.5 ton. The Zero-waste project at New Moti Bagh well conceptualized is effectively able to get rid of its overall waste generated per day. A Separate collection of organic waste from kitchen in the household, converting it to organic fertilizer within two weeks after treating it in Organic Waste Composting (OWC) unit. Similarly, making Pellet from Green waste as a fuel source through technological interventions cost effective with minimal laborious approach. Moreover, converting of Plastic waste into fuel (Pyrolysis) else quite difficult to handle and treat is being successfully treated. A paradigm shift needed for decentralized solid waste management system approach instead of conventional centralized approaches in Delhi.

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## XIV. REFERENCES

- [1] P. U. Asnani, 'SOLID WASTE MANAGEMENT', India Infrastructure Report 2006.
- [2] A. Kumar, "Existing Situation of Municipal Solid Waste Management in Delhi, India", International Journal of Social Sciences, Volume-1, Issue-1, Page 6-17, December 2013.
- [3] PEARL, Comendium of Good Practices, "Urban Solid Waste Management in Indian Cities", NIUA, 2015.
- [4] P. Sarkar, "Solid Waste Management In Delhi, - A Social Vulnerability Study", Proceedings of the Third International Conference on Environment and Health, Chennai: Department of Geography, University of Madras and Faculty of Environmental Studies, York University, 15-17 December, 2003, pp. 451-464.
- [5] V. Mathur, "Scope of Recycling Municipal Solid Waste in Delhi and National Capital Region (NCR)", Integral Review – A Journal of Management, Volume 5, No. 2, December 2012, pp. 27-36.
- [6] Solid Waste Management Rules, 2015; Ministry of Environment, Forest and Climate Change available at: [www.moef.nic.in](http://www.moef.nic.in)
- [7] S. Mohapatra, "Technological Options for Treatment of Municipal Solid Waste of Delhi", International Journal of Renewable Energy Research, Volume-3, No.-3, August 2013.
- [8] S. Schindler, F. Demaria and S.B. Pandit, "Delhi's Waste Conflict", Economic & Political weekly, Vol. XLVII, No. 42, October 2012.
- [9] S. Mani, Professor, National Institute of Urban Affairs (NIUA), "Integrated Waste Management : WASTE ISN'T A WASTE", available online at: <http://urbanupdate.in/>, May 2014, pp. 24-27.
- [10] V. Upadhyay, Jethoo A.S and Poonia M. P, "Solid Waste Collection and Segregation: A Casestudy of MNIT Campus, Japiur", International Journal of Engineering and Innovative Technology, Volume 1, Issue 3, March 2012, pp. 144-149.
- [11] D.Vij, "Urbanization and solid waste management in India: Present practice and future challenges", Procedia, Social and Behavioral Sciences 37, 2012, pp. 437-447 [International Conference on Emerging Economies – Prospects and Challenges].
- [12] Census 2011, Provisional Population Totals, India available online at: <http://censusindia.gov.in/>.
- [13] FICCI Report 2009, "Survey on the Current Status of the Municipal Solid Waste Management in Indian Cities and the Potential of Landfill Gas to Energy Projects in India" available online at: [https://www.globalmethane.org/Data/292\\_2\\_ficci\\_survey\\_09.pdf](https://www.globalmethane.org/Data/292_2_ficci_survey_09.pdf).
- [14] A.K Jain, "Sustainable Development and Waste Management", Environews, Newsletter ISEB Vol. 13, No. 1, January 2007.
- [15] Municipal Solid Waste Management in Delhi, Delhi Pollution Control Committee (DPCC) available online at: <http://dpcc.delhigovt.nic.in/waste-msw.html>.
- [16] Solid Waste Management System, Municipal Corporation of Delhi (MCD) available online at: [http://mcdonline.gov.in/tri/ndmc\\_mcdportal/dems/](http://mcdonline.gov.in/tri/ndmc_mcdportal/dems/).
- [17] L.A. Guerrero, G. Maas and W. Hogland, "Solid waste management challenges for cities in developing countries", Waste management 33, 2013, pp. 220-232.
- [18] Presentation by J.K.Dadoo, DPCC, "Facilitating an Integrated approach for Sustainable Waste Management", April 2008 available online at: [http://www.environment.delhigovt.nic.in/ppt/sustainable\\_WM\\_FICCI.pdf](http://www.environment.delhigovt.nic.in/ppt/sustainable_WM_FICCI.pdf).
- [19] Indian Institute for Human Settlements, "Urban India 2011: Evidence", January 2012 available online at: [www.autumnworldwide.com](http://www.autumnworldwide.com).
- [20] Chapter – 12: Solid Waste Management, City Development Plan(CDP) – Delhi, JNNURM, 2006.