

Solid Waste management in World

Dr. Sandhya Pathania

Lecturer

*Department of Geography
Government Meera Girls College,
Udaipur(Rajasthan)*

Abstract:

Current global MSW generation levels are approximately higher and so is the case with significant increase in per capita waste generation. Global averages are broad estimates only as rates vary considerably by region, country, city, and even within cities. MSW generation rates are influenced by economic development, the degree of industrialization, public habits, and local climate. Generally, the higher the economic development and rate of urbanization, the greater the amount of solid waste produced. Income level and urbanization are highly correlated and as disposable incomes and living standards increase, consumption of goods and services correspondingly increases, as does the amount of waste generated. Present paper is based on secondary data from government and non-government organisations. It is an attempt to highlight the ever-growing problem of solid waste in world and how it can be minimised by proper planning and management.

Keywords: MSW,

I. Introduction:

Waste can be produced in any form of matter, from solid to liquid to gas, and each has a unique technique of production, disposal, and management. Waste is typically a direct or indirect hazard to humanity. As a result, waste management is required to decrease the negative effects of garbage on both the environment and man. The techniques of solid waste management differ across developed and developing countries, between urban and rural areas, and between residential and industrial locations.

Solid waste management began in London in the late 18th century, with the establishment of a resource recovery system and rubbish collection.

Although the systematic burying of garbage with daily, intermediate, and final covers began in the 1940s, landfill is the oldest and most widespread form of waste disposal. Global MSW generation levels are currently around 1.3 billion tonnes per year and are expected to rise to around 2.2 billion tonnes per year by 2025.

This is a large increase in per capita trash creation rates during the next fifteen years, rising from 1.2 to 1.42 kilogrammes per person per day.

However, global averages are simply general approximations because rates vary greatly by area, country, city, and even within cities.

Economic development, the degree of industrialisation, public habits, and local climate all influence MSW generation rates.

PROBLEM: The world is on the verge of ever increasing problem of solid waste that is having adverse effect on humans directly and indirectly which will increase if it is not managed at priority.

II. OBJECTIVES:

To study the practices made all over the world related to management of solid waste.

Methodology for collecting current data:

MSW generation reports published or uploaded from official, government publications, NGOs', reports by international organisations, and studies made in peer-reviewed journals of various countries have been taken as a base to write this paper.

WORLD SCENARIO:

In general, the greater the rate of economic development and urbanisation, the bigger the amount of solid waste created. Income level and urbanisation are significantly associated, and as disposable incomes and living standards rise, so does consumption of products and services, as does trash generation.

Urban dwellers generate roughly twice as much rubbish as their rural counterparts.

Waste generation fluctuates with income, although regional and national variances, as well as generation rates within the same city, can be significant.

East Asia and the Pacific Region generate around 270 million tonnes of garbage every year. This figure is heavily influenced by garbage output in China, which accounts for 70% of the regional total. The region's per capita trash generation ranges from 0.44 to 4.3 kilogrammes per person per day, with an average of 0.95 kg/capita/day (Hoorweg et al 2005). Each year, at least 93 million tonnes of garbage are generated throughout Eastern and Central Asia. There is no data on garbage generation in the literature for eight nations in this region. The amount of garbage generated per person per day ranges from 0.29 to 2.1 kilogrammes, with an average of 1.1 kg/capita/day.

The most extensive and reliable data is found in Latin America and the Caribbean (e.g., PAHO's Regional Evaluation of Solid Waste Management, 2005).

This region generates 160 million tonnes of trash every year, with per capita values ranging from 0.1 to 14 kg/capita/day, with an average of 1.1 kg/capita/day.

Similar to the high per capita garbage creation rates on African islands, the Caribbean islands have the highest per capita solid waste generation rates.

Solid garbage generation in the Middle East and North Africa totals 63 million tonnes per year.

Waste generation per capita ranges from 0.16 to 5.7 kilogrammes per person per day, with an average of 1.1 kg/capita/day.

Each year, the OECD countries generate 572 million tonnes of solid trash. The daily per capita readings range from 1.1 to 3.7 kg, with an average of 2.2 kg/capita/day.

South Asia generates roughly 70 million tonnes of garbage each year, with per capita values ranging from 0.12 to 5.1 kg per person per day, with an average of 0.45 kg/capita/day.

The labels of high, upper-

middle, lowermiddle, and low income are partly misleading because they are countrywide, and in certain countries, average national affluence might range greatly from average affluence of urban inhabitants. Only the income of city dwellers matters for projecting MSW rates.

Because of their huge relatively poor rural populations, India and especially China have disproportionately high urban garbage generation rates per capita related to total economic status. Some countries in the world are working seriously related to the management of solid waste. Some examples related to solid waste management in the world:

Local solutions to local problems

Two small cities in Africa and Asia demonstrate what can be accomplished with very little from the municipality budget to leverage financial resources if politicians, city administration, and citizens choose solid waste as a priority.

Moshi, Tanzania, puts a strong emphasis on cleanliness, owing to public health concerns. In 1999, a stakeholder platform on solid trash was established, as well as a number of other forums for two-way public communication. The locals are very supportive, and the local Chaga and Pate tribes, regardless of income level, hold hygiene in high regard in their culture. As a result, Moshi has won the official title of the cleanest city in Tanzania for several years in a row.

Ghorahi, a tiny and relatively rural municipality in southwestern Nepal, has demonstrated that a well-managed state-of-

the-art waste processing and disposal facility can be developed if the municipality makes a significant commitment and key stakeholders participate actively. Despite having extremely limited personnel and financial resources, the municipality was able to conduct scientific investigations, find a very desirable site that was well accepted by the public, and create a well-managed facility.

This comprises trash sorting and recycling systems, sanitary landfilling, leachate collection and treatment, and a buffer zone with forests, gardens, and a bee farm to protect the site from the surrounding area.

In a totally different case, Adelaide and its home state of South Australia have concentrated on how to meet a national aim of reducing garbage sent to landfill by half. The Zero Waste South Australia Work of 2004 established the special agency Zero Waste South Australia (ZWSA) to act as a changemaker, accelerator, and financier in order to drive waste management up the hierarchy and to implement the three Rs: reduce, reuse, and recycle.

ZWSA is funded by 50% of regional income from the nationally mandated landfill tax, and it is the driving force behind the formulation of a state waste management policy.

ZWSA collaborates with local governments, business, schools, and families to offer a comprehensive variety of programmes ranging from research and education to investment incentives for municipal, commercial, and industrial waste reduction, reuse, and recycling.

A high degree of political commitment, as well as the resulting institutional structures, financial mechanisms, and organisational capabilities, have been important in exceeding the 50% waste diversion target, with 70 percent sent recovery reported. In each of the scenarios listed above, they are willing to collaborate in order to discover a

solution that works in their own local circumstance. They have concentrated on what they believe is the next best step in developing their local solid waste management system.

In India, Delhi and Bengaluru faced a similar challenge in implementing the national 2000 Solid Waste (Management and Handling) rules, which were the result of public interest litigation brought by an individual citizen to force municipalities to protect India's peri-

urban soil and water, as well as the health of its urban citizens, through sanitary waste management, processing, and disposal practises. The Municipal Corporation of Delhi took the method of contracting out garbage collection and disposal to a big private sector corporation.

However, the city's substantial community of informal sector garbage workers and recyclers has resisted this; our research indicates that there are 170,000 informal sector waste workers in Delhi.

INTEGRATED SUSTAINABLE WASTE MANAGEMENT INTO PRACTICE

The previous section's good practise examples appear to focus on the physical components of integrated sustainable waste management (ISWM), such as collection in Moshi, disposal in Ghorahi, resource recovery in Adelaide, collection and disposal in Delhi, and collection in Bengaluru. However, in each scenario, the answer is critically dependent on the underlying ISWM governance elements. In all of the cases, inclusivity, incorporating both users and service providers, is a major characteristic, as is progress in creating good institutions and effective policies.

Building recycling rates:

During the 1990s and 2000s, a specific focus of the solid waste modernization process in developed countries was to set recycling goals and work toward high recycling rates that achieve them as a means of diverting wastes from landfill and stemming both spiralling costs and difficulties in locating ever larger landfill sites.

Recycling rates in many nations had fallen into the single digits, prompting the development of new systems based on parallel collecting systems for varied source-separated material fractions.

The driving force was not the monetary value of the separated goods, but the possibility that the market for these materials may be considered as another destination or "sink" for a portion of the waste. When the cost of recycling or composting is less than the cost of alternative landfill and waste-

toenergy alternatives, as opposed to when all expenses must be met totally by commodity value, it becomes acceptable. Many prosperous countries have utilised economic and other policy instruments, such as landfill taxes, recycling goals, and enhanced producer responsibility, to shift the scales in favour of recycling.

The application of EU directives in Bulgaria led to the establishment of formal recycling programmes in 2000, which increased from 19% in 2003 to 37% in 2008.

Some cities stand out: Quezon City has 67% valorization and Bamako has 85%, which compares favourably to the finest developed country cities, which have 68% in San Francisco and 70% in Adelaide.

These existing high recycling rates in developing country cities are largely the result of numerous private players - individuals or micro-enterprises, often informal-sector player

sized reuse and management of organics, all of which offer waste collection services or pick waste from streets and dumps, upgrade and trade it. If the city had to deal with this amounts of stuff as waste, their expenditures would increase. These informal recyclers rely completely on the commodity value of the waste, with no contribution from the city in acknowledgement of their role as a "sink" for waste that the city would otherwise have to pay for.

There is a lot of possibility for developing new winwin solutions, such in Quezon City, where itinerant waste buyers acquire source.

Separated wastes from households add 16% to the recycling rate, demonstrating the potential for switching from existing mixed junk recycling to a more 'modern' system of segregated recycling.

A focus on waste reduction:

During the 1990s and 2000s, the focus of the solid waste modernization process in developed countries was on recycling.

This is beginning to shift to a focus on waste minimization, by the three Rs: reduction, organised reuse, and organic waste management, all of which are at the top of the waste hierarchy.

Adelaide and the Zero Waste South Australia organisation, as well as Tompkins County in rural New York, are examples of worldwide best practises. W

ith coordinated reuse being important in both US cities and Rotterdam.

While centralised composting has had mixed results in low- and middle-income nations, the more common destination for kitchen waste (livestock feeding) might get a lot more attention and be optimised and protected. Recent interest in organised home composting in countries such as Sri Lanka and Bulgaria demonstrates the possibility for 'small cycles,' in which nutrients are cycled and loops are closed at the household level.

But, some 40 years after they began their present round of solid waste modernization, the most industrialised countries are not the only ones interested in systematic reuse and trash reduction. Waste amounts are rapidly increasing in many developing country cities, owing to population expansion, inward migration into the city, and rising living standards.

Use of all available sources of finance:

Some of the early landfill sites built with donor money in the 1990s failed because the donors only covered the capital costs and the city couldn't handle the operational costs; hence, despite the investment, the site effectively returned to being an uncontrolled dump.

This is one of the reasons why the World Bank and other international financial institutions (IFIs) were eager to develop CDM financing for methane collection from landfills -

the money is paid retrospectively, providing an annual payment to the city when the gas can be shown to have been collected, which is dependent on the site being managed effectively.

Beyond landfill gas, CDM is now being developed.

. Dhaka has met global criteria for composting carbon credits.

Extended producer responsibility (EPR) has been established in Europe and worldwide as a means of shifting financial obligation for disposing of products at the end of their useful life from municipalities back up the supply chain to retailers and 'producers' who sell them. The system is extremely bureaucratic, but Sousse serves as an example of a developing country that has been effective in channelling financial support from producers to small firms carrying out separate collection.

Costa Rica, in collaboration with the Netherlands, is first in building a stakeholder-driven, consensus-based national EPR system for e-waste management.

Another unique example is the Spirit of Youth NGO's collaboration with Cairo's Zabbaleen community of informal rubbish collectors and recyclers. They discovered that shampoo bottles and similar products sold by multinational corporations were frequently fraudulently refilled and resold on the local market. As a result, they have formed a collaboration with numerous others to construct a recycling school. The lads gather shampoo bottles, bring them to school, cut them so they can't be reused, and then fill out a form indicating how many bottles of each sort they've collected. The multinational producers pay them for each bottle. The form is a good tool to teach reading, writing and numeracy; the boys even learn Microsoft Excel skills. The shampoo bottles are recycled into plastic granulate that is sold to recyclers in the neighbourhood, with the income paying for the salaries of the staff. So, they have formed a partnership with several to build a recycling school. The boys collect the shampoo bottles, bring them to school and cut them so they cannot be reused, and then fill out a form showing how many bottles of each type they have retrieved.

III. CONCLUSION:

The conclusion reached is that a successful solution must take into account all three physical elements of ISWM as well as all three governance features. A trustworthy strategy is

- to be analytical and innovative;
- to start with your city's existing assets and
- expand on them.
- include all stakeholders;
- developing one's own models;
- and 'pick and mix', adopting and adapting methods that will work in your specific situation.

Financial sustainability is most likely still a work in progress in all of the developing-country cities covered for this Global Report. Waste management has significant financing and investment demands, particularly in middle- and small-sized cities and in low-income nations.

In this domain, there is a kind of conceptual standstill. Many consultants and experts generate studies that present strategies, action plans, and investment projects that cities cannot afford, resulting in preparation work that does not materialize into actions on the ground. Or, when it does, the outcome is a landfill site that is awaiting construction or an investment in a processing facility that the city cannot afford to maintain.

National governments fund the majority of solid waste budgets, yet often lack the finances to invest in new infrastructure. This leaves foreign financial companies and private investors, who bring a variety of restrictions and conditions; most, if not all, need 'international' standards on which they are not permitted to compromise and which the recipient cannot afford.

Capacity and knowledge-building remain top priorities for developing inclusive methods, robust institutions, and proactive policies, as well as working toward financial sustainability.

Individual cities and countries, however, cannot fix this problem on their own. A rising international consensus is believed to exist that a sustainable local solution must be acceptable, affordable, and appropriate in the local circumstances.

Early stages will almost certainly include increasing collection to the entire city and eliminating open dumping. However, that is not enough: an ISWM approach is likely to include an emphasis on increasing present recycling rates and taking efforts to prevent waste increase. This is especially significant since every tonne of waste that is reduced, reused, or recycled is a tonne of waste for which the city does not have to pay for transportation or safe disposal.

Suggestions:

A region understands its waste concerns well enough to recognise and describe problems. Take the following crucial steps:

Understanding and capitalising on one's own city's assets - identifying and capitalising on procedures that are currently operating successfully.

Cities spend a substantial proportion of their available recurrent budget on solid waste management, perhaps as much as 20 to 50 per cent for some smaller cities. Clearly, this figure depends critically on what other responsibilities the city has within its budget. The highest figure was from Ghorahi, one of the smaller cities.

Putting integrated sustainable waste management into practice

Consider all the dimensions of integrated sustainable waste management

The few examples given above appear to focus on the physical elements of integrated sustainable waste management (ISWM), such as collection in Moshi, disposal in Ghorahi, resource recovery in Adelaide, collection and disposal in Delhi, and collection in Bengaluru. However, in each case the solution depends critically on the underpinning ISWM governance features. Inclusivity, involving both the users and the service providers, which is a key feature in all the examples.

Building recycling rates:

During the 1990s and 2000s, a key focus of the solid waste modernisation process in industrialised countries was to set recycling objectives and strive toward high recycling rates that achieve them as a means of diverting wastes from landfill and stemming both spiralling costs and the difficulty in locating increasingly larger landfill sites. Recycling had plummeted below single digit percentages in many countries, necessitating the development of new systems based on parallel collecting systems for diverse source-separated material fractions. The commodity value of the separated materials was not the driving reason. Rather, the market for such materials could be viewed as another destination or "sink" for a portion of the waste.

Recycling or composting becomes appealing when the cost is less than that of competing landfill and waste-to-energy options, as opposed to when all costs must be covered purely from commodity value. Many affluent countries have implemented economic and other policy instruments to change the balance in favour of recycling, such as landfill charges, recycling objectives, and expanded producer responsibility.

Redecorating House, Reusing Plastic Bottles in Brazil:

Did you know that it can take up to 1000 years for a plastic bottle to decompose? So, the next time you have an empty bottle, instead of throwing it away, use it to decorate your home. Rosenbaum, a Brazilian design studio, did just that when they began assisting customers in redecorating their homes with plastic bottles.

Giving Rewards To People For Giving Back Their Plastic Wastes in Columbia: Who doesn't enjoy the thrill of winning the lottery? Colombia expanded on this concept and drastically transformed how locals managed their rubbish. They developed a programme in which anyone who recycled their plastic was rewarded. Tonnes of waste are produced in the major cities of Bogotá, Cali, Medellín, and Barranquilla. They were aware that they had a severe garbage problem to address, which is when the government devised the ECOBOT (Reverse Vending Machine) - a recycling effort that encourages individuals to recycle their rubbish. Since 2014, the Colombian company ConceptosPlásticos has been converting plastic into building materials and constructing homes with them.

People Can Trade Trash For Free Health Care as in Indonesia:

Every day, Malang, an Indonesian city, produced more than 55,000 tonnes of rubbish. It was also a city where the majority of residents lacked health insurance. These two concerns may appear unrelated, but Dr. Gamala Albinsaid, a healthcare entrepreneur and CEO of the Indonesian health company, viewed this as a significant societal opportunity. He developed Waste Clinical Insurance, which allowed people to exchange garbage for medical treatments and medications.

This programme tries to combat both poverty and waste in Indonesia, a country where more than 10% of the population lives in poverty. The programme encourages low-income households to recycle their waste in order to finance their health micro-insurance. The clinic takes in the trash from people and sells it to recyclers for recycling. The money collected from recyclers is then spent on giving people basic health insurance.

Showing The World How To Really Take Out The Trash as in Sweden:

Less than 1% of Sweden's domestic garbage is disposed of in landfills; the remainder is recycled in various ways. Today, Sweden's 32 waste treatment plants generate heat for 810,000 Swedish families and energy for around 250,000 private homes. The country has implemented a recycling strategy that directs all energy generated by rubbish burning into the national heating network. This is an efficient technique to heat homes during the cold Swedish winter.

An Amusement Park From Trash as in Uganda's Mantra To Deal With Waste

Ruganzu Bruno, an artist and environmentalist, has developed an amusement park for children living in Kampala's slums. This is no ordinary amusement park, but one made entirely of trash. Bruno collected all of the refuse generated by the residents there before refashioning it into swings and life-size board games with their assistance. The artist's ambition is to build more than 100 identical amusement parks in various districts of Uganda.

Semakau Landfill: Not Just A 'Rubbish Island'

Because that's what it usually is, the name "landfill" conjures up an image of a stinky mass of garbage. Prepare to be astounded by a dump that is a bio-diversity hotspot, home to lush mangroves, magnificent coral reefs, and a bird and marine life capital. Welcome to the Semakau Landfill, Singapore's first offshore landfill and the city-only state's remaining landfill.

Mr Trash Wheel From USA

This trash collector powered by solar and water catches rubbish and debris flowing down the Baltimore River. This miracle machine has cleared 1.1 million pounds of waste from the river in the previous three years. Mr. Trash Wheel's success in Baltimore is enormous. The port is cleaner than it has been in decades, thanks to an environmentally friendly machine operated by both the sun and the powerful river current.

Make Way For BigBelly And SmartBelly Bins From Australia:

Gone are the days when garbage cans were primarily used for storage. The planet is becoming more intelligent! While most people are dealing with increasing garbage and litter, Australia appears to have found the right solution with the Bigbelly Solar compactor bins and SmartBelly bins. These bins are intelligent enough to make extra space for garbage when the container is full and even automatically sort waste at the point of pickup. The SmartBelly bin can also be composted. Each bin has a capacity of 600 litres, which means it can take up to eight times the volume of standard street litter bins or five times the content of a standard 120-litre wheelie bin. The operation of these bins is straightforward. BigBelly uses power from the Sun. As garbage fills up, special sensors placed inside these bins are triggered, resulting in up to five times more garbage storage space. So, how does that help? More garbage space means fewer collection trips, lower costs and fewer emissions.

Germany Is Showing The World How To Deal With The Plastic Menace

Leaf Republic, a German firm, draws inspiration from India, but with a twist. They make plates from of leaves. Yes, you read that correctly! After three years of significant research, the business launched 'Leaf Plates' to address the growing problem of plastic pollution. These plates are totally formed of leaves, and the business claims that no trees were cut down in the process. The plates are only 50 cents each and are completely biodegradable. The unusual creeper leaves were imported from India, and the packaging was inspired by the Asian technique of stitching the leaves into plates.

There are eco-conscious companies in India too who are trying to make such eco-friendly and biodegradable plates but the trend still needs to catch on. The Vending Machines were installed in popular locations like shopping malls, institutions and public spaces, and every time someone deposits a plastic bottle or the caps, they receive restaurant coupons or movie tickets or simply shopping dollars. All the plastic that the vending machine collects is then sent to recycling plants instead of landfills.

Suggestions:

Few suggestions that can contribute in reducing solid waste generation in the world:

Start Segregating Waste:

First, simply get yourself some colour coated bins. Differentiate the bins into following → Organic is Green

- Glass is Yellow
- Paper is White
- Metal is Grey
- Plastic is Blue
- Hazard is Red

5 easy steps to get you started: Separate your kitchen waste daily. Put things like leftover food, fruits and vegetables peels in a separate bin

1. Once done, cover the container with a plastic sheet or a plank of wood, to retain the moisture and heat.
2. Collect dry and organic matter like leaves, sawdust in a separate container
3. Now take an earthen pot or simply a bucket and drill 4 to 5 holes around the container. Remember to add the holes at different levels so as air can be easily passed.
4. The bottom of the pot should be covered with a layer of soil
5. Once you have made the container, start adding food waste. The waste should be added in layers alternating wet waste (food scraps, vegetable, and fruit peels) with dry waste (sawdust, dried leaves).

What you can ditch easily:

Ask your tea vendor to serve your tea in a paper cup the next time you go for a tea break, or bring your own cup. Because they are manufactured of inexpensive chemicals, the plastic cups sold in these little stores are exceedingly hazardous.

Instead of using a straw, sip your drink. Yes to vintage ink pens and no to plastic pens. When it comes to plastic bags, the creation of nine plastic bags requires approximately the same amount of energy as driving a car for one kilometre. Worse, plastic bag usage adds to global climate change.

Ditch Plastics Completely

Plastic is the bigger threat than nuclear weapons as earth cannot digest plastics and it can be fatal. 1 million of birds, and 100,000 whales, sharks, seals, dolphins and turtles die every single year because of plastic pollution. Plastics take around 500 to 1000 years to degrade due to the presence of complex polymers and it can destroy marine life completely.

Go Paperless In Your Kitchen/Home

The manufacturing and usage of paper have a massive negative impact on the environment. Discarded paper is a key component in many landfill sites, accounting for around 35% of the garbage at these sites. Paper napkins have a limited shelf life and eventually end up in garbage cans, clogging landfills even more. The primary goal is to reduce your household's consumption of non-biodegradable materials. Start utilising old garments as rags for cleaning around the house instead of paper towels for the sake of the environment. In your kitchen, you may easily replace paper napkins with hand towels.

REUSE

Reuse is a step up from recycling. Re-purposing your household trash in any manner is a good way to reduce the already loaded garbage dump. Did you know, there are approximately 100 million plastic bottles that are used and discarded every single day? What can you do? Instead of just throwing them after their use, start reusing them all over again. Make yourself a DIY plastic showpiece, or simply use it as a storage box for your accessories. You will be surprised at how many opportunities for reuse there really are, once you actually start looking for options.

Composting – An Effective Step Towards The Green Future

Composting is nature's recycling and one of the most basic methods of waste management. The fact that it can be done at home is fantastic. Composting is the process of digesting common kitchen waste into a rich soil known as compost. Essentially, when you compost your organic or culinary waste, you are returning nutrients to the soil and therefore continuing the life cycle.

Many people are afraid to start composting because they believe it is a time-consuming process. There are concerns about space, odour, pests, and worms, all of which make composting appear considerably harder than it is.

Though it is recommended to begin composting outside, such as on your balcony, terrace, or roof, you can also begin composting in your kitchen if room is limited. It can be begun on a countertop or in the sink. A family of four can reduce their trash from 1000 Kg to less than 100 kg per year by segregating, recycling, and composting.

When you multiply that by our population, you can understand the enormous benefits of composting. Another advantage of composting is that it promotes healthy plant growth in addition to generating healthy soil. It also eliminates the need for fertilisers and chemical fertilisers in your garden. Furthermore, composting aids in trash reduction, diverting waste away from our already overburdened landfills.

If we need to meet the goal of a CLEAN WORLD' then waste management issues should be dealt with sincerity keeping in mind that there is enough for everyone's need in the nature but nature cannot make up to fulfil everyone's greed. A wise step can make the world a better place to live.

References:

- [1]. Ikonomov, L. H. (2007) Training Materials Prepared for the IFC Recycling Linkages Programme, Private Enterprise Programme, South-Eastern Europe, IFC Recycling Linkages Programme, Skopje, Macedonia, and Consulting Centre for Sustainable Development Geopont-Intercom, Varna, Bulgaria.
- [2]. Lardinois, I. and van de Klundert, A. (1994) Informal Resource Recovery: The Pros and Cons, WASTE, Gouda, The Netherlands
- [3]. Dias, S. M. (2000) 'Integrating waste pickers for sustainable recycling". Paper presented to the Manila Meeting of the Collaborative Working Group (CWG) on Planning for Sustainable and Integrated Solid Waste Management, Manila, 2000
- [4]. Chaturvedi, B. (2006) Privatization of solid waste collection and transportation in Delhi: The impact on the informal recycling sector, paper prepared as partial fulfilment of course on Urban Issues in Developing Countries, School for Advanced International Studies, Johns Hopkins University, Washington, DC, December
- [5]. Chaturvedi, B. (2009) A scrap of decency, The New York Times, NYTimes.com, www.nytimes.com/2009/08/05/opinion/05chaturvedi.html
- [6]. Rivas, A. R., Price, J. and Lardinois, I. (1998) Solid Waste Management in Latin America - The Case of Small and Micro-Enterprises and Cooperatives, WASTE, Gouda, The Netherlands
- [7]. Solid Waste Management Association of the Philippines (2009) National Framework Plan for the Informal Waste Sector in Solid Waste Management, Funded by the UNEP International Environment Technology Centre, the Philippines
- [8]. Spaargaren, G. and van Vliet, B. (2000) 'Lifestyles, Consumption and the Environment, Environmental Politics, vol 9, no 1, pp50-77
- [9]. World Bank (undated) Urban Development, Urban Solid Waste Management,
- [10]. <http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/EXTURBANDEVELOPMENT/EXTUSWM/0..menuPK:463847-pagePK:149018-piPK:149093-theSitePK:453811.00.html>