'WASTEAWARE' INDICATORS: AN ASSESSMENT OF THE CURRENT SOLID WASTE MANAGEMENT SYSTEM IN LAHORE, PAKISTAN

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Abstract

The present status of solid waste management reviewed into this article based in Lahore, Pakistan. Following UN-Habitat city profiling with involved systematic quantitative, qualitative assessment, governance features of the present waste management includes in and shows the present system, waste collection, transportation is the main concentration and producing 74,000 tons year-1 of organic compost. Lahore waste management system (LWMC) is low in their target market consulted in decision making (inclusivity) and bad performance (governance features). Formal waste management system having backward of the informal system, which is absolutely inconsistent with current waste management systems. Watchful arranging and organization proposed here to reduce the trouble by integrating informal waste management system into formal waste management system for shared advantages. The integrated sustainable waste management (ISWM) indicators used for different levels of income class and LWMC performance in Lahore. Recommendation builds for the public awareness for recycling and to make the integrating informal sector sustainable system and fill the historical data gap.

Key words

Lahore Waste Management System (LWMC), Municipal Solid Waste (MSW), Union Council (UC)

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INTRODUCTION

Solid waste management can be characterized as the field related with controlling the generation, collection, stockpiling, treatment and transfer of solid waste as per the best general wellbeing standards, economics, aesthetics, engineering and other natural considerations (Tariq, Gill, Ali, & Alamgir, 2017). With fast developing economies, rising populaces, fast urbanization and industrialization with cutting edge advances, specialized and financial advancement and enhanced expectations for everyday comforts all add to a relentless increment in the volume of solid waste municipal items created on the planet. Solid waste gathering by government claimed and worked utilities in Pakistan's urban communities at present records for just half of the measure of waste produced; however, for urban communities to be moderately spotless, no less than 75% of these amounts must be gathered. Lamentably, none of the urban communities in Pakistan has a satisfactory solid waste management system, from the accumulation of solid waste to its transfer. A significant part of the uncollected waste postures genuine general wellbeing dangers because of stopping up of drains, stagnant ponds formation and reproducing reason for mosquitoes, flies and caused dengue, malaria and cholera. Moreover, because of the absence of sufficient disposal sites, a significant part of the waste gathered is found in landfills, open pits; Ponds, rivers and farmland. Quickly developing urban areas in creating nations are making a noteworthy commitment. Like other creating nations, Pakistan is likewise confronting genuine challenges as far as solid waste management. Waste production in Pakistan is relied upon to reach 74 000 tons for every day before the finish of 2017 (JICA & Pak-EPA, 2005). This proceeded with increment without a decent waste management arranges postures huge difficulties to public, protection of environment and sustainable advancement in Pakistan.

Couples of issues are identified with solid waste management (SWM), which have problems in the absence of global MSW data; although data are available, they are in different forms and not match able (Wilson et al., 2012). From the earliest starting point of the historical backdrop of humanity, waste disposal was an issue. The issue has increased throughout the years because of increased waste quantities and more significance of environmental awareness that is mismanaged waste. By the year 2025 estimate that worldwide solid waste generation will be 2.4 to 5.9 billion tons for each year (scheinberg et al., 2010a). In this manner, the complexities of solid waste management systems (SWM) are relied upon to grow advance later on. Fast growing countries specifically, confront more serious waste management issues because of the low accessibility of resources and a phenomenal growth in the measure of waste produced. Notwithstanding the progress of SWM practices over the previous decades, crucial institutional, budgetary, social and nature issues remain. Many growing countries having difficulties of collecting and disposing the waste and for that they spend 3-15% of their budget to operational the collection of waste system (Wilson et al., 2012). The Informal waste collectors from the local streets of the towns having a strong impact instead the formal collectors of LWMC for door to door collection, the informal collector sector having an economic benefit and LWMC having a benefit for to treat the less waste for picking from door to door setup. Informal collectors gather waste from private and business ranges, exchange focuses or capacity holders, dumps, exchange stations, purge plots and landfills. Notwithstanding the valuable way of the work done by the informal waste collectors, its exercises are to a great extent overlooked in most growing countries, which are once in a while supported and some of the time debilitated by governments (Sembiring & Nitivattananon, 2010). With expanding urban movements to "modernized" waste management systems, there is a high probability of errors amongst formal and informal areas in regards to waste ownership. To evade such circumstances, it is essential to make an adjusted system. The motivation behind this article is to ponder and comprehend the part of IFWS in waste management in growing countries and to look at the likelihood of its combination into the formal segment. The examination recognized a common working convention that would profit the informal and formal waste areas, as well as people.

METHODOLOGY

This article follows UN-Habitat methodology of city profiling (Wilson et al., 2012). The concept of sustainable integrated sustainable management has made it possible to calculate quantitative indicators for qualitative components and indicators for governance characteristics. Official LWMC reports and paper on trends in sustainable water management in Lahore by conducting a first desk study to collect data from the last number of years. The objectives of this study were achieved through documentary research, primary and secondary data collection, approximation, framing and experimentation of the proposed framework. Number of interviews conducted with the Lahore Waste Management Organization (LWMC) staff to assess the current scenario. To comprehend the informal waste recycling system in the city, interviews were conducted with waste traders and waste collectors (informal). Through an investigation of the information gathered and data accumulated in a work area examine, an integration framework was developed. Performance checking of Lahore city developed ISWM indicators for Wasteaware in public (Velis et al., 2012). The resulting radar diagram is useful for a quick overview of the current or proposed system. It is useful to determine which areas require further attention in the future and also allows a quick comparison with other existing or proposed systems.

BACKGROUND INFORMATION ON SWM IN LAHORE

Total area of Lahore is 1772 km^2. According to government of Punjab in 2012, the population of Lahore for 2017 is now estimated at 9,245,000. In 1950, the population of Lahore was 836,000. Lahore has increased by 504,000 in the past year, representing a change of 5.80%. These demographic estimates and projections come from the latest revision of the UN's Global Urbanization Outlook. These estimates represent the Lahore urban agglomeration, which generally includes the population of Lahore in addition to adjacent areas of the suburbs. This uprising can be ascribed to the high rate of urbanization in the nation. Lahore was authoritatively partitioned into nine towns, which are isolated into 150 union councils; however it was separated into 274 union councils in December 2016 by the City District Government Lahore (CDGL). The population of one Union council now varies the average population of a union council is 21,000. The population with area income wise of each town out of 9 towns enlisted in Table 1.

As of now, LWMC is having responsibility of SWM in Lahore. The organization started operations in 2011 and is in charge of the collecting, transportation and transfer of waste, and additionally road clearing. LWMC has 58 staff and 10,000 field staff for waste gathering and transfer. The organization covers just 68 UC out of an aggregate of 150 UC in Lahore, UC 150 was separated into 274 UC in December 2016 and the official information of these UC's is not in the appropriate format. In March 2012, LWMC contracted two Turkish privately owned businesses, M/s OzPak and M/s Albayrak to gather and transport waste to disposal destinations. These organizations accept waste management obligations in the city in stages.

Table. 1 Towns of Lahore with population, area, households and waste generation.

Town Names	Population (million)	Area (Km^2)	No. of Households	Income Group	Approximately waste quantity[a] (tonnes day^{-1})
Allama Iqbal Town	1.05	513	106,250	Low	987
Aziz Bhatti Town	0.79	68	107,813	Middle	685
Data Gunj Bakhsh Town (DGB)	1.03	30	125,000	High	902
Gulberg Town	0.81	43	137,500	Low	763
Nishter Town	1.14	494	151,563	Middle	780
Ravi Town	1.65	31	156,250	High	1072
Samnabad Town	1.13	37	156,250	Middle	912
Shalimar Town	0.75	24	159,375	Middle	724
Wahga Town	0.89	442	162,500	Middle	575
Cantonment Area[b]	–	97	–	Middle	–
Grand Total	9.24	1780	1,262,500	–	7400

[a]The quantity of waste generated in each town is calculated based on population and average waste generation rate per capita of 0.65 kg/ capita/day (JICA and Pak-EPA, 2005).
[b]Cantonment areas are residential areas for army officials and are managed by the army. This area is not a responsibility of CDGL.

WASTE GENERATION AND COMPOSITION

According to Jica and Pak-Epa, 2005 is that the Fast increasing population in Lahore throughout the years creates maximum amount of waste and per capita waste generation estimated 0.5 to 0.65 kg per day. LWMC estimated in their reports of 0.65 kg per day to the aggregate sum of 7400 tons day-1 in Lahore but there is no proper tool for measuring the accurate waste producing in the city (LWMC, 2012b). there are 3 sites of waste composting, 1 is official which is recording the actual rate of amount waste coming to the sites and other 2 are unofficial which having no data recording of waste weighed. Waste production amount depend on income of households explain in table 1 and religious or cultural activities. As indicated by LWMC, "municipal solid waste is mostly household waste (household waste) with occasional commercial waste, construction and demolition debris, sanitation waste, and street waste collected by a municipality in a given area". In the study of ISTAC, 2012 the waste composition in Lahore presented in the table 2. According to the table these all waste samples taken from the common containers and sample collected from the structure of socio economics of the city by low to medium and high income populations located in different towns. Commercial, institutional samples collected from the industries and hospitals.

WASTE COLLECTION

Two stages were taken for the waste collection in Lahore, called primary and secondary collection. The primary collection is done by either the informal and formal bodies through door to door waste collection. Different containers sites located in Lahore, waste collection from these drums containers are known as secondary waste collection. The two privately companies under contract with LWMC collect 292 tons of waste in 17 out of 150 UCs, providing door to door waste collection services (Masood & Barlow, 2013). The rest of LWMC covered the areas and did not provide door-to-door services, so that most of the time household waste and small burned stores that pollute the climate. For door-to-door services, informal waste collectors play the role of garbage collection using wheeled plows or donkey carts. They are generally paid at the finish of the time from the households in the form of money or food and cloth for these services. Informal sector working in Lahore transport the waste collected and sorted it to the nearby compartment destinations for auxiliary accumulation by LWMC. Generally speaking, in Lahore, it is assessed that 68% of the waste produced is gathered through informal and formal waste collection systems. LWMC states that, “together with its private accomplice organizations, it gathers 73% of the waste created; nonetheless, we take note of that this figure alludes just to the waste delivered in the urban union chambers (83% of the populace) of the city”. Most areas such as shopping centers, business areas of the central zone are mainly support by political leaders. For that on officials and regular visits of politicians the resources of all the LWMC used directed towards them. The number of employees as garbage collection in the city is not in view of the entire population and the entirety area of Lahore. That's why other cities are still neglected by LWMC services (Masood & Barlow, 2012).

Table 2. Composition of waste by weight in Lahore in the year 2012 (data rounded to one significant figure). (ISTAC, 2012)

Waste Type	Households (%)	Commercial (%)	Institutional (%)	Overall (%)
Biodegradable	69	69	46	65
Combustibles	3.4	2.5	1.4	2.3
E-waste	0.2	0.5	0.2	0.4
Glass	0.6	0.4	1.7	0.9
Hazardous waste	0.7	0.5	14	1.6
Metals	0.2	0.03	0.4	0.2
Other	6.9	3	6.9	5.2
Paper-cardboard	2.6	2	6.4	2.3
Plastics	0.6	0.5	1.4	0.8
Plastics bags	8	14	12	11.6
Tetra pak	1	1	1.9	1
Textile	6.8	6.57	7.7	8.7
Total	100.0	100.0	100.0	100.0

Solid waste gathering by government possessed and worked utilities in Pakistan's urban communities at present records for just half of the measure of waste produced; however, for urban areas to be moderately spotless, no less than 75% of these amounts must be collected. Tragically, none of the urban communities in Pakistan has a sufficient solid waste management system, from the collecting of solid waste to its transfer. The majority of the uncollected waste stances genuine general wellbeing dangers because of stopping up of channels, the making of stagnant small ponds and grounds for breeding the mosquitoes and flies, dengue, Cholera and the malaria fever (JICA and Pak-EPA, 2005). LWMC's awareness campaigns through social media are very poor. As proposed by much waste management specialized, solid waste management arrangements should be adopted to local environment. There are no particular laws for consultation in Pakistan to ensure the people for decision making, awareness in people attitudes in sense of waste producing having a impact not only in form of quantity but automatically waste generated and additionally on its last destination. According to the results of public inquiry the 80% people worry about the environmental waste effects, however just 30% will isolate their waste for reusing. Just 20% of individuals said they knew about waste management arrangements in the city, despite the fact that LWMC frequently claims to advance waste management targets and focuses in the city. There is no such arrangement of state funded instruction and training programs for awareness education campaigns in public and schools or universities. Lahore was officially divided into nine towns, which are partitioned into 150 UC's, yet it was separated into 274 UC's in December 2016 by the City District Government Lahore (CDGL).

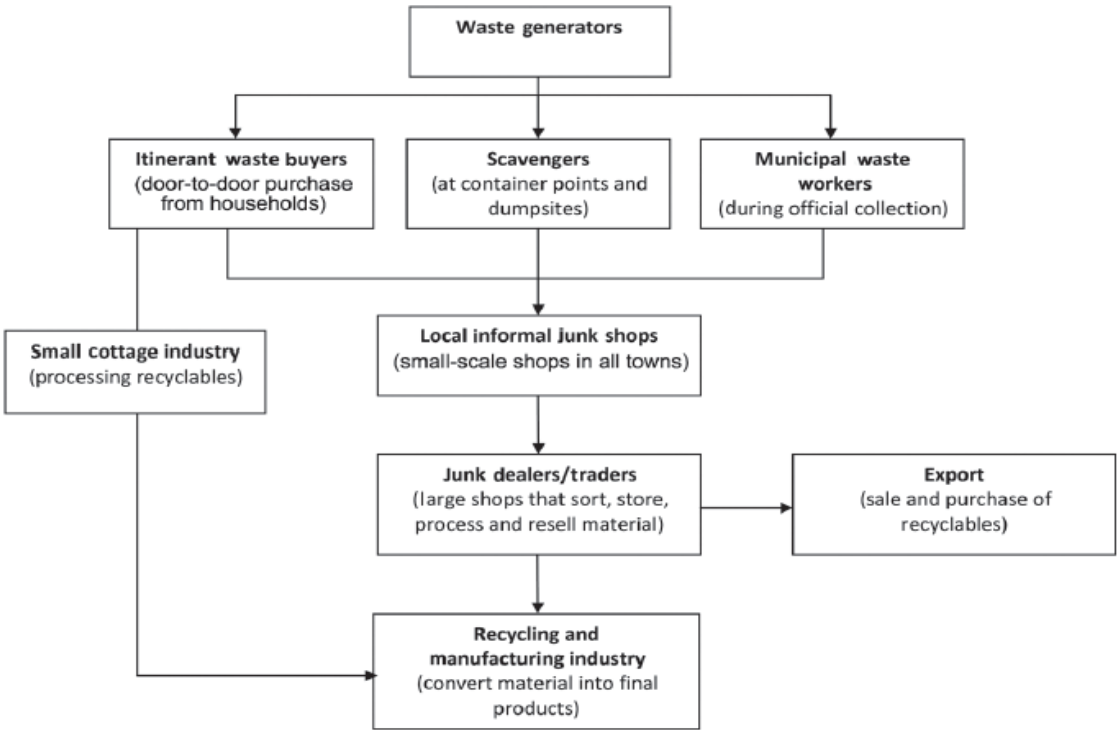

Figure 1. Generic flow of recyclables through an informal recycling system. Source (masood, 2013).

The population of one Union council now varies In 18,000 to 27,000 people according to the 150 UC because the average population of a union council is 21,000. The offices of senior officials are well established, the offices of the zone supervisors are located in the office of the union council in each UC. The poor infrastructure of the LWMC staff in each UC, undecorated, no complaints office, no office number and sometimes office is empty when registering complaints. The company covers only 68 UC out of a total of 150 UC (union council) in Lahore, UC 150 was divided into 274 UC in December 2016 and the official data of these UCs is not in the appropriate format.

WASTEAWARE INDICATOR

The monetary manageability pointer is the rate of the populace that utilizations and pays for waste accumulation managements. The aggregate spending plan of SWM in Lahore was Rs. 2.9 billion for the year 2009 to 2010 and expanded to Rs. 6.0 billion for the year 2011 to 2012 (Aly et al., 2010). Waste collection is an expensive action that incorporates accumulation, transport to compartment locales, transportation to transfer destinations; staff pays rates and other auxiliary expenses. Lahore has high scores on this pointer in light of the fact that the marker is construct exclusively with respect to one measure and does not consider different elements, for example, bookkeeping systems, general spending scope, Use in the general spending plan and moderateness User expenses and access to capital for speculation. LWMC proposes to actualize a solid and manageable income era arrange. The pointer for sound establishments and proactive arrangements is a subjective marker and is evaluated on the accompanying criteria: (i) strategies, (ii) level of city control, (iii) control on waste management spending plan, and (Iv) Responsible for waste management. LWMC with poor execution in Lahore worked in 2011, amid these years the management declared a financial plan every year, except the aggregate spending plan of this organization was spent on the gathering and transport of waste to landfills. However they just cover the 62 out of 150 UC with two private business visionaries OZPak and albyrak. In 2011, Lahore was stood up to with the dengue infection as a test around the world; the legislature is making strides particularly concentrating on enhancing the gathering of waste from the city. From that point forward, LWMC is tidying up all landfills and plots to control the generation of dengue mosquito hatchlings. Be that as it may, zones that are revealed or occasional waste packs are still observed dumped outside the homes, which has expanded the quantity of flies and awful smells. Distinctive destinations, for example, indoor and open air open parks, water seepage channels and exhaust plots have seen waste amid the field think about. A genuine risk of seepage has been blocked, surges have happened because of the unlawful transfer of land and uncollected waste. A high rate of plastic packs (see Table 2) in the Lahore squander stream, every rainstorm issue brought about by the deplete blockage created by these plastic sacks (Wilson et al., 2013b).

Figure 2. The Integrated Sustainable Waste Management (ISWM) framework used by the Wasteaware indicator set. This is a simplified version of the original ISWM concept (Schübeler, 1996; Van de Klundert and Anschütz, 2001; IJgosse et al., 2004)

The pointer for diminishment, reuse and reusing (3R) is quantitative and is computed by reusing rates in the city. In Lahore, a treating the soil plant works as an open private organization extends. The CDGL granted an admission to a privately owned business Lahore Compost (Private) Limited (LCL) for the foundation and operation of the natural substance preparing plant of the MSW touching base at the landfill of Mahmood Booti. The treating the soil plant is situated close to the landfill and utilizations a windrow sort treating the soil technique to deliver 47,230 tons year - 1 of manure of what ought to be sold as 100% natural manure (despite the fact that deals are presently Weak, maybe

on account of poor advertising additionally as a result of the nature of the fertilizer). The venture was set up on a Build-Operate-Transfer reason for a time of 25 years. The pilot period of the venture began in March 2006 to at first process up to 300 tons day 1 of MSW. There is no formal reusing system around the local area, even though waste isolation starts as a rule, a typical pattern in many creating nations (Sembiring and Nitivattananon, 2010). As appeared in Figure 1, formal waste authorities (waste specialists utilized by LWMC) likewise isolate recyclable materials from waste gathered in common holders.

In 2011, three privately owned businesses were employed by LWMC to gather way to entry way waste from six union committees assigned as model ranges. In any case, in spite of a sensibly decent execution of the organizations, their agreements were ended to grant new contracts to Turkish organizations. These choices are demoralizing for nearby privately owned businesses and make an unverifiable business condition for them. In spite of their commitments to the system, IFWS is totally overlooked. This is clear from the way that the city has really acquainted two private business visionaries with the weakness of existing casual specialist coops who give off an impression of being intentionally prohibited. Lahore in this way positions generally inadequately on the marker of comprehensiveness, with a "low" appraisal against the incorporation criteria of clients and providers. Basic leadership in the arranging of SWM is done by CDGL, LWMC, the Environmental Protection Agency (EPA) and different divisions if vital. LWMC has turned into a city organization sensibly capable to deal with the advancement and execution of waste management arranges. Management, arranging and supervisory staff are all around prepared, have clear sets of responsibilities and are prepared all the time.

Table 3. Radar detail Table, Lahore City

No	Category	Indicator	Results
City			Lahore
Country			Pakistan
Background information on the city			
B1	Country income level	World bank income category GNI per capita	Lower-middle $1,140
B2	Population	Total population of the city	9,245,000
B3	Waste generation	MSW generation (tones/year)	1,916,000
Key Waste-related data			
W1	Waste per capita	MSW per capita (kg per year)	
W2	Waste composition		4 key fractions – as % of total waste generated
W2.1	Organic	Organic (food and green wastes)	65%
W2.2	Paper	Paper and card	2%
W2.3	Plastics	Plastics	12%
W2.4	Metals	Metals	0.1%
Physical components			
1.2	Public health- waste collection	Coverage	Medium
		Waste captured by the system	(75%) Medium
1C		Quality of waste collection service	(63 %) Medium / High
2E	Environmental control-waste treatment and disposal	Controlled disposal	(8%) Low
		Degree of environment protection in waste treatment and disposal	(37%) Low / Medium
3	Resource management-reduce, reuse and recycle	Recycling rate	(35%) Medium
3R		Quality of 3Rs- Reduce, reuse, recycle provision	(17%) Low
Governance Factors			
4P	Inclusivity		(37%)
		Provider inclusivity	(50%) Medium
5F	Financial sustainability	Financial sustainability	(54%) Medium
6N	Sound institutions, proactive policies	Adequacy of national SWM system	(29%) Low / Medium
6L		Local institutional coherence	(62%) Medium / High

Key: GNI – Gross National Income; MSW – Municipal solid waste. Source (Wilson, 2015)

Taking a gander at the national picture, enactment and directions on economic management of the seas in Pakistan are lacking, obsolete and non-focused on. Various associations partake in various parts. The part of the central government is normally classified as consultative, the part of the commonplace government is administrative, and

the part of neighborhood government is legitimate in solid waste management and implementation. Areas accept accountability for upholding natural laws, and the assignment is designated to locale, districts and work chambers. At present, there is no institutionalization law for solid waste accumulation and transfer forms. There is a critical requirement for laws and approaches to be focused on the premise of time bound targets. The general subjective score for this marker in Lahore is "normal". LWMC has finish management control and openness to the SWM spending plan to utilize it as per its arrangements; be that as it may, it doesn't work palatably regarding feasible strategies and the usage of existing directions.

The utilization of overhauled ISWM benchmark pointers to survey solid waste in a city of Lahore results in a table 3 containing not just the estimations of the four quantitative markers and the scores/scores allocated to the eight subjective markers. The information used to figure Quantitative markers and how "best performance judgment" was connected to dole out the scores to the criteria used to compute each of the subjective pointers. Along these lines, ranges of good or great execution are effectively recognized and consideration is attracted to the need regions for potential change in the city.

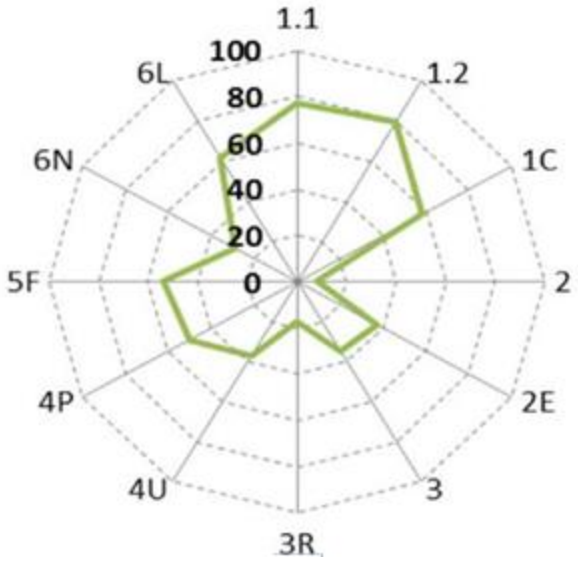

Figure 3. Radar performance view of Lahore (Wilson, 2015)

The utilization of updated ISWM pattern markers are to survey solid waste in a city of Lahore results in a point by radar table containing not just the estimations of the four quantitative markers and the scores appointed to the eight subjective pointers. The information used to ascertain Quantitative markers and how "best performance judgment" was connected to allot the scores to the criteria used to compute each of the subjective pointers. Along these lines, territories of good or great execution are effortlessly distinguished and consideration is attracted to the need ranges for potential change in every city. Taking a gander at the information in Table 3 and Figure 3, Lahore in Pakistan (Massood et al., 2014) concentrated on stretching out gathering scope to more than 70% yet not yet controlled end. Reusing is highlighted as a noteworthy need for further change: it is fascinating to note that the most astounding reusing rates are evaluated for Lahore and the reusing system and their 3R quality pointers are altogether different; Massood and Barlow (2012) exhibited proposition that would address this issue in Lahore, with respect to the joining of the casual reusing segment. Execution against management markers is fairly blended, with no reasonable pattern towards expanding earnings; a specific need is by all accounts to enhance the national arrangement system (Indicator 6N). By and large, the markers propose that further change of the physical segments will probably require a parallel concentrate on a portion of the important parts of management.

DISCUSSION

Summary of current situation

The study took Lahore's assessment purely on the basis of specific indicators which are shown in table 3 in a summarized form. Despite centralization of Lahore waste Management Company concerning the waste collection and its transportation yet 100% accomplishment in terms of collection rates is not attained. Integration of private business regarding collection and waste transportation might increase collection rates but it seems too early to evaluate its execution. The disposal sites are landfills while its methods are not as per requirement. Almost around 27% of recyclable wastes are informally recycled. Although a handsome amount of budget is allocated for the waste

management yet the city is still observing issued related to illegal dumping. The performance indicators concerning the governance are not up to the mark while a combination of all i: e formal, informal, public and private waste managers in decision making are a must. Primary purposes of Wasteaware in public through ISWM benchmark often result in public engagements. A score of 68% indicates the sustainability in terms of finance but the amount collected denotes a smaller portion out of total budget for the management of waste. Moreover due to the involvement of private sector, since it's regarded often as too efficient, on the contrary the cost of managing the garbage or waste has risen largely while a decline in its services is noted. The reason for this unexpected pattern is due to the fact that too much expense has been incurred for the new vehicles which after 7 years will be LWMC's property. Municipal Corporation needs to address the issues of financial, technical nature to achieve its sustainability. The current Policies and legislation need to be reviewed and updated so that the same can be implemented in order to excel within the waste management's domain. SWM system in Lahore was found to be waste disposal and resource recovery. It must be effective and long term plan like municipalities in America. Such type of effective system has also been established in New Delhi with minimized cost. The findings of the study of the waste management of Lahore are, Management of landfills by covering and adopting recognized procedures (Rushbrook and pugh, 1999). In long run, new landfill should be developed for effective leaching and gas control. Ensure financial sustainability of the system.

Currently, the plant in Lahore processes only 650 tons per day. There is need to increase the capacity of plant and creation of strong market for compost sales. However, the composting plant receives mixed waste. Collection of source separated organic waste which improves the quality of the compost. Recycling also helped in waste management of the city. The city's budget (2011-2012) was Rs. 6 billion for the collection and disposal, while informal recycling saves around 1.5 billion per year. So informal recycling is required from authorities. Public awareness of waste management is indispensable in Lahore by involving them in redesigning of services and informing them the benefits of new system. Union council should organize public meetings in this respect. Education of women is also necessary with respect to household waste. Lack of goal oriented policies and adequate planning does not work in the long run. The current government is giving attention in improving waste management and spending more than the available budget. If next government do not allocate budget of this magnitude, it will not work. So it should be dependent on informal sector for long term implementation of this system.

CONCLUSION

The Wasteaware designed indicators applied in the Lahore city for checking the performance as 6N shows the Lahore waste management system has considerable amount of flaw and weakness in its operating system. Also Wasteaware will help to address the missing data of SWM in city. Like many developing countries, public health remains the main driver of waste management in Lahore (Wilson, 2007). Though Lahore city has been consistently trying to improve the SWM yet the results are not up to the mark or its effects are not far reaching. Money focus is on the collection of waste and its transport but the results are not impressive. Our study states that only 30% of the total waste is being managed. Flaws and too much poor planning coupled with the weak infrastructure to dispose of waste have results in bad management of waste generated. The same can be improved by supplying well controlled waste from commercial sectors which operate in a cost effective manner along with well devised marketing of the product to make use of higher benefits. The private sector plays an important role in waste management. Huge budgetary allocations along with user fee surely stimulate the raising of eyebrows regarding the sustainability. It can be established that due to weak planning along with its development the rules and regulation are also not being implemented properly.

However, the original UN-Habitat framework used has a flaw particularly in quantitative indicators. It is difficult to support a single number while ignoring others when it comes to the developing countries where data availability is usually too much of a limitation. For example, the waste collection coverage indicator is based on the number of households that receive a waste collection service but is ignorant to the service quality. To add flavor to the menu, the frequency of service which usually differs city to city is also not mentioned. Only 68% of Lahore receives waste collection service. Furthermore, indicator of financial viability is based on the fact that the service users pays for it and represent one data point while composite meeting indicator meeting a set of criteria is more acceptable to asses. Lack of information prevails in terms of social cultural aspect of waste management within local parameters. Work is underway to address these comments and further improve the ISWM benchmarks (Wilson and Cowing, 2013; Wilson et al., 2013a). Overall it can be deduced from the study that the lack of planning along with both, public and political, wills are major barriers of GDs improvement. Future operating cost of the system is subject a reduction if recycling rates are increased and engagement of informal sector. Thus, a giant leap towards the improvements the engagement of all stakeholders. Future developments should address the areas of composting, recycling and landfill.

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