

Analysis of Waste Management in Zahedan City and Assessment of the Municipality's Performance (Case Region: Zahedan)

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Received: February 22, 2017

Accepted: April 26, 2017

ABSTRACT

In status quo of our globe, an exponential growth in urban population has been occurred which not only leads a substantial proliferation in municipal solid waste production, but it adversely impacts on both the environment as well as human's life. Consequently, it seems vital to carry out adequate deal of research so as to pave the way for desirable planning. What this study is aiming for is to inspect municipal solid waste of Zahedan. First, via statistical data about urban solid waste, the tasks of planning for decreasing the consumption have been performed. Among phenomena assessed, food waste accounted for the most consumption and wood waste stood at the least consumption. So, via data obtained some approaches have been suggested, ranging from source reduction and waste separation to benefitting from using modern facilities for solid waste conveyance. In the research carried out, urban waste services of Zahedan province have been assessed via the statistical data obtained. In order to make a desirable estimation, the Importance-Performance Analysis (IPA) has been applied, upon which a survey was conducted in the region considered. The result points to the unsatisfactory performance of the Zahedan municipality either in collecting urban solid waste or in making people aware of its significance when they encounter urban waste. Furthermore, the performance should be amended, in order to make people aware of hazardous impact that some waste might have on both human health and the environment. As a consequent, the municipality is supposed to provide either modern facilities or adequate related-educations for resident's welfare in this respect, so as to minimize and manage the detrimental effect of the waste on both humans and the environment.

KEYWORDS: indiscriminate use, municipal solid waste, waste separation, Importance-Performance Analysis (IPA).

INTRODUCTION

Nowadays, tendency toward urban life has considerably been gone up, so more or less cities are going to be enlarged [11]. In addition, when 21st century initiated, around 2% of earth capacity was allocated to the cities which encompassed half of the population of the globe. Undergoing 55 million individuals rise per year, world population is being directed to urban life and it's anticipated that urban population will account for 75% of the total population in the world, by 2020. The increasing urbanization; change in how people live and their consumption pattern caused a considerable proliferation in municipal solid waste production. So, in 2025 the amount of urban waste is expected to be 4 or 5 times as much as it is now, which the most of this augmentation is related to developing countries [22]. In conclusion, this ever-increasing population growth, the waste production, the hassles stemmed from the scarcity of irreversible resources and contamination of natural resources make policy-makers persuaded to regard the municipal solid waste management as their prime priority [16]. So, after proliferation in population growth and change in the way they live, solid waste management has been converted to a significant matter [17]. Urbanization and municipal population growth lead solid waste production to increase [12;11 and 10], consequently, ever-increasing cost of urban solid waste collection, scarcity of fields for landfill and importance of ecological damages have conferred a great deal of significance on urban solid waste management [11]. In Iran around 40000 tons waste is produced every day. Regardless of its recycling potential (90%), the urban waste is mainly (50 %) buried [8]. urban solid waste management is a serious challenge in developing countries [23]. Conserving the environment and natural resources have been converted to the one the most significant challenges that human beings have been encountered in early 21st century [19]. Environmental crisis threatens all creatures existing in our planet [4]. A great deal of waste has

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been accumulated in the environment due to considerable population growth, the change in life patterns and industrialization [26]. The environment as an unlimited phenomenon should be preserved not only for present-day generations, but also for prospective life [2]. Also, there are some contributions to economical and social crisis in various societies, encompassing rapid population growth, development of both industries and technology, promotion of consumerism culture and producing more solid waste [19]. According to waste management legislation that was approved in 2005 (Iran), waste is defined as any substance in the form of solid, liquid and gas (except wastewater) that seems useless from producers' point of view. It, also, is fallen into five categories, involving ordinary waste (domestic waste, Construction Debris rooting in human daily activities), medical waste (detrimental and infectious waste of hospitals, sanitation organs, medical laboratories and similar organs), special waste (the waste that requires particular conservation due to its acute hazardous properties), agriculture waste (the waste stemming from agricultural activities and production) and industrial waste (the waste that is from various industrial activities, including mining, gas refineries, Petroleum and petrochemical refineries, power plants and similar organs). In accordance with the environment organization of United state, urban solid waste is defined as the waste stems from residential and commercial resources plus governmental and educational organizations as well as other similar organs [13]. From what has been regarded as the waste definitions above, solid waste management is intertwined with a coherent and systematic set of rules pertaining to production control, save, collection, haulage, recycling and solid waste disposal. These phenomena, also, entail the best public sanitation principals, economy, conservation of aesthetic resources, the environmental essentials and anything that is considered by public thoughts [29]. Avoidance, reduction, recycling and preventative strategies are the prime priorities, whereas purification and disposing at waste collection centers are Control strategies and regarded as the last priority [1].

There are three substantial necessities in waste management which are supposed to be fulfilled based upon desirable prioritization. These essentials, accordingly, are as follows:

1- Endeavor for waste reduction, 2- Attempt for the maximum waste recycling, 3- Rational disposing which is integrated with the environment [30].

A study that was carried out by Mesghraph and et al, consciousness, performance and mindset of people with regard to municipal solid waste management in Kermanshah were put into assessment [18]. Furthermore, in the same year, Mehdinezhad and Omrani, in Gorgan city, inspected a scheme that incorporates collection, waste transportation and landfill, whereby some solutions for sanitary landfill in this town was offered [19].

By 2010, Sayahzadeh and Samadi [27], conducted a study "Qualitative and quantitative analysis of urban waste in Malayer". Sadeghi, et al, in 2009, carried out another enquiry "urban waste analysis in Iran". Either of the enquires mentioned analyzed the far-reaching phenomena in urban solid waste production. Yaghoubi, et al in 2011 [31], in their research "presentation of an analytical model with the intention of optimizing urban solid waste collection", take GIS phenomenon into account for the purpose of urban solid waste collection. Over 2011, zareeimahmoudabadi, et al [32], in their enquiry "Estimation of recycling potential and municipal waste management in Ardakan" as well as Dehghani, et al by 2010 [6], in their study "Qualitative and quantitative assessment of urban solid waste recycling potential in Tehran", both of the enquiry mentioned inspected process and recycling phenomena.

Teymour, Amar ,2015 [3], "analysis of environmental challenges in rural area with emphasizing on solid waste (case study of Anzali , Rsht and Roudbar)". Results of this research shed light on the median yearly waste production that was amounted to 111 tons, in which 62% accounted for waste collection and the rest of that was directed to incineration, burial and release.

Zahra sheykhi, 2014, [28], "Rural waste management of Boushehr countryside". Field study, eyewitnesses and questionnaires illustrated that influential phenomena in waste management system was summarized in collection and burial of waste. Whether in commercial domain or domestic, average waste production rate stood at 713 gram per capita in Boushehr province.

Hadi Zreei Mahmoudabadi, 2011, [32], "Inspection of recycling potential as well as waste management in Ardakan". What has been concluded from this enquiry, points to the fact that 35.3 tons waste was produced in each day which comprised organic waste (58.53%), paper and cardboard (8.9%), glass (3.8%), metal (6.3%), plastic (10.47%) and the rest of it was PAT (Poly Ethylene Terephthalate).

MATERIALS AND METHOD

Introduction of region assessed

Figure 1 represents Political frontier of the region studied. According to Figeure 1, Zahedan city with an area of 31250 square kilometers accounted for 17% of the Sistan-Bluchestan province. In terms of geographical coordinates, Zahedan is located in 60 degrees and 51 minutes and 25 seconds East longitude and 29 degrees and 30 minutes and 45 seconds north altitude. Zahedan, also, is located in south of Hamoun city and

the Lut desert, west of the Pakistan, east of the Kerman city and north of the Khash city. Population of Zahedan equaled to 567449 individuals over 2007, while 5 years later (in the 2012s) it came to 660575 people. The majority of people who live in this town are Aryan and talk in farsi, blouchi, sistani, kermani, yazdi and khorasani. The distance between Zahedan and Tehran (capital of Iran) is 1494 km and it's 1385 m above sea level. The weather is hot and dry in Zahedan and in summer it is so hot during the days, whilst at night the temperature considerably tails off. The 120 days winds of Sistan-baluchestan province indirectly impact on decreasing temperature in Zahedan. Rarely, people in this city bear witness to snowing. In terms of geographical location, Zahedan benefits from international traffic route, whereby Pakistan, Hindustan, Khorasan and Kerman are connected. It's worth implying to the mountains that exist in this city, including Ashtaran with 3012 m height, Anjirdan with 2255 m and Pirkhan with 2221 m. The water required is supplied by Aqueducts, springs and rivers. The most significant commodities are wheat, barley, crops, hay, corn, forage, vegetables and melons [2].

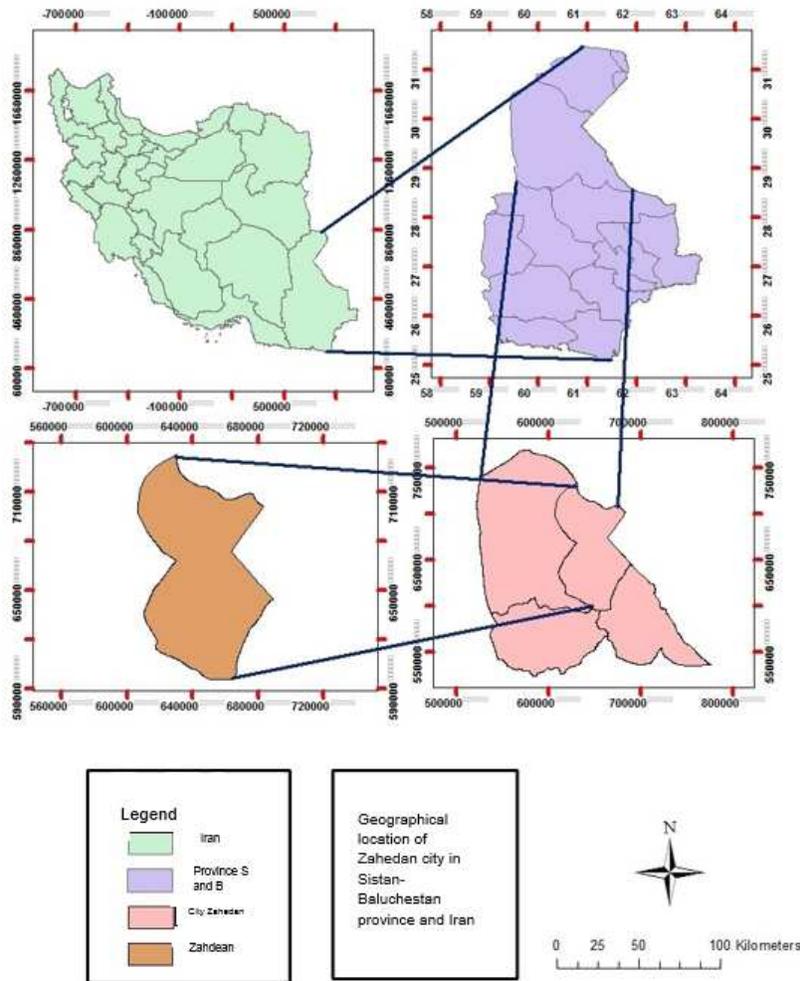


Figure 1. Political frontier of the region studied

Research Methodology

The present enquiry is a pragmatic Research that has been carried out based upon descriptive-analytical approach. First, statistical information of Zahedan urban waste involving waste production per capita, method of collecting and disposing, was taken into consideration. Then, as far as urban waste condition is concerned the performance of municipality was analyzed (via questionnaires that its prestige was confirmed by specialists). The questionnaires were answered by local residents and were assessed according to the Importance-Performance Analysis (IPA).

The Importance-Performance Analysis (IPA)

The IPA model was applied by Martilla and James in 1977 for the first time, whereby customers' view associated with outstanding features of commodities in car marketing was analyzed. Since then, this model has been applied in Banking, sanitation services, retirement and educational services. Moreover, a wide variety of researchers have benefited from this model in diverse parts of Tourism industry. In IPA, first, a couple of phenomena with product/service properties are chosen via inspection of history or qualitative research such as reference groups and interview. Then, respondents are supposed to answer to two questions. How significant the features involved in the questionnaire are from their perspective? How was the presenter's performance of product/service in features involved?. With these questions, IPA provides an opportunity for simultaneous comparison between importance of product/service features as well as their performance. The data required for IPA is figured out from the questionnaires, then median importance and median performance coordination of each phenomenon are calculated. Finally, these medians will be utilized for drawing each specific feature of two-dimensional matrix (Importance-Performance matrix).

In IPA, each phenomenon is measured based upon two dimensions, importance and performance. Measurement of indicators can be performed via questionnaires with scale of five, seven or nine degrees. Thus, experts are asked for responding to two questions: How important the key factor is and how is the level of country performance in the considered index. The data regarding the level of importance and performance index is portrayed on a two dimensional channel, in which Y illustrates dimension of importance and X represents dimension of performance. This two dimensional channel is dubbed IP matrix. In fact, what this matrix does, is to back up the decision process via four quarters, each of which has a particular strategy [figure 2]. This matrix, also, is used for recognition of priority index with the intent of amendment [15].

Second quarter An area for amendment	First quarter Keep the job decent
Fourth quarter Low priority	Third quarter Tolerance condition for finishing the activity

Figure 2. Structure of importance-performance matrix

In order to draw IP matrix, each of axes is divided to two equal parts. For doing so, the Intersection point is used [21]. The Intersection point is the junction of lines which divide the IP matrix into 4 parts. These lines named quadric lines, with which reticulation of IP matrix can be shaped. In order to determine coordination of quadric lines intersection, two approaches can be applied. First, scale-oriented approach in which intersection point is located at the center of scale. For instance, as long as the 5 degrees of Likert scale is used, the intersection point will be 3. Second, data-oriented approach in which intersection point is located at the center of data. So as to determine intersection point, the average would be taken into [24]. As far as specifying coordination of each index and its display in IP matrix are concerned, average of the performance and importance level of each index are utilized in IPA model. Therefore, by pairing these two sets of values, each of indexes will be located at quarters of IP matrix [7]. First quarter (Q1) indicates that the indexes that are located in this area require an immediate modification, so they should be given high priority. The indexes of second quarter possess a virtually desirable situation and this should be carried on. In third quarter (Q3), either importance or performance are low, thus these indexes don't threaten performance of the system and there is not any necessity for immediate modification. Finally, the indexes of fourth quarter (Q4), also, are indicator of unimportant strength-points, so the endeavor is likely to be focused on other parts rather than [7]. In IPA model, so as to specify Inconsistencies, the average of performance values of each index will be subtracted from the average of its importance values [5]. So, the importance values for each index as well as the difference between their importance and performance will be determined. As a matter of fact, the difference between performance average and importance average should be equaled to zero, otherwise a corrective measure should be imposed, particularly, the indexes subtractions would be negative [10]. In order to analyze data more and more, some researchers applied T test, with which the averages of each index was assessed, in terms of importance, performance and considerable differences between them [5]. In conclusion, in IPA model the differences between median importance as well as median performance are taken into consideration. However, in order to make the final decision for modification of each phenomena and their priority, it's indispensable to specify the quarters they are located.

Research findings

The urban waste information is illustrated in the following tables.

Table 1 assesses municipal waste quantity and quality, geographical situation of Landfills and approaches adopted for collecting and disposing.

In general: 550 gram/day – in some special districts:750-450 gram/day		Waste production per capita
90	The number of waste carrier trucks and Pickups	municipal waste quantity
250-300	Daily waste production (Ton)	
Food waste 69.2% , plastic and Pat 8.6%, paper and Carton 6.1%, glass 2.4%, fabric 2.9%, metals 4.7%, wood 0.7 % and others 5.4%		municipal waste quality
Length: 61° 00' 9/6" Width: 29° 23' 25/1"		geographical situation of Landfills (GPS)
House to house Collection, 3 days per week.		Collection approach
Waste recycling is Incompletely performed in compost company and waste disposing, also, is incompletely performed based upon steep method.		Waste disposal method

Table 1. Summary of municipal waste management situation of Zahedan city

According to what has been presented in table 1, the related analyses have been performed and the research findings are as follow:

Source separation

First stage for waste recycling is to separate them based upon their type and essence. Consequently, not only isn't national wealth wasted, but public sanitation also is enhanced. In particular, domestic waste can separately be collected and without any perishable waste foods, it can be transported to pulp, plastic and nylon companies. The commodities stemming from these materials are much more likely to be sanitary and quality. Consequently, in order to pave the way for desirable source separation in Zahedan city, which now is inadequate, families are supposed to be pushed for thinking about amending the circumstance of this fabulous town.

Collection methods

Waste collection, in Zahedan, is performed by trucks and pickups which they should be superseded by modern and mechanized facilities, whereby not only will the municipality workers be more immune, but the process of waste transportation will be implemented far more efficiently.

Collection

In Zahedan, urban waste collects three days per week, which doesn't indicate a satisfactory performance in this scope.

Recycling

As far as solid waste management system is concerned, recycling can be regarded as either an accountable phenomenon, or an independent one. Generally speaking, in an efficient and prosperous system recycling should preferably be carried out from the outset until the end of the process. In Zahedan, recycling is usually remained incomplete and just a little amount of waste is composted. In order to address these issues, first it's imperative to separate waste as much as efficient, then after waste accumulation, the optimized recycling method should be adopted. However, due to lack of desirable facilities as well as adequate budget, the majority of waste is buried in out of the town based upon steep method. So, the environment in these districts has been severely polluted and perhaps in near future, we would even bear witness to terrible disaster in these districts.

Waste production per capita

In Iran, 50000 Tons solid waste is produced in each day (800 grams per capita). In comparison to other countries (292 kg per capita for each year), it has a normal condition. Also, 43% of waste is both compostable as well as organic and its humidity is over 40% which in developed countries these amounts is much lesser. The waste in Iran, also, encompasses 22% paper, 11% plastic, 2% glass, 9% metal and 13% other materials. Population growth and industrial development lead a proliferation in solid waste and chemical-physical changes; therefore the present-day plans for collecting and burial cannot meet the requirements in this domain. In Zahedan, each person produces 750-450 grams waste per day that in some parts it's even beyond the realms of national average, exacerbating the situation exists. The trend should be toward tailing off the amount of perishable and unrecyclable materials, so as to decrease not only the waste, but deal of pollution.

In figure 3, the amount of organic and inorganic materials in the urban waste of Zahedan have been demonstrated, upon which the organic matter is two times as much as inorganic. This indicates that there is substantial humidity in the waste that can considerably be declined via waste separation.

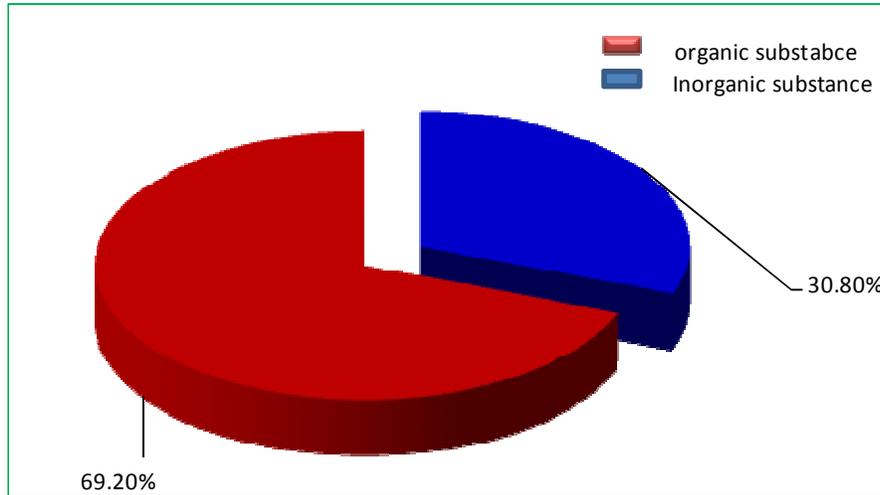


Figure 3. Organic and inorganic constituents in urban waste of Zahedan

Figure 4 demonstrates the distribution of various type of waste in Zahedan city, upon which it can be seen that wood waste accounted to the lowest percentage among all. On the other hand, food waste was the predominant constituent and with population growth in this region it will increase day to day. So, the desirable measures for addressing this issue are source separation as well as composting.

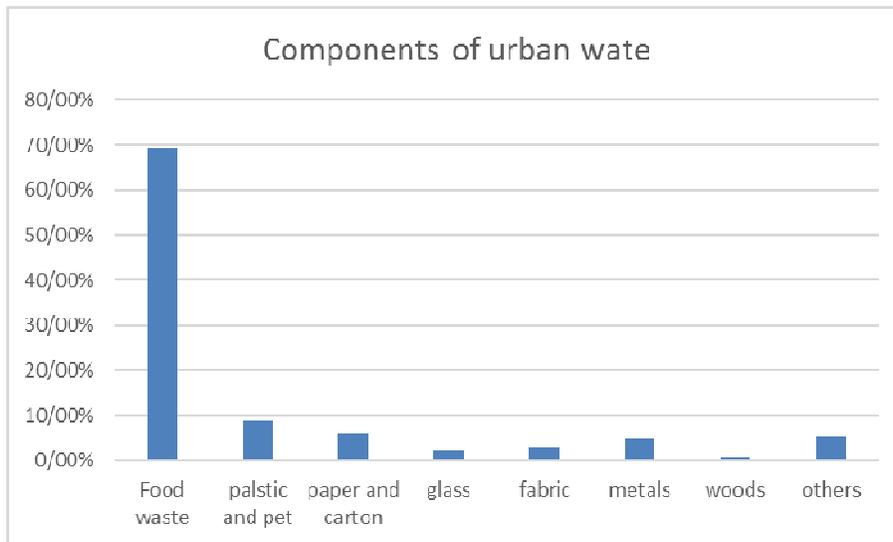


Figure 4. Components of urban waste in Zahedan city

In next stage, municipality's performance in this town has been discussed (based upon IPA approach). In order to inspect municipality's performance, some questionnaires have been utilized. Also, Cochran formula has been applied for the purpose of integrating responses and features into the Statistical Society. In this enquiry, the population was 660575 individuals which according to Cochran formula (the following equation), number of samples were equaled to 384. Finally, with the intention of minimizing relative error, the number of samples was increased to 400 with random sampling.

n: volume of sample obtained

N: total volume of the Statistical Society in the region assessed
 Z: standard error of acceptable safety factor (percentage)
 Q: proportion of the Statistical Society lacking a certain feature
 d: desirable degree of certainty
 p: proportion of the Statistical Society lacking a certain feature (for instance, the men population)
 q= (1-p): proportion of the Statistical Society lacking a certain feature(for instance, the women population)

$$n = \frac{\frac{z^2 pq}{d^2}}{1 + \frac{1}{N} (\frac{z^2 pq}{d^2} - 1)} = 384$$

In order to analyze the questionnaires, Descriptive and inferential approaches were adapted, in which descriptive part was assessed based upon individuals information (table 2) and inferential part was estimated with IPA model.

Descriptive analysis

In this part, first, some personal Specifications were assessed, including gender, age, the level of education, pecuniary status and type of occupation.

Gender

Table 2 illustrates the distribution of gender in region studied, upon which 54% of the local residents who participated in the test were male (27 people) and 46% of them were female (23 people).

Male	female	gender
27	23	Number of individuals
54%	46%	Percentage

Table 2. Distribution of gender in the survey

Level of education

Table 3 indicates the level of education participants have. As can be seen in this table, 10% of people had Ph.D degree (doctor of philosophy), 20% had Master Degree, 24% had Bachelor Degree, 16% had Associate Degree, 6% had diploma and the rest of the people had lower degrees (4%).

Ph.D	Master Degree	Bachelor Degree	Associate Degree	diploma	lower diploma	than	The level of education
5	10	22	8	3	2		Number of individuals
10%	20%	44%	16%	6%	4%		percentage

Table 3. Distribution of local based on level of education

Occupation

Table 4 draws an analogy between participants' career, upon which 16% of individuals were housekeeper, 54% had their individual business and 30% were employee of the government.

employee of the government	individual business	housekeeper	Type of occupation
15	27	8	Number of people
30%	54%	16%	percentage

Table 4, distribution of local people in terms of occupation

Age

Table 5 makes a comparison between the ages of participants in the survey. Accordingly, 22% of the people assessed were younger than 30 years old, 42% were between 31 and 40 years old, 24% were between 41 and 50 years old and the rest of them were elder than 50 years.

Elder than 50	40-50	30-40	20-30	Age (year)
6	12	21	11	Number of people
12%	24%	42%	22%	percentage

Table 5. Distribution of the people according to age

Level of income

Table 6 puts the amount of participants' income into inspection. In accordance with figures shown in this table, the monthly salary of various individuals were as follows: 5% of the people earned lesser than 500000 Tomans (Iranian unit of sum), 5% earned between 500000 and 1000000 Tomans ,56% earned between 1000000 and 15000000 Tomans, 22% earned between 1500000 and 2000000 Tomans and the rest of the people earned more than 2000000 Tomans.

for more than 2000000 Tomans	1500000 - 2000000 Tomans	1000000 - 15000000 Tomans	500000 - 1000000 Tomans	lesser than 500000 Tomans	The deal of income
6	11	28	5	5	Number of people
12%	22%	56%	5%	5%	percentage

Table 6. distribution of local residents, based upon deal of income

Inferential analysis

In this stage, performance of municipality has been assessed based upon the questionnaires as well as IPA model. So, guide of IP matrix was provided, in which each of phenomenon was coded with the intention of facilitating finding the situation of phenomena. After coding, median importance and median performance of each phenomenon, according to data collected were calculated. Then, in accordance with P-I formula median performance of each phenomenon was subtracted from its median importance, in order to specify the difference between the level of performance and importance. In conclusion, it would be acceptable, as long as the subtraction is zero or positive. Then, once the questions were answered, they were assessed via IP matrix which involved 2 view points: first, in order to draw IP matrix, intersection points should be figured out by average of performance and importance, it means that both X axis, which is associated with level of performance, and Y axis, which is for level of importance, should be fallen into two parts. Second, in this enquiry for determination of intersection point, scale-oriented approach was adopted and in questionnaires design, 5 degree of Likert scale was utilized with the intent of measuring the phenomena, so the scale center was equaled to 3. In this research average distribution range of performance was between 2.2 and 3.8. Average distribution range of importance was between 2.6 and 4.8. Finally, unnecessary parts of the IP matrix were eliminated.

In table 7 and 8, guide of IP matrix has been demonstrated, whereby performance of municipality in Zahedan city was inspected.

Strategy	Performance	Importance	Questions	Code
C	2.9	4.8	Is urban waste desirably collected during each week?	1
C	2.5	4.6	Are there adequate trash bins in streets and alleys?	2
C	2.4	3.5	Has the municipality offered a decent plan for the purpose of decreasing waste production?	3
C	2.6	4.1	Has the municipality incentivized the people for collecting and separating waste?	4
C	2.8	3.9	Is there any trash bin for hazardous waste?	5
L	2.2	2.6	Has the municipality held the waste management teaching sessions?	6
C	2.6	3.5	Has the municipality made people aware of source separation of urban waste?	7
C	2.8	3.5	Has the municipality considered any plan for citizens cooperation with waste collection?	8
K	3.5	4.1	have the municipality workers taken the environmental affairs into account (the minimum time for waste conveyance and use of modern facilities)?	9
K	3.6	3.2	Are people aware of dangerous waste which is detrimental for humans?	10
k	3.8	4.2	Has a desirable place been considered for urban waste?	11
C	2.9	3.2	Have the municipality eliminated urban waste via eco-friendly approaches?	12

Table 7. Guide of IP matrix

Importance 3 Max 4.8 Min 2.6	C 1-2-3-4-5-7-9-13		K 4-10-11-12	
	L 6		P -	
	3.8	Min	3	2.4 Max
			Performance	

Table 8. Guide of IP matrix of the municipality performance in urban waste management

Conclusion

In order to address the environmental issues, it's indispensable to benefit from an integrated management in urban waste collection. Sanitation of a city is based upon its Cleanliness, so collecting and disposing are the prime candidates for living up this aspiration. This aim will not be fulfilled, unless there would be a proper waste management system, encompassing waste reduction elements, proper collection, and conveyance of waste via modern facilities, proper process, advanced recycling with sustainable development and disposal of waste from the outset until the end of process. So, Executing measures mentioned entails an accurate planning and designing. Regarding various type of urban waste, food waste is the majority of waste content, so it's imperative to consider some pragmatic solutions in this respect such as source reduction. Consequently, implanting culture of waste separation throughout the society of Zahedan via educational sessions is essential in accordance with article 6 of the waste management law. These measures are of a massive significance in Zahehan, where there is a bio-compost company and all of the waste, first, transfers to a bio-compost company and after processing, it transfers to landfills. Undoubtedly, quality of bio-compost roots in methods, in which urban waste recycling is performed at the start of waste production. Unfortunately, the quality of compost in Zahdean city is quite low, due to the fact that there is a great deal of splinter, metals and some extra materials like that. Thus, consumption of compost in this town hasn't achieved and either environmental advantageous or economic benefits in this domain have still remained unobtainable. Also, when it comes to the urban waste collection, the municipality's performance hasn't been satisfactory. The municipality, accordingly, collects waste three days a week, while it's required to be done each day, because the residents would be more unlikely to exposure to contamination of the waste.

In the following discussion, the municipality's performance pertains to waste collection has summarily been taken into consideration. For doing so, local residents were asked to respond to 12 questions. After assessing the responses, it was concluded that municipality's performance was unsatisfactory. The unsatisfactory items, Accordingly, can be lain in the following elements: number of trash bins in the city, planning for waste collection, number of trash bins that are considered for waste separation, source separation during collecting, awareness of people in the domain of waste separation, benefitting from modern facilities for waste collection, economical incentivizes of waste separation and people's contribution. So, the municipality should regard these measures as the prime priority for amending its performance in urban waste management system. On the other hand, municipality performance in some phenomena such as awareness of citizens with regard to hazardous waste, suitable place for disposing as well as desirable vehicles for conveyance, was acceptable and it's supposed to retain the present trends. As far as holding educational sessions is concerned, the majority of people concur with the fact that the municipality should shift these educational sessions to national media, in order to prune excessive costs of doing so.

In conclusion, proper schedules should be put into practice and modern facilities as well as new re-positioning of waste disposing sites should be considered, so as to establish a much cleaner town. Also the steep disposing methods should be scraped and superseded by the newest approaches like correct recycling methods, whereby the losses would be dramatically gone down.

REFERENCES

[1].Abasi,S, educational pamphlet of waste management, publication of recycling and conversion of urban waste in Tehran, 2004.
 [2].Abdoli,M, Jalilighazizadeh, M,2008, evaluation of adaptation ability to new technologies in waste management in the country ,Iran, ecology,issue 42: 51-62.
 [3].Amar, Teymour, 2015, analysis of environmental challenges in rural regions with emphasis on solid waste (case study of Anzali, Rasht and roudbar).
 [4].Aminzadeh, B, (2003), Religious worldview and the environment: Introduction to Islam's attitude to nature Journal of Environmental Studies, No. 3, 97-106, (In Farsi).
 [5].Angel, R. J.; Heffernan, T. W. and Megicks, P, (2008), Service Quality in Postgraduate Education. Journal of Quality Assurance in Education, Vol. 16, No. 3, pp. 236-254.

- [6].Dehghani, M, Dehghanifard, E, Azam, K, Asgari, A, Banshi, M, 2010, qualitative and quantitative assessment of solid waste recycling in Tehran. Knowledge & Health magazine of University of Medical Sciences and Health Services, shahroud, Volume 4, Issue 1: 40-44.
- [7].Eskildsen, J. K., & Kristensen, K, (2006), Enhancing importance-performance analysis, International Journal of Productivity and Performance Management, 55(1), 40-60.
- [8].Fatehnia, A., Farzadkia, M., Taghdisi, M, (2011), Check the status of source separation of municipal solid waste And ways to increase popular participation in Area 5 of Tehran, Tehran University of Medical Sciences.
- [9].Ghorbani, M, (2003), Waste management services, with an emphasis on value, Report of presented to the municipality.
- [10].Ghorbani, M., Dehghanian, S., Kohansal, M, (2008), Survey Willingness amount And factors affecting the conversion of waste to be composted by households in the metropolis city of Mashhad, Third National Congress of recycling and using renewable organic resources in agriculture, pp140-152.
- [11].Gilbert, A, Galger, Zh, 1997, cities, poverty and development, urbanization in Third World countries, translation by Parviz Karimi Nasseri, publication of international and public relations of Tehran municipality.
- [12].Kheybari, Kh, (2007), Separation from the source and mechanization collection systems recyclable materials the attitude of the managerial and executive model used in Mashhad, Third National Conference on Waste Management, pp45-59.
- [13].Lechinaei, D, et al, 2010, a new experiment in rural waste management, case study of Fereydoun city in Esfahan province, 12th national conference on Environmental sanitation of Iran, medical science of Shahid Beheshti University, health school.
- [14].Mahdinezhad, M, Omrani, Gh, 2002, collection, conveyance and disposing assessment of urban waste and presenting proper solutions for sanitary landfill in Gorgan city, 4th national conference of environmental health, Yazd.
- [15].Madhoushi, M, Mohammadi, M, Shamel, M, 2016, importance-performance analysis from key factors perspective in creative industries prosperity, scientific journal of technology policies, 8th year, issue 15: 61-93
- [16].Maleki, A, Alavibakhtiarvand, N, Jafarzadeh, N, Mostafaei, D, Ebrahimi, R, 2008, 3rd SWOT national conference on enhancement of recycling of solid waste management system strategies in the nation, Mashhad.
- [17].Marshall, R.E., Farahbakhsh, K, (2013), Systems approaches to integrated solid waste management in developing countries, journal homepage: www.elsevier.com/locate/wasman, Waste management, pp988-1003.
- [18].Mesgrah, H, Sadeghi, H, Jafari, A, Davoudi, R, 2002, inspection of people's attitude, awareness and performance regarding urban solid waste management in Kermanshah, 4th national conference of the environmental health, Yazd.
- [19].Omrani, Gh, 1999, solid waste, first volume, publications of Islamic Azad university of Tehran.
- [20].Omrani, Gh, (2005), Solid Waste Management, Vol. 2, Publisher: Islamic Azad University, (In Farsi).
- [21].O'Neill, M. A., & Palmer, A, (2004), Importance-performance analysis: a useful tool for directing continuous quality improvement in higher education, Quality assurance in education, 12(1), 39- 52.
- [22].Palmer, J, 2004, environmental education in 21st century.
- [23].Richardson, R.A., Hylcek, J.J, (1978), Economic Analysis of the Composition of Household Solid Wastes, Journal of Environmental Economics and Management, Vol. 5, pp103-111.
- [24].Riviezzo, A., de Nisco, A., & Rosaria Napolitano, M, (2009), Importance-performance analysis as a tool in evaluating town centre management effectiveness, International Journal of Retail & Distribution Management, 37(9), 748-764
- [25].Sadinia, A, 2005, The Green Book, Directory of municipal solid waste, Publication of municipalities and villages administration of the country. Tehran.
- [26].Samadi, M. & Morshedi Seif, T. M, (2004), Study the physical composition and amount of waste produced from June 1387 to May 1379 in Hamedan, Journal of University of Hamedan medical sciences . 10,3(93).43-83.(in Farsi).
- [27].Sayahzadeh, A, Samadi, M, 2010, qualitative and quantitative analysis of municipal solid waste in Malayer from autumn(2007) to summer (2008), journal of health and the environment, Journal of environmental Health Association of Iran, the second period, the second issue: 94-103.
- [28].Sheykhi, Z, 2014, waste management of rural regions in Bushehr province.
- [29].Tchobanoglous, G, 1993, solid waste management, 1 and 2 volume, translation by Dr mohammad ali Abdoli, waste recycling organization.
- [30].Waste management legislation booklet, 2005, publication of municipality recycling organization, Tehran.
- [31].Yaghoubi, M, Sartaj, M, Abbasifarani, 2011, presenting an analytical model based upon GIS for the purpose of optimizing urban waste collection system, 5th national conference on waste management, Mashhad.
- [32].Zareimahmoudabadi, H, Chabok, M, moradimahmoudabadi, F, 2011, assessment of recycling and urban waste management potential in Ardakan city, Journal of Public Health School, Yazd, ninth year, the first issue.