

Survey of Feasibility of Recycling Specialized Town

(A case of study :Mazandaran Province, Iran)

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Abstract-Considering that Mazandaran Province due to climate and ecosystems is a unique place with severe restrictions on landfill suffering, solid waste management an emphasis on creating specialized town of recycling seems very important, because in addition to reducing waste disposal problems caused by massive production in the province, is considered from various aspects of health, environmental, economic, employment, etc.

In this study, the crowds in the four provinces of Sari, Amol, Babol and Ghaemshahr (54 %of the population of the province) are considered solid waste cities.Generally, production in these cities is the amount of paper and paperboard 52.68 ton per day, plastic 49.74 ton per day, PET 5.4 ton per day, metals 6.04 ton per day, glass 7.41 ton per day, rubber 2.89 ton per day.Due to high volume production of recyclable materials, the constructions of a specialized recycling town are quite essential.

Keywords:*Organizing, Recycling, Solid Waste Management, Recycling Specialist Town, Mazandaran Province*

I. INTRODUCTION

Developments in the last century, along with population growth and development of technology, has brought a new phase of the destruction of the environment .A major environmental pollutant that is considered an integral part of human life is solid waste .There are particular concerns regarding natural resources and reducing pollution and experts ,over the past few decades, considered the issue of urban solid waste recycling and solid waste as well as rural industries as the top and proposed replacing the waste disposal program, because not only recycling reduces the risk from environmental pollution but also saves numerous economic benefits.

Recycling is an important method for reducing solid waste. Recycling means a system of material that causes the material to be used again. This causes the reduction of the amount of consumables needed to produce new products and also reduce energy consumption and conserves raw materials are consumed.

By Recycling, waste can be controlled qualitatively and quantitatively. Nevertheless, we cannot get rid of waste, generally. Recycling should be industrial like any other economy,recycling does not mean only collecting material for reuse but creating and developing a market for selling these recycled materials [1].

Statistical findings show that with 25% recycled waste paper in the country (Iran) can be tons of recycled paper annually 100,000 tons [2]. However, it funds no economic considerations, and how investment in industry and in urban and rural communities wasted. Today, information on solid waste specifications in each of the cities has become important. Qualitative and quantitative characterization of urban waste and industrial waste in waste management process, the first step to identify and return resources to depreciate through the current economic recovery systems or manure compost is considered.

This is in Iran and Northern provinces because of severe restrictions on landfill sites and the specific ecosystem, because it is a valuable and vital addition to restoring human capital and increasing recruiting problems caused by massive production of waste disposal are resolved [3].

Reviewing the status of collecting and recycling of urban waste in the province and the resulting problems shows that urban waste management in the province is of great importance [4]. There is no special standard executive in urban waste management plans andcannot run versions of a zone extended to other areas. Municipal waste management in each region affected by various factors such as climatic and geographical conditions, living standards and livelihood

of people is style. Different methods for getting rid of waste dilemma existing to our country; the first and the most important and maybe the only option for getting rid of garbage problem is burring to them [5]. Although the effects of waste in many parts of Iran is intolerable, but Mazandaran province due to the limitation of land suitable for landfill, high levels of groundwater, surface water flow and the pattern of geographical and climatic conditions, these effects were very severe and if we do not follow principles in waste management engineering, injury and irreparable damages to the region's industry would be inevitable [6].

II. MATERIALS AND METHODS

The purpose of this study was to determine and estimate the amount of recyclable components of each of these components in the waste of cities which have reliable data sources. Based on this, first production per capita of rural and urban solid waste in the province was investigated then the number and spatial distribution of the cities was studied.

III. RESULTS

A. *Per capita production of solid wastes in urban and rural regions of province*

Considering that Iran is a country in terms of level of development and climate conditions in different parts of the differences can be seen, the rate of municipal waste produced per person from one area to another area is different. Based on studies conducted in the urban waste produced in different regions within 0.34 – 0.94 kg per person per day with a national average 0.64kg per person per day has been. Based on data obtained, in Mazandaran province with per capita waste production 0.84 kg per person per day of waste produced per head of Hormozgan province with 0.94 kg per person per day the highest per capita amount of waste they produce in the country. Amount of municipal waste produced in Mazandaran province in 2002 equal 1148.33 tons per day equivalent is the amount of the increased population in the last year has reached 1251.28 tons per day. On the other hand, the provinces there are about 2286 villages. Garbage produced in the villages of Mazandaran about 1 to 1.1 kg per day has been reported, so about 1460 tons of wastes per day is produced in villages. Total waste of urban and rural province is about 2700 tons per day (Table 1).

B. *The number and spatial distribution of cities studied*

According to studies conducted in recent years and its navigation in 2008 as Waste Management Study Overview provinces, this study also cited the information was. Highest per capita waste production in the province including the city of Babol respectively, Sari, Amol and Ghaemshahr are. Amount of waste produced per capita in Babol in 200 days, 194 tons per day in Sari, Amol at 140 tons per day and Ghaemshahr 136.5 tons per day. 48% of the total waste in

the province, four cities with 54% of the province's population is produced (Table 2 and 3)

C. *Production volume of recyclable waste*

When municipal solid waste without separating the containers is emptied result of such action is a complex mix of physical purification that it is more difficult. Understanding the physical composition of solid waste and evaluate the design methods and technologies used for the separation and purification is very important. Also, understanding the physical properties of solid waste residue to determine the usual assessment of indicators such as the potential and the amount recovered and recycled materials is important. Paper, cardboard and carton, plastic, PET, metal and glass from solid waste for the most important physical components are recycled.

IV. CONCLUSION

The existence of places for buying waste in the cities of Amol, Ghaemshahr and Jouybar shows the economic importance of waste material. According to one study, it became clear that the capacity to create units for recycling paper and cardboard, plastics, PET glass and iron there. Accordingly, raw materials recycling plant dear one, but one of the main points in selecting appropriate locations covering feature is the establishment of these industries, the system acceptance by the people in the region. County streams, including the city that in terms of multiplicity of separate centers for the sale of recycled materials is leading to other cities. In fact, part of the process work most jobs, a significant number of people in this area accordingly. Repeated hits taken from the city limits high volume confirms stream recyclable material is transferred to the city. Considering the adoption of this process people in the region, this region can select an option from the town is recycling. So according to this town near the four cities studied, two factors supplying raw materials as well as public acceptance in the region are provided. While the industrial centers of Sari streams and there are recycling units is necessary for the proper management units to be transferred proposed settlement recovery specialist. According to the list received from the Organization of Industries and Mines and the company towns, industrial units in industrial recycling streams (a plastic recycling unit) and the industrial town of Sari (3 units recycled paper and cardboard, two plastic recycling units, two single irons recycling) in the exploitation phase or stage niches are installed. But it seems more than 5-4 units of other recycled working in the area that is not mentioned in the list. Organization of these units is necessary and important. Because of lack of adequate supervision of these units, could be underlying issues of violation of health and environmental officials of the recycling process is the cause and long-term dangers are many in the region. According to one study, the amount of paper and cardboard, plastics, PET, glass and iron to the extent that units can be recycled at Community Recycling Town has been considered.

TABLE I. PER CAPITA PRODUCTION OF SOLID WASTE IN URBAN AND RURAL AREA IN MAZANDARAN PROVINCE

limited area	Population	Per capita production (Kg/ca.day)	Amount of waste (Day/Ton)	Approximate amount of waste (Year/Ton)
Urban	1574882	0.84	1251.28	456700
Rural	1324920	1.1	1460	532900

TABLE II. AMOUNT OF RECYCLABLE WASTE PRODUCED IN FOUR CITIES IN MAZANDARAN PROVINCE

Materials	Babol		Sari		Amol		Ghaemshahr	
	percent	Daily	percent	Daily	percent	Daily	percent	Daily
Paper	8.9	17.8	8	15.6	6.2	8.68	7.78	10.6
Rubber	0.36	0.7	0.6	1.17	0.5	0.7	0.24	0.32
Plastic	7.31	14.69	7.1	13.84	8.6	12.04	6.7	9.17
PET	0.4	0.8	1.3	2.53	0.8	1.12	0.7	0.95
Textiles	0.78	1.56	1.5	2.92	0.84	1.17	0.8	1.08
Glass	0.7	1.4	1.1	2.14	1.7	2.38	1.09	1.49
Metals	0.1	0.2	1.32	2.57	1.56	2.18	0.8	1.09
Construction trash	0.35	0.7	0.8	1.56	0.74	1.03	0.46	0.63

(Daily Amounts to Ton)

TABLE III. TOTAL AMOUNT OF RECYCLABLE SOLID WASTE BASED ON DIVISION (TON/DAY)

City	Paper	Plastic	PET	Metals	Glass	Rubber
Sari	15.6	13.84	2.53	2.57	2.14	1.17
Babol	17.8	14.69	0.8	0.2	1.4	0.7
Amol	8.68	12.04	1.12	2.18	2.38	0.7
Ghaemshahr	10.6	9.17	0.95	1.09	1.49	0.32
Total	52.68	49.74	5.4	6.04	7.41	2.89

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