

An Analytical View on Solid Waste Disposal in Banmaw from an Environmental Perspective

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Abstract

Waste disposed system of Banmaw is studied from a geographical point of view. Banmaw is the administrative center of Banmaw Township with a total area of about 25.59 square miles. In 2019, the town is settled by 53,049 persons. With the increasing population disposal of solid wastes becomes as a growing problem in Banmaw. Most of these solid wastes come from homes and markets and the highest quantities of solid wastes are found in Paukkone, Thizi, and Khuntha ward. Waste disposal system of Banmaw is managed by Banmaw Township Municipality Department under bell ring collection system. The people also practice landfill, burning and other method while some households reuse their solid wastes to some extent. Wastes are disposed in various ways to municipality wastes collection system Some households used to burn their wastes in their compounds and there is a high positive correlation between the amount of waste and population.

Keywords: waste disposed system, solid wastes.

1. Introduction

Solid waste means any garbage, refuse, sludge from a wastewater treatment plant, water supply treatment plant, or air pollution control facility and other discarded materials including solid, liquid, semi-solid, or contained gaseous material, resulting from industrial, commercial, mining and agricultural operations and so on.

Solid waste management has to do with handling of solid refuse from their sources of generation through storage, collection, transportation, and recovery and treatment process to disposal. The process of waste management is important for both the health of the public and aesthetic and environmental reasons. In study area, waste collection is managed by Banmaw Township Municipality Department. Methods of waste collection in Banmaw are Bell ringing system and collection at waste bin.

1.1. Aim and Objectives

- To study the solid waste disposal system in Banmaw
- To analysis the behavior of solid waste disposal of local people in Banmaw
- To suggest that the impact of solid waste disposal problems for Banmaw

1.2. Materials and Methodology

Primary data are collected questionnaires, structural interview and open interview.

Secondary data are collected Banmaw Municipality Development Committee and quantitative and qualitative methods.

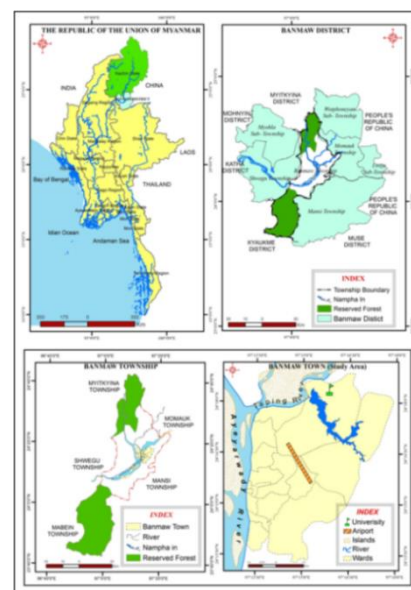
1.3. Research Questions

Is there any significant relationship between solid and situation of Banmaw with its wastes disposal system?

If so, how can we improve for more effective wastes disposal system from a sustainable environmental perspective?

1.4. Study Area

Banmaw is located on the east bank of the Ayeyarwady River, and about at 24° 16' N and 97° 16' E with about 25.59 square miles of area. Banmaw is composed of 16 wards and it is settle by 53,049 persons in 2019. The town lies about 385 feet above sea level. In 2019, the average population density of Banmaw is about 2,071 per square miles Map (1).



Map (1) Location Map of Banmaw.
Source: UTM Map No.2497-03,04,07,08

2. An Analytical View on Solid Waste Disposal in Banmaw

Solid wastes are discarded materials from schools, shop, market, hospital, clinics, and home as well as from offices in solid glasses, iron and steel pieces, plastics, woods, vegetables and other materials. As population increase, the amount of solid wastes discarded by the people is increasing year after. Wastes dumped on the ground produces air and water pollution and health problems by means of insects, rats and infectious germs. Therefore, it is necessary to manage solid wastes disposal systematically.

Traditionally wastes are disposed in several ways by the people. They dump the wastes in their compounds, they burn their wastes, they fill their lands with the wastes, they compost their wastes to be used as natural fertilizers and they reuse their solid wastes. Banmaw Township Municipality Department is collecting discarded wastes under bell-ringing system and these means of solid wastes disposal system is examined to ensure good health of the people and good environment in Banmaw.

The study is made by field observation personal interviews, photographic records and questioned survey in selected wards. The answers of the respondents are analyzed by means of statistical methods and the relationship between the amount of solid wastes and the number of people is examined.

In Banmaw various wastes are disposed as landfill, burning, municipality collection and disposed into the creeks, river or into the depression in nearby areas. Being large areas with small population in some wards, dumping of wastes into the streams or creeks and depression is a normal practice as municipality collection has difficulties in these wards.

According to field survey finding, it is found that majority of the respondents used to dump their wastes to the municipality wastes collection system. Out of 950 respondents about 39.02% of the people used to dispose their wastes to municipal by cars while about 46.73% used to burn their wastes. Burning of wastes is found in all wards except Myoma while Aleyat has only 1 respondent or about 0.08% of total respondents dispose their wastes by burning.

Municipality wastes collection is done for 13 wards of Banmaw and it cannot be practiced Shwekyina, Nampha, and Aungtha warder to their location and large areas. It is found that about 9.67% of the respondents used to dispose their wastes as landfill into the pits or as sanitary landfill the study also found that some respondents living near the streams and creeks used to dispose their wastes into the creek while some people used to dump their wastes in the depression. They account for about 4.58% of total people.

According to the finding, the people do not use to separate the types of wastes they dispose and they account for 6.85% of total wastes while only 39.15% used to separate their wastes into kitchen wastes, commercial wastes and households wastes and other wastes. As the wastes disposed amount is very with the

consumption of the people, types of wastes and number of people in the households various amount of wastes are discarded by the people.

According to field survey finding, about 66.3% of the people used to discard less than 1kg of wastes and about 28.96% disposed from 1 to 3 kg of wastes while about 4.04% of the people disposed 3-5 kg of wastes on a daily basis. Amount of wastes more than 5kg is discarded by only about 0.71% of the people. It can be found that majority of the people discard mostly their kitchen households wastes in Banmaw and some households discard their commercial wastes which exceed 3kg. In Banmaw, waste disposed is mainly carried out under municipality wastes collection system. Under this system, the wastes are collected by garbage trucks of Banmaw municipality by the bell-ringing system and by collection from the garbage tanks. Therefore, the people stored their daily waste in bags, manila hemp bags, baskets or they daily discarded their wastes into nearby waste bin and garbage tanks. According to field observation, a total of 1,115 respondents can be interviewed during the field survey in various wards of Banmaw. It is found that about 36.05% of the people used to store their wastes in the manila hemp bags and about 22.24% of the people used to store their households wastes in the plastic bags before they discard these wastes while about 30.49% of the people used to store in the baskets.

The remaining people used to discard their wastes in the dust bin or garbage trucks which are placed by Banmaw Township Municipality. It is found that about 11.21% of people used to dump their wastes into the garbage tanks in their nearby blocks. Therefore, the garbage collection trucks cannot daily collect the wastes and the wastes are collected alternately from 2 to 3 days intervals. According to the survey finding, daily collection by garbage tanks are served to about 36.43% of the people in Myoma, Aleyat, Mingone, Nyaungbinyat, Thizi, Khuntha, Paukkone and Hante wards while there is no collection of wastes by the garbage tanks of township municipality in Nampha and Aungtha wards. The remaining wards also have the residents with no wastes collection service and they form about 39.76% of total households. Alternates wastes collection is done for about 22.81% of total households in Banmaw. As there are large spaces for dumping wastes into the creeks, streams or depressions the people can discard their wastes by dumping into the creek, and depressions or they dispose their wastes in their own compounds. Table (1 and 2)

Table 1. Solid Wastes Generation Daily ample Households (2019).

No	Wards	Respondents			
		< 1 kg	1-3 kg	3-5 kg	>5 kg
1	Myoma	-	5	2	6
2	Aleyat	14	-	-	-
3	Mingone	28	3	-	-
4	Minkyauangkone	22	11	-	-
5	Nyaungbin	90	14	-	-
6	Thazi	75	27	6	-
7	Khuntha	42	25	-	-
8	Paukkone	62	60	6	-
9	Thiri	20	5	-	-
10	Singone	19	-	-	-
11	Naungkho	97	12	-	-
12	Shwekyina	67	9	-	-
13	Nampha	58	6	2	-
14	Hante	27	79	17	2
15	Aungtha	15	16	2	-
16	Shwepyitha	22	16	-	-
Total		658	288	35	8

Source: Field Survey.

In addition to discarding their wastes the people of Banmaw also use wastes conservation methods of composing, reuse and recycling. Composing is making of the wastes into natural fertilizer after decay of the organic compound, such as leaves, woods, papers, old clothes vegetables, animal wastes such as cow-dung. According to field survey result it is found that about 7.67% of the people make compost for the fertilizer to fill in their soils. It is also found come people reuse or recycle their used objects or they sell material to the wastes-purchasers. It is found only about 1.11% of hotel population used to reuse or recycle their household's wastes due mainly to lower prices of the wastes given by the purchasers. Therefore, it is found that various types of wastes disposal methods are practiced in Banmaw Township Municipality Department.

Table 2. Collection of Solid Wastes (2019)

No.	Wards	Respondents				
		Plastic bags	Waste Bin	Basket	Manila hemp bags	Communal Dump
1	Myoma	6	1	-	6	-
2	Aleyat	7	-	7	-	-
3	Mingone	10	-	16	5	-
4	Minkyauangkone	9	4	7	13	5
5	Nyaungbin	16	8	23	46	11
6	Thazi	41	6	24	37	-
7	Khuntha	8	7	27	46	-
8	Paukkone	58	7	32	79	-
9	Thiri	3	-	6	16	-
10	Singone	14	-	12	17	-
11	Naungkho	5	2	71	31	-

12	Shwekyina	6	7	38	27	-
13	Nampha	10	1	31	25	-
14	Hante	47	38	21	17	15
15	Aungtha	6	-	12	15	-
16	Shwepyitha	4	5	15	22	11
Total		250	86	342	402	42

Source: Field Survey

3. Conclusion

3.1. Finding

A problem that arose from human development is the problem of municipality solid wastes. The people used to discard the products when these are broken or won out or if they were temporary use. Products for temporary use make up the majority of wastes. Solid wastes cannot move and they accumulate in the area causing environmental pollution problems.

Municipal solid wastes refer to those discarded products from houses, schools, hospitals, markets, factories, shops, stores etc. There are several methods for municipal solid wastes disposal. The traditional methods of wastes disposal are dumping into the open ground and burning which nowadays become health problems and environmental degradation. Therefore, municipality, solid wastes collection is done to protect the health problems and environmental problems.

In Banmaw, the growing population caused increasing amounts of wastes. However, the wastes generated by a household are usually less than 1 kg while commercial and other wastes usually exceed 3 kg. Landfill, discarding to wastes collection trucks and garbage trucks, burning and dumping into creek and depressions found in Banmaw. It is found that some households make composts to use in their compound while some people reuse their wastes. At present, majority of the people rely upon municipality wastes collection system.

Moreover, it is found that most of the household's wastes are stored in the plastic bags, baskets; manila hemp bags or they dump their wastes into nearby garbage bin and tanks placed by Township Municipality Department. However, some wards do not receive wastes collection service by the Township Municipality Department and have to discard their wastes in their own wards. They have to dump their wastes as the landfill in their compound or they dump their wastes into nearby creek and the depressions around their homes.

As population is increasing year after year, the solid wastes disposal system faced with some environmental problems and the people have to rely on their own ways.

3.2. Result

Solid wastes amount is related with the number of population, their socio-economic status, consumption power, qualities of the products and the purchasing of the people to not actually needed goods.

Therefore, it is necessary to practice systematic method to control over the wastes production of the goods, recycling and reuse methods and reduction in the amount of the products and demands.

Various methods can be applied as the output method in wastes disposal landfill, sanitary landfill, incineration, and reduction the amount of wastes in the products such as reduction of packaging materials. Solid wastes problem arose from several related factors and these factors include large, increasing population, high consumption power, unnecessary purchasing and uses, low quality of the products, composition of useless materials on the products and ignorance and less intention of the people and the authorities to take responsibility. It is also a source of solid waste problem that there are large spaces to dispose the solid wastes.

In Banmaw, large area of the ward caused problem to collect wastes by the municipality garbage truck and some of these residents used to discard of fill their wastes into the creek and some depressions in nearby areas.

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References

- [1] Denicl. b D. Chirasb (1988), Environmental Science Benjamin/ Cummings, Momlo Park, USA.
- [2] Enger and Smith (2006), Environmental Science, Mc Graw Hill, New York.
- [3] Aef;armfjrd KUE, fa'oqdkif& mtcsuoftv ufrsm; (2019) Aef; armfjrd KUE,frSwfwrf;/
- [4] jrdKUE,fpnfyifom,ma& ;aumfrwD (2019) Aef;armfjrdKhe,frSwfwrf;/