

Awareness Level of Urban Dwellers on Solid Waste Dumping in Loikaw, Kayah State, Myanmar

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Abstract

Loikaw is the capital of Kayah State, Myanmar. As it is the capital, city development services are essential to be a smart city. People who dwell in urban area are also responsible to aware the sustainable development of their urban environment. This paper tries to find out the awareness level of town dwellers who live in Loikaw regarding the disposal of solid wastes. In this paper, SWOT Analysis is used to point out the awareness level of urban dwellers on solid waste. The results show that awareness level of town dwellers vary from place to place.

Introduction

'Solid wastes' means the waste materials which are neither liquid nor gas, and which is insoluble Bio-chemical, Chemical, Bio-medical, wastes which come from animals are called solid wastes. There are four kinds of solid wastes which are;

1. Wastes from Houses
2. Wastes from Factories
3. Wastes from Medical Pharmacies and Hospitals.
4. Wastes which can be re-cycled wastes and which can be useful again

Definition of different types of waste

(1) Wastes from Houses

The waste materials from houses include waste materials from the kitchens, fallen-decayed leaves, and remains of vegetables.

(2) Waste Materials from Factories

The waste materials from factories include all the waste materials which are harmful for health such as house paint, chemical products and materials, electrical appliances, empty glass bottles, chemical fertilizers, empty tins and bottles of pesticides, decayed batteries, empty paint tins.

(3) Waste materials from pharmacies and Hospitals

Waste materials from used injection needles and medicine wastes, medical wastes, expired medicines, blood- stained clothes, waste materials from hospitals are included.

(4) Waste materials which can be Re-cycled and Re-used

Papers which can be re-cycled, Glass bottles, metal goods, plastic waste materials can be re-used.

The Study Area

Loikaw, capital of Kayah State is located at 19° 40'17" North latitude and 97° 12' 34" East longitude. It is established by 19 wards. Up till the year 2010, Loikaw was established by (13) wards later in the year 2011, the wards of Nambawwan (A) and (B), acres 500, Nanattaw, Htaytama and Namkat wards were extended. Loikaw lies (884) meters above the sea level. It has on area of 25.39 sq km.

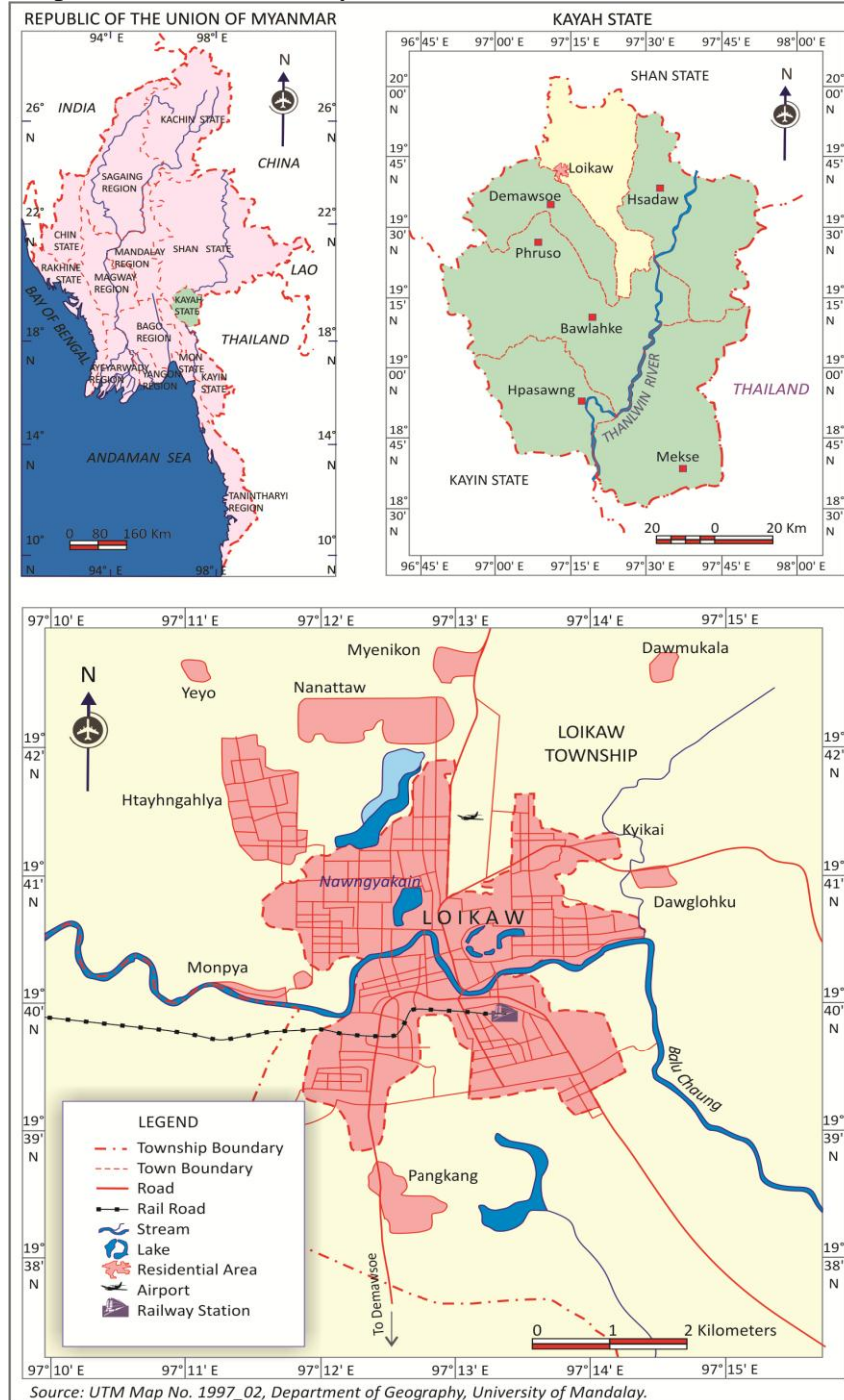
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Aim and Objectives

Main aim is to determine the awareness level of urban dwellers on solid waste dumping in the study area. Major objectives are:-

- To classify the waste materials from the houses in the town of Loikaw.
- To have the capacity regarding the knowledge of disposing the waste materials from the houses of the public living in Loikaw.
- To examine whether the town folks of Loikaw house sorted the types of waste materials before they throw them away.

Map (1) Location of Study Area

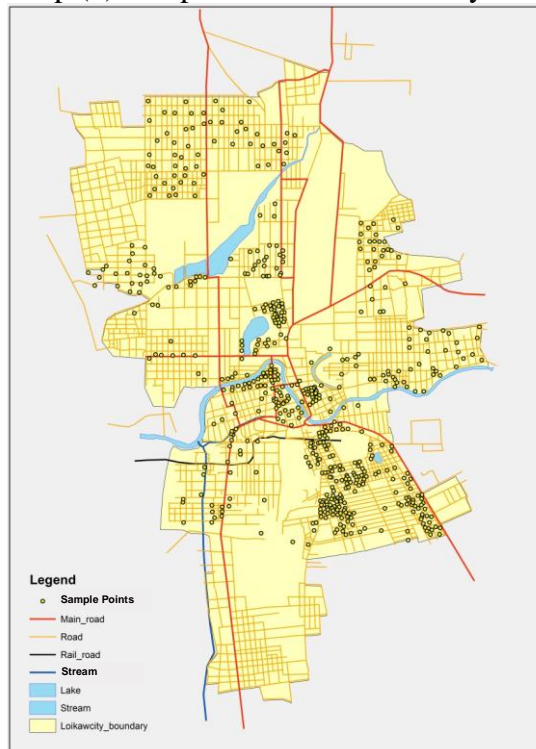


Collection and Organizing of Facts and Data and Methods Used

During the field survey, the candidates had visited (25) houses in each ward (quarter) and a total of 567 houses had been surveyed for the whole ward. The waste materials of the houses were discussed with the residents of the region regarding the types of waste materials before they were disposed off. In disposing the waste materials are suggested by the candidates. The residues from the kitchen and the wastes from the kitchen are re-used or not.

With regard to the problems of disposing wastes from the houses of the residents the candidates had to visit each house in order to get and collect data. For some facts which are not available from the residents, the researcher had to go to the offices of the Governing Administrators of the wards. After that the collected data were described and shown by using Graphs, such as line Graph, Column Graph, etc. GIS method is also used when the visited houses one illustrated. Moreover, depending upon the field Survey, SWOT (strength, weakness, opportunity, threat) analysis is used to describe the situation.

Map (2) Sample Houses in the Study area



Source: Field Survey (May, 2017)

Analysis on the Awareness Levels of Urban Dwellers

After the field survey of (567) houses in Loikaw Township, the candidates found that the types of waste disposals consist of (100%) mixed waste materials, plastics, waste from the kitchens and residues or remains of food. Pieces of paper consist of 47.97%, broken pieces of glasses and bottles consist of 41.09%, economic wastes and wasted from food shops restaurants and shops consist of 54.32% and wastes from dried leaves wastes found on roads amounted to 57.14 %.

Before sorting out the types of wastes, the types of wastes were amounted to (17.11) %. After sorting out the types of waste materials, there was 50.09 %, waste materials.

Ways of Waste Disposing

Waste materials are sorted out and classified as those which are being used as fertilizers, those which are burnt; those wastes which are collected by the municipal waste materials collecting cars by ringing bell system. About 1.94 percent of the dried waste materials are used as fertilizers. About 4.44% of some waste materials are burnt and used as fertilizers. Some of the dried waste materials are not burnt but are kept piled up for a long time until they become decayed in order to be used as fertilizers. The disposal of the waste materials by using the ringing of the bell system is about 76.01%. The residues or remains of the food from the kitchen which accounted to 3.35% of the waste materials are used again. At the corner of the streets and roads, where the Government did not prohibit to throw the waste materials, the residents there, disposed of the waste materials piling up to about 3.35 %.

SWOT Analysis

SWOT means Strength, Weakness, Opportunity and Threat. In disposing waste materials, points to be considered consist of systematic disposal, the strength and beneficial favourable points; the difficulties and weakness in disposing waste materials; the necessary required essential points and the opportunities to be maintained; the dangers and threats in disposing the waste materials should be considered. In this paper, this method is applied for each ward in the town. It also can lead to comparative study by one location to another.

Waste Disposal Conditions in Minsu Ward and Dawnokhu Ward Strength

By means of the Ringing of Bell system of the Municipality the waste materials can be disposed regularly. The remains and residues of the food are re-used as food for animals. The dried leaves are not burnt. They are put in ditches and are dumped there in order to decompose naturally to become fertilizers for the plants or trees. As for the waste materials which are harmful, they are thrown into the dust bins. The waste materials are being sorted out before they are disposed of.

Weakness

The waste materials such as bottles and glasses are not re-used again. The dried leaves are not used beneficially.

Opportunity

If the Garbage collecting cars of the Municipality collect the waste materials frequently for many times along the road, those wards would be said that the awareness level is moderately high.

Threat

The numbers of the collection of the waste materials by the cars of the municipality are few. The dried leaves are piled by the side of the roads.

Waste Disposal Conditions in Nanat-taw Ward Strength

This ward is a newly expanded ward with good transportation. The waste materials especially food residue are mostly re-used.

Weakness

The waste materials are not sorted out. Nearly all of the waste materials are burnt and are thrown away and disposed at illegal dump sites.

Opportunity

In that new ward, the Kayah people who speak Kayah language mainly are setting there. As a result, the information flow on awareness level could be easily distributed.

Threat

The waste materials are piled unlawfully by the side of the roads. The burning of the waste materials is not carried out according to set time.

Waste Disposal Conditions at Nam-Kut Ward**Strength**

As it is a newly expanded ward, the roads are very good and smooth to transport the wastes by municipal cars.

Weakness

The waste materials are not classified and sorted out. All the waste materials are burnt and are disposed randomly by the dwellers.

Opportunity

The garbage collecting cars could come frequently in order to collect the waste materials which need to be disposed.

Threat

The waste materials are piled and thrown unofficially by the road sides. As the burning of the waste materials are not carried on at the set time without giving the notice, it is dangerous for the people to meet with careless fire hazards.

Waste Disposal Conditions in Nambaungwam (A)**Strength**

The Garbage Collecting Cars of the Municipality come to collect the waste materials twice a week. The pattern and shape of the wards are systematic and well planned, so that the municipal cars move easily and timely.

Weakness

The waste materials are not classified and sorted out by the residents.

Opportunity

The garbage collecting cars could come and collect the waste materials more frequently and more several times.

Threat

As the ward is very recently, defined as a town municipal area, the awareness level on waste dumping is still low. Moreover, there is only one main road which can be used for waste collecting by municipal cars.

Waste Disposal Conditions in Nambaungwam (B)**Strength**

The waste materials are being collected regularly. Most of the waste materials are being re-used.

Weakness

The materials such as bottles and glasses are not re-used.

Opportunity

Waste dump sites are necessary to define by the concerned offices.

Threat

The waste materials are disposed unlawfully by the road side, as the bell-ringing system served due to its remoteness.

Waste Disposal Condition in Nyaunggyar (A)**Strength**

The Garbage Car of the Municipality collected the waste materials everyday. Moreover, the waste materials are not burnt by the residents.

Weakness

Every household does not sort out or classify the types of garbage before dumping.

Opportunity

Their awareness level on sorting and reused materials could be risen up in order to avoid the waste burning action.

Threat

The waste materials are thrown and disposed by the road side due to lack of awareness level.

Waste Disposal Condition in Nyaunggyar (B)**Strengths**

As the people are working as the Public Service personnel's and are living in the Public Service quarters, the waste materials are not disposed and thrown without discipline. The garbage car comes daily to collect the disposed waste materials.

Weakness

There is still less awareness level on sorting out the types of wastes.

Opportunity

It seems to have improvement in the awareness levels of waste disposing.

Treat

Some households landfilled the wastes in their compound without sorting.

Waste Disposal Conditions in Daw Oo Khu**Strength**

Municipal Garbage cars come everyday to collect the waste materials. Some waste materials are burnt.

Weakness

The waste materials are not sorted out and are not classified. It is necessary to dispose the garbage systematically.

Opportunity

Garbage collecting cars need to collect waste materials. Systematically conservation of environment can be improved in the community.

Threat

There is environmental pollution. In burning the waste materials, systematic setting of time should be carried on in order to prevent fire hazard and air pollution.

Waste Disposal Conditions in Dawtoma Ward**Strength**

The Municipals Garbage Car used to come regularly.

Weakness

The waste materials are not sorted out. The waste materials are not re-used.

Opportunity

If the waste materials are sorted out, glass bottles and plastic water bottles could be re-used.

Threat

If the awareness level of the inhabitants would not be increased, it will lead to degrade both human and natural environmental.

Waste disposal Condition in Mingalar Ward

Strength

The Municipal Garbage Car comes to collect waste materials once a week. The waste materials are classified and sorted out. The garbages are re-used.

Weakness

Some waste materials are burnt and are destroyed.

Opportunity

The Garbage Car could come frequently and quite often.

Threat

By burning the waste materials unlawfully without giving notice there is danger to the environment. During Summer time, burning of the waste materials should be carefully watched in order to prevent fire hazard.

Waste Disposal Condition in Lawtama Ward

Strength

The Municipal Garbage Collecting Car used to collect the waste materials daily, once in the morning and once in the evening. The dust bins are kept and the waste materials are disposed of systematically.

Weakness

The waste materials are not sorted out and are not classified. After throwing the waste materials into the ditches which are dump the garbage are burns.

As there are poultry farms in that ward, and as the waste materials from the poultry farms are not disposed off systematically, there is pollution in the environment.

Opportunity

If the waste materials are disposed systematically it will better to stay in that ward to have awareness level.

Threat

By burning the waste materials unofficially without giving notice to the ward, there can be danger to the environment.

Waste Disposal Condition in Htaythama Ward

Strength

The Municipal Garbage Collecting Car comes twice a week to collect the waste materials of the ward. The waste materials are classified and are sorted out before they are disposed.

Weakness

The Waste materials are burnt. Such type of waste as glass and plastic bottles are not re-used.

Opportunity

It is necessary for the Municipal Garbage Collecting car to come and collect the waste materials quite often or frequently.

Threat

As the burning of the waste materials is carried out unofficially without giving notice to the Ward, there is danger to the environment. Great should be taken in burning the waste material during summer when there is hot dry weather.

Waste Disposal Condition in Bardoh Ward**Strength**

The waste materials are re-used. The dried leaves are burnt and are used as fertilizers.

Weakness

The waste materials are not classified and are not sorted out before they are burnt.

Opportunity

It is very essential and necessary for the Municipals Garbage collecting car to come to the ward in order to collect the garbage or trash.

Threat

As the burning of the waste materials are carried out unofficially without giving notice to the public of the ward, there is danger for the environment as well as for the ward.

Waste Disposal Condition in Shwetoung and Shapansa Wards**Strength**

The Municipal Garbage Collecting car comes to collect the garbage of the wards twice a week.

Weakness

Some houses do not keep the dust bins and throws the waste materials into the streams and canals.

Opportunity

It is necessary for the Municipal Garbage collecting car to come and collect the garbage punctually.

Threat

By burning the disposed waste materials, there is pollution in the environment. Moreover by disposing and throwing away the waste materials into the streams and canals, it is harmful for the town folks and urban public.

Waste Disposal Condition in Damaryone Ward**Strength**

The Municipal Garbage collecting car used to come to collect garbage. Some waste materials are re-used.

Weakness

The waste materials are not sorted out and are not classified before dumping.

Opportunity

It is necessary for the municipal garbage collecting car to come and collect the waste materials once on every other day.

Threat

As some houses are burning the waste materials it can threaten the environments for pollution of air and for fire hazards.

Waste Disposal Condition in 500 Acre Ward

Strength

The Municipal Garbage Collecting Car used to come and collect the waste materials regularly. The waste materials are classified and sorted out before disposing them.

Weakness

The waste materials are burnt and are disposed unsystematically.

Opportunity

It is necessary for the Municipal Garbage collecting cars to come and collect the waste materials regularly.

Threat

As the disposed waste materials are burnt, there is danger to the environment for pollution and fire hazard.

Findings and Result

This paper tries to find out the awareness level of town dwellers at Loikaw regarding types of solid waste, classification, ways of disposing etc.

To meet the objectives of the research, the following characters of the people are considered to define the awareness level of the urban dwellers:

1. Sorting out character
2. Waste burning character
3. Unlawful disposing character
4. Recycled or reused character

Through out the study area, it could be observed that total 576 households had low awareness level on one or another character which are resulted from the weakness of the SWOT analysis. For example, in Minsu and Dawookhu wards, the awareness level on sorting character is comparatively, high to another ward, where the awareness level on reuse character was rather low. The following table shows the different characters of low awareness level for 16 wards out of 19.

Low Awareness Level on:

No	Sorting	Waste burning	Unlawful Disposil	Recycled or Reused
1.	Nant baw an (A)	Nanthutt	Narnattaun	Minsu
2.	Nant baw an (B)	Mingalar	Lawdama	Daw no Kuu
3.	Dawookuu	Lawdama	Shwetaung	Nantbawan (B)
4.	Dawdama	500-Acres	Shansu	Htayatama
5.	Bardoo			
6.	Damayone			

Source: Field Survey (May, 2017)

Conclusion

Loikaw was originally established and set up with (13) wards. Later (6) wards were being added to the town as expanded wards. Due to the expanded wards and increased wards, the population of the town also had increased. That is why, the disposal of the waste materials from every house had increased more than before. Hence, it is necessary for the Municipal Garbage Collecting cars to come and collect

the waste materials daily. Moreover the burning of the waste materials should be carried out systematically and more carefully.

If the Municipal Garbage Collecting cars can come and collect the waste materials daily, Loikaw will become a clean and peaceful town, endowed with the best quality of a renowned Capital of Kayah State as well as a model town of the Republic of the Union of Myanmar.

References:

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