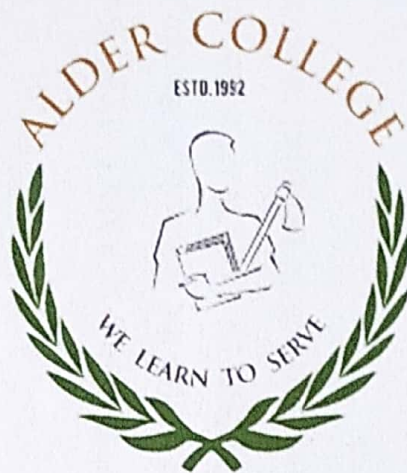


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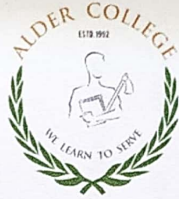
A CASE STUDY ON THE STATUS OF WASTE MANAGEMENT PRACTICES IN POILWA



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CERTIFICATE

This is to certify that Ayusenla Longkumer, student of B.A. 6th Semester of Alder College, Kohima bearing the Roll No. 4 Registration No. 20060005 of 2020 has successfully completed the research on the project "A CASE STUDY ON THE STATUS OF WASTE MANAGEMENT PRACTICES IN POILWA" under the supervision of Mr. Sungrongti (Asst. Professor, Department of EVS) during the year 2022-2023 in partial fulfillment of the requirement for internal assessment as per the Nagaland University directive.


Supervisor Signature

Principal Signature
VICE PRINCIPAL
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Kohima, Nagaland | 23

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ABSTRACT

Waste management is gaining increasing importance as waste generation in urban as well as rural areas increases. This study looks at the status of waste management practices in Poilwa, Peren through a survey with villagers and visitors. It was discovered that there was no unified waste management system nor any rules regarding waste disposal and prohibition of littering. The population practiced burning and burying of non-biodegradable waste and there was a lack of awareness about ill effects of such practices; only a minority practiced segregation and reuse of waste materials. Public wastebins were available but under-utilized. These factors resulted in a decrease in the cleanliness of the village and created the need for an effective waste management system.

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CHAPTER 1

INTRODUCTION

1.1 WASTE MANAGEMENT

Human interactions with the environment i.e., human activities have always resulted in waste production. As population and purchasing power of people increases worldwide, more goods are produced to meet increasing demand, thereby leading to the production of more waste. Waste management is the application of techniques to ensure an orderly execution of the various functions of collection, transport, processing, treatment and disposal of waste, and monitoring of waste materials. It has developed from its early beginnings of mere dumping to a sophisticated range of options including re-use, recycling, incineration with energy recovery with advanced technologies. It aims at a system which is the best environmentally, economically sustainable for a particular region and is also socially acceptable. Different types of waste have different methods of disposal and some are more preferred than others. For instance, reuse, recycling, composting and energy generation from incineration are often preferred to landfills.

Various countries around the world have taken the initiative for effective waste management-

1. In 2000, Switzerland put a ban on landfills. All waste is redirected, composted, recycled, or incinerated.
2. In South Korea, waste is divided into four categories which include organic waste going to compost, landfill waste, recyclable waste, and large waste items like furniture. This increased effort at the front-end results in an organized system, and waste can be processed more efficiently.

3. Sweden has a system referred to as Extended Producer Responsibility in which the cost of the waste management process like collection, treatment, and disposal goes those who created the waste, rather than relying on broader entities like the government.

In India, population explosion, coupled with improved life style of people, has resulted in increased generation of waste in urban as well as rural areas of the country. Due to increasing urbanization, fast adoption of 'use and throw' concept and equally fast communication between urban and rural areas, the gap in waste generation is diminishing. In India, waste mostly consists of rotting household waste like vegetables, food residue and food matter along with paper, polythene bags and materials, glass pieces, rags, toxic materials, construction and demolition debris, sanitation residues, etc. The attitude of making garbage 'out of sight' is the commonly followed practice.

The Government of India has undertaken multiple large-scale national initiatives-

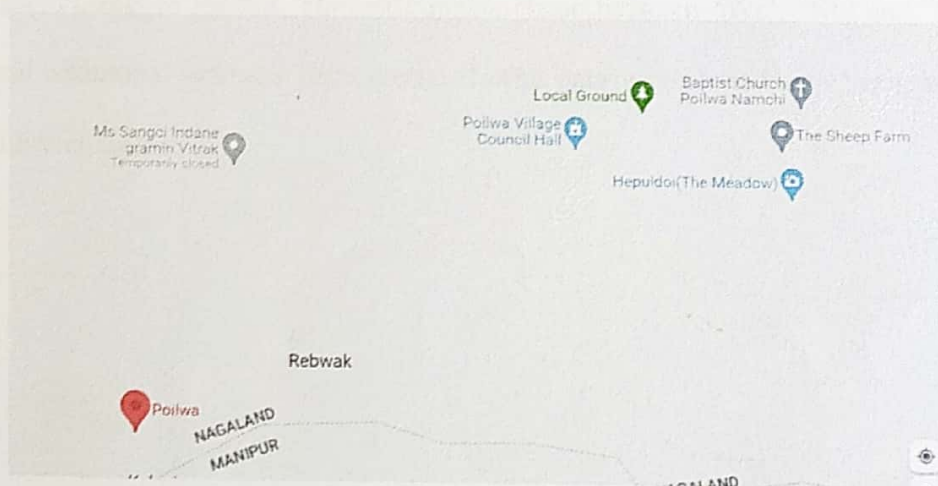
1. Swachh Bharat Mission: With the enactment of new rules, it started door-to-door collection, segregation at source, etc. SBM-Gramin provides interventions for the safe management of solid and liquid waste in villages.
2. Swachhata Hi Sewa Campaign: It is celebrated from 15th September to 2nd October every year for ensuring cleanliness through the various stakeholders' engagement in the 'Jan Andolan' (National Movement). In 2022, it focused on the visual cleanliness of villages, to clean up the garbage/waste dumped in villages.
3. Compost Banao, Compost Apnao Campaign: A multi-media campaign launched by MoHUA on waste-to-compost under SBM-(U). The aim is to encourage people to convert their kitchen waste into compost to be used as fertilizer and to reduce the amount of waste getting to landfill sites.

In Nagaland, due to the absence of proper policy and regulatory mechanism, waste management scenario in the State is still rudimentary. In the rural areas, there are no collection systems at present. But the practice of source segregation of wet waste for animal feed considerably reduces the problem of waste management. Although the situation is not alarming at the moment, it is required to frame regulatory mechanism to ensure proper handling and disposal of waste in view of the changing lifestyle.

1.2 AREA OF STUDY

The area chosen for this case study report is Poilwa. Poilwa is a village located in Peren district in Nagaland, India. It is located in the Pedi (Ngwalwa) circle, 61 km away from the district headquarters of Peren town and 52 km away from Kohima, the state capital. It has 384 households and a population of 2,103 people according to the 2011 Census. There is a Sheep Farm located in the village which is a tourist attraction.

Coordinates - 25.5639° N, 93.8793° E



CHAPTER 2

METHODOLOGY

2.1 APPARATUS

The apparatus used for this case study was a notepad, pen, and mobile phone for recording the answers of survey participants and taking photographs of the site.

2.2 DATA

The data collected for the case study is primary and secondary data

For this report, a thorough literature review was conducted to collect data on the area of interest i.e., waste management. A 12-part questionnaire was prepared in order to collect primary data from 10 participants at Poilwa. The participants chose between 'Yes', 'No' and 'Not Sure' options and additional answers were recorded. The data was plotted into bar graphs using Microsoft Excel 2021.

CHAPTER 3

OBJECTIVES

1. To explore waste management initiatives taken by Poilwa village.
2. To document the various waste management techniques used by the population.
3. To determine whether the current waste management practices are adequate in keeping Poilwa clean.

CHAPTER 4

RESEARCH FINDINGS

4.1 SITE OBSERVATION

Poilwa is a village in Peren district known for its sheep farm which is a tourist attraction. As a result, it receives groups of visitors regularly. Upon arrival at the site, it was observed that there was garbage like plastic bottles and packets, paper, glass, construction materials and tin cans thrown on the ground at the roadside. There were also several areas where garbage was burnt on the roadside. In the village, it was observed that several public wastebins were installed by the village body, however it was not utilized in full as garbage could be seen on the ground even near these bins. There were no designated public garbage disposal/collection sites observed in the village area and sheep farm. More plastic garbage was found in the areas leading up to the sheep farm; there was less litter seen higher up in the village residential area. The sheep farm in Poilwa did not have garbage thrown in its premises, though animal waste could be seen regularly. However, it did not have any wastebins for visitors to use.

4.2 SURVEY DATA

A survey was conducted with villagers and visitors in Poilwa in order to determine the status of waste management in the village. For this purpose, a questionnaire with 12 questions and 3 options- 'Yes', 'No' and 'Not Sure', was prepared.

The data gathered from the survey are as follows –

1. When asked if there were any rules set by village authorities regarding waste management and prohibition of littering, 70% of respondents answered 'No' and 30% of respondents answered 'Not Sure'. 1 respondent stated that villagers were responsible for disposing their own waste in any manner that they saw fit. Another respondent stated that the residents had to keep their localities clean on their own initiative.
2. When asked if there was any waste collection system, 90% of respondents answered 'No' and 10% of respondents answered 'Not Sure'. 1 respondent stated that the employees in the farm collected waste and disposed it themselves without support from the village authorities.
3. When asked if there was any waste disposal site maintained by the village, 90% of respondents answered 'No' and 10% of respondents answered 'Not Sure'.
4. When asked if they segregate food waste from other waste before disposing it, 70% of respondents answered 'Yes', 20% of respondents answered 'No' and 10% of respondents answered 'Not Sure'. 5 respondents stated that they feed their food waste to the pigs they raised. 1 respondent stated that food waste was used to make compost.
5. When asked if they practiced open burning of waste, 70% of respondents answered 'Yes', 10% of respondents said 'No' and 20% of respondents answered 'Not Sure'. 1 respondent stated that the villagers collected their own waste and burned it. 1 respondent in the Poilwa sheep farm stated that they burned all waste except plastic bottles which they buried in the ground.
6. When asked if there were any initiatives taken for recycling waste, 60% of respondents answered 'No' and 40% of respondents answered 'Not Sure'.

7. When asked if there were any public wastebins installed in the village, 90% of respondents answered 'Yes' and 10% of respondents answered 'No'.
8. When asked if there were adequate wastebins in their locality, 40% of respondents answered 'Yes', 40% respondents answered 'No' and 20% respondents answered 'Not Sure'. 1 respondent stated that waste was thrown everywhere except in the wastebins.
9. When asked if people in the village dump waste and litter in public spaces, 30% of respondents answered 'Yes', 40% of respondents answered 'No' and 30% respondents answered 'Not Sure'.
10. When asked if visitors/tourists have led to increased littering in the village, 60% of respondents answered 'Yes', 30% of respondents answered 'No' and 10% of respondents answered 'Not Sure'. 1 respondent stated that some visitors cleaned up their waste and others did not. Another respondent stated that both visitors and villagers caused littering in the village.
11. When asked if any village body initiates cleanliness drives, 90% of respondents answered 'Yes' and 10% of respondents answered 'Not Sure'. 1 respondent stated that the Poilwa Students Union conducted cleanliness drives once or twice a year and choose the cleanest colony which would be awarded a prize. Another stated that schools in some other villages conduct social work to clean the village and the school in Poilwa should take similar initiatives.
12. When asked if they thought their waste management practices were effective in keeping the village clean, 20% of respondents answered 'Yes', 50% of respondents answered 'No' and 30% of respondents answered 'Not Sure'.

CHAPTER 5

GALLERY



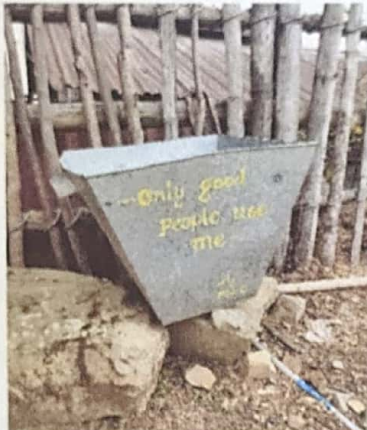
Paper and Plastic Waste Near Sheep Farm



Waste Burning on the Roadside



Public Wastebins in Poilwa Village



Littering on the Roadside

CHAPTER 6

RESULTS

From the survey conducted, it was found that Poilwa Village Council and other village organizations have not imposed any rules regarding waste management, disposal, etc. The villagers could dispose their own waste in any manner that saw fit and they had to keep their own localities clean. Similarly, no initiatives have been taken for collection of waste in an organized manner and public waste collection sites maintained by the village authorities are not set up for the reasons stated above. However, the Poilwa Student Union holds cleanliness drives once or twice a year and decides the cleanest locality/colony which would then be awarded a prize. One villager in the sheep farm stated that the employees in the farm collected waste and disposed it themselves without support from the village authorities. So, like most other villages in India, Poilwa also does not have any waste management infrastructure and it can be seen that waste management initiatives in Poilwa are limited. The Nagaland Integrated Waste Management Policy states that Village Councils shall be responsible for enforcement of the provisions of the policy relating to waste management by the waste generator, use of plastic carry bags, plastic sheets, covers made of plastic sheets and multi-layered packaging in their respective jurisdiction of the State. So Poilwa village authorities should take on a stronger role in waste management, impose rules regarding disposal of waste, collection, littering, etc. and ensure its implementation.

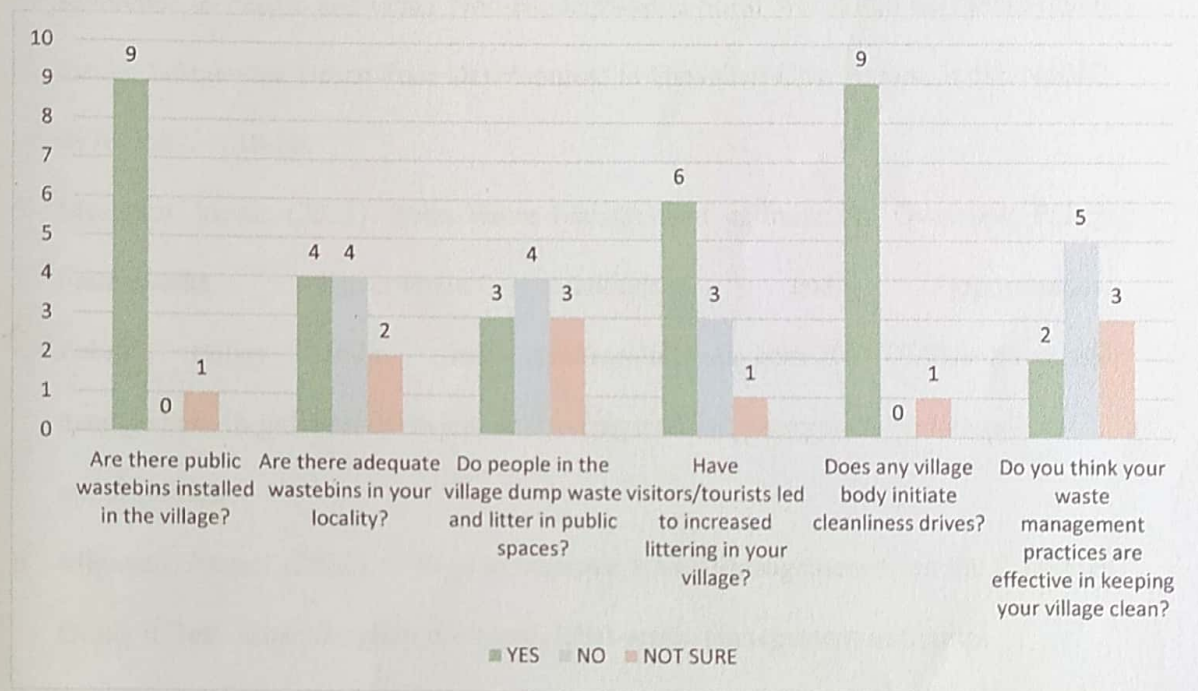
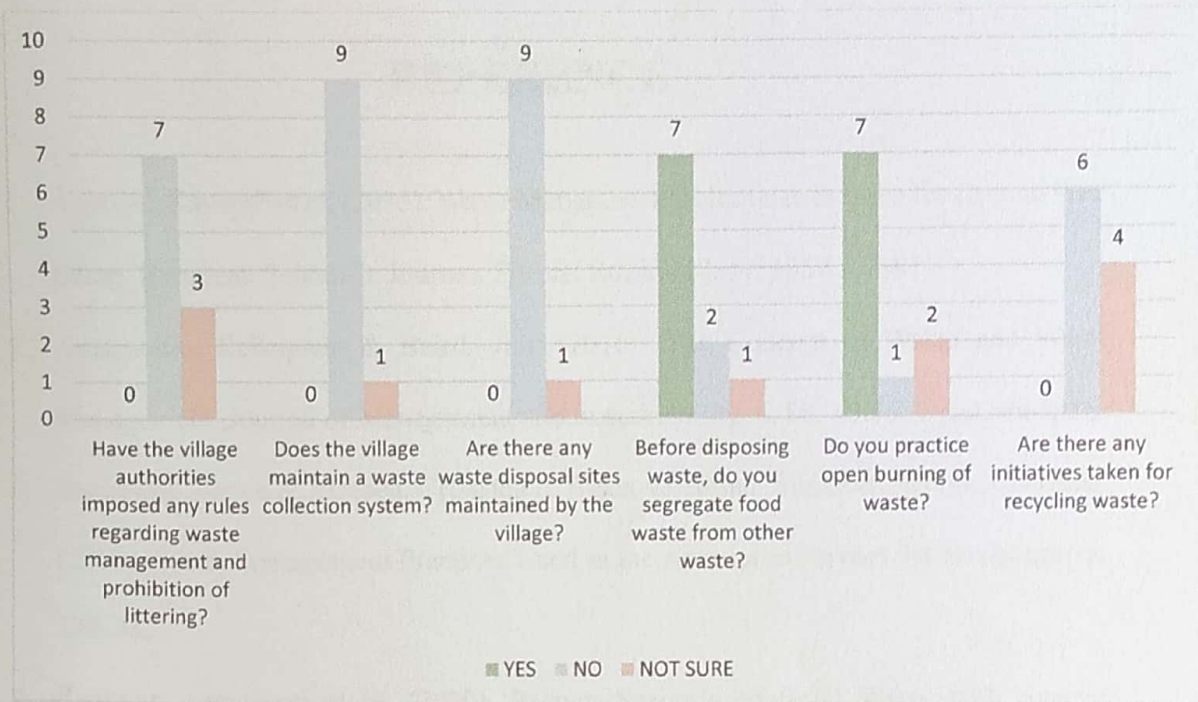
Most of the villagers in Poilwa (70%) segregated their food waste from other types of household waste. The people who segregated their waste chose to use the food waste and kitchen scraps as animal feed and to make compost. Besides food waste, other waste including plastic bags and bottles, paper and cardboard and other miscellaneous waste were collected and burned near their

homes and on the roadsides for a majority of the villagers. In Poilwa sheep farm, all the waste generated by the farm and by visitors were burned except plastic bottles, which they buried in the ground. This shows that most people in the village were not aware of how open burning of waste causes pollution. There are also no initiatives for recycling in Poilwa and some of the respondents were unaware about recycling as a method of waste management. Here, it can be seen that the waste management technique most used by the population of Poilwa is direct open burning of waste. A number of villagers practice more sustainable methods like segregation of wet and solid waste and using biodegradable waste to create compost, but other practices like recycling are not known by the villagers. It is important that more awareness is created among the villagers about the ill effects of burning waste and burying plastic, segregation of biodegradable and non-biodegradable waste and the best ways to dispose each type, etc. Initiatives like the Compost Banao, Compost Apnao Campaign can also be implemented in villages.

There are public wastebins installed around the village as most respondents stated and was also noticed in the site observation (Section 4.1). However, the villagers' opinions about whether these wastebins were adequate were divided. It was also observed that even though wastebins were installed, there was still litter thrown on the roadsides, even near the wastebins. So rather than the number of wastebins, it may be said that it is the attitude of the people that has a bigger role to play in the littering that could be observed around the village. But when asked about whether the villagers dump waste and litter in public spaces, only 30% responded 'Yes'. A majority of the respondents believed that it is the increase of visitors or tourists have led to increased littering in the village though one respondent stated that not all groups of visitors were alike because some cleaned up after themselves and some groups would litter a lot. One of the villagers who responded 'No' added that rather than the visitors only, it was the combined fault of visitors and villagers who

polluted the surroundings. Finally, half of the villagers who participated in the study did not think that their waste management practices were effective in keeping the village clean. Hence, it is understood that the current waste management practices are not sufficient in maintaining cleanliness in Poilwa. In order to keep the village clean, not only should the population adopt more effective waste management practices as mentioned above, but regulations should be implemented and duly enforced. Efforts to improve waste storage and collection are required. Ultimately, public participation along with co-operation among communities and with the authorities is needed for a proper waste management system. A continuous sensitization programme may be necessary to inform the population about the benefits of sustainable waste management practices and the dangers of their current practices, as well as changing their attitude about waste and their environment for the better.

The following are the results of the survey questionnaire –



CHAPTER 7

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CHAPTER 8

APPENDIX

1. Have the village authorities imposed any rules regarding waste management and prohibition of littering?

Sl. No.	1	2	3	4	5	6	7	8	9	10
Yes										
No	√	√		√	√	√			√	√
Not Sure			√				√	√		

Yes: 0

No: 7

Not Sure: 3

2. Does the village maintain a waste collection system?

Sl. No.	1	2	3	4	5	6	7	8	9	10
Yes										
No	√	√		√	√	√	√	√	√	√
Not Sure			√							

Yes: 0

No: 9

Not Sure: 1

3. Are there any waste disposal sites maintained by the village?

Sl. No.	1	2	3	4	5	6	7	8	9	10
Yes										
No	√	√		√	√	√	√	√	√	√
Not Sure			√							
Yes: 0				No: 9			Not Sure: 1			

4. Before disposing waste, do you segregate food waste from other waste?

Sl. No.	1	2	3	4	5	6	7	8	9	10
Yes	√	√		√	√	√		√		√
No			√				√			
Not Sure									√	
Yes: 7				No: 2			Not Sure: 1			

5. Do you practice open burning of waste?

Sl. No.	1	2	3	4	5	6	7	8	9	10
Yes	√	√	√	√			√	√		√
No						√				
Not Sure					√				√	
Yes: 7				No: 1			Not Sure: 2			

6. Are there any initiatives taken for recycling waste?

Sl. No.	1	2	3	4	5	6	7	8	9	10
Yes										
No	√			√		√	√	√		√
Not Sure		√	√		√				√	

Yes: 0

No: 6

Not Sure: 4

7. Are there public wastebins installed in the village?

Sl. No.	1	2	3	4	5	6	7	8	9	10
Yes	√	√		√	√	√	√	√	√	√
No										
Not Sure			√							

Yes: 9

No: 0

Not Sure: 1

8. Are there adequate wastebins in your locality?

Sl. No.	1	2	3	4	5	6	7	8	9	10
Yes		√		√	√	√				
No	√						√		√	√
Not Sure			√					√		

Yes: 4

No: 4

Not Sure: 2

9. Do people in the village dump waste and litter in public spaces?

Sl. No.	1	2	3	4	5	6	7	8	9	10
Yes	√				√		√			
No		√		√		√		√		
Not Sure			√						√	√
Yes: 3			No: 4				Not Sure: 3			

10. Have visitors/tourists led to increased littering in your village?

Sl. No.	1	2	3	4	5	6	7	8	9	10
Yes	√	√	√	√		√	√			
No					√			√		√
Not Sure									√	
Yes: 6			No: 3				Not Sure: 1			

11. Does any village body initiate cleanliness drives?

Sl. No.	1	2	3	4	5	6	7	8	9	10
Yes	√	√		√	√	√	√	√	√	√
No										
Not Sure			√							
Yes: 9			No: 0				Not Sure: 1			

12. Do you think your waste management practices are effective in keeping your village clean?

Sl. No.	1	2	3	4	5	6	7	8	9	10
Yes						√		√		
No	√	√		√	√				√	
Not Sure			√				√			√

Yes: 2

No: 5

Not Sure: 3