

Environmental Damages Cause Due to Waste Produced by Two Wheeler Garages.

Sagar M. Gawande, Chirag S. Wayal , Rakesh S. Narwa , Harshwardhan A. Patil , Swapnil S. Dhage

Abstract: This project assesses the impact of waste generated from unauthorized garages and workshops on the environment and living being. Results also showed that a high percentage of environmental damage was due to waste generated by the auto industry and garages. Soil, water, noise and air were all being polluted. People living in the vicinity are at a great health risk. The project gives a rough idea which type of waste produce in unauthorized garages, to show the hazardous situation environmentally. The findings and policies recommended in this study in order to take the necessary precautions to bring down the levels of carcinogens in the unauthorized garages and work places. The bulbs which are been used contains specific materials like glass, metal etc. which causes harm to the environment as well as human health. This provision looks minor but as per the growing rate of vehicles it might cause a big difference. The material used to make vehicle bulbs contains toxicity. Proper provision should be done accordingly as per the type of the bulb. After completion of this project it will address the need of proper disposal system its advantages and disadvantages, issues related to direct and indirect source of land, air, and water pollution.

Keywords: The findings and policies recommended in this study in order to take the necessary precautions to bring down the levels of carcinogens in the unauthorized garages and work places.

I. INTRODUCTION

Motorcycles is one of the main source to developed the nations, where they are used mostly for recreation, as a lifestyle accessory or a symbol of personal identity. As per the growing rate of motorcycles Pune leads to have the largest motorcycle chain in the world. This also leads to have more number of service stations (garage) for the different kind of motorcycles. Although motorcycles are being serviced there is also a certain amount of wastages been produced by each of them. There are certain Authorized Companies which doses look after the wastage produced with the proper management but as we see there are also the growing rate of Unauthorized Garages which clearly neglects the wastage produced while the vehicle/motorcycle is being serviced. The Environmental Protection Act 1990,

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The Special Waste Regulations Act 1996 and The Control of Substances Hazardous to Health Act (COHH) all set out storage and disposal procedure for such hazardous material. This Act does contain the proper management but awareness should be done regarding this by each garage which somehow fails to maintain the wastage in its proper ways. Waste management is the organized way of managing the waste through pathways to guarantee that they are disposed of with attention to least negative impact to the environment. With the rapidly increasing volume of vehicles, there is a parallel need to increase waste management initiatives by government across the world and also of modern facilities for reuse and recycling of waste materials like metal, solvents, batteries, plastics etc.

Why we are doing?

Now days the use of two wheelers, cars, tempo & other vehicles are more from that the environment is getting harm or polluted like air, water, noise, pollution, etc. Nearly 30% of pollution is done by parts of vehicle, from that we are seeing how to head light, tale lamps & indicator bulbs are harmful to environment

What is Waste?

Waste are unwanted or unusable material which disposed after primary use or is worthless and of no use. A waste produced by many ways like by product, joint product or resource through an invention that increase the value of waste.

Type of waste

Commercial waste, Domestic waste, Agricultural waste, Bio-degradable waste, Non Bio-degradable, Solid waste, Liquid waste, industrial waste, E-waste, Chemical waste, Hazadours waste, Recycle waste, Municipal waste.

II. GLOBAL SCENARIO

In 2016 the world's largest cities generated 2.01 billion tones of solid waste, from that the 0.74 kilograms per person per day is generated. With rapid growth of population and urbanization, annual waste generation is expected to increase by 70% from 2016 levels to 3.40 billion tones in 2050.

India is having the second largest population in the world contributing 17.6% of world's total population. Currently 1,27,486 tones of waste per day municipal solid waste is being generated due to various household activities, commercial activities and industrial activities. From that the Maharashtra State generates over 26.820 tones of solid waste per day is more than other states in India. And also from that the Pune city generates 1600-1700 tones of solid waste per day.

III. LITERATURE REVIEW

1. Rajkumar Joshi and Sirajuddin Ahmed (2016):

Status and challenges of municipal solid waste management in India:

A review is important to plan and implement sustainable low-cost SWM strategies. Lack of awareness, improper technical knowledge, insufficient funding, unaccountability, implementation of law and policies are major reasons for the failure of MSWM. The solution to the problems associated with development and adoption of appropriate technologies and lack of trained manpower will require at realistic time frame and not only central government bodies, but state governments also have to take various actions for strengthening MSWM in the country.

2. Mauro Maia Laruccia, Jarbas Vargas Nascimento, Gilmar Jonas Deghi, Mametro Granja Garcia (2011):

Study of consumer behaviour on recycling of fluorescent lamps:

In this paper the research discusses the decision the consumer's decision on reusing, environmental effects of disposal of fluorescent lamps. Regarding methodology procedures we used a survey on the basis of convenience, with a sample of 240 people. As a result, most people disposed fluorescent lamps in organic waste and considering the right place for disposal the selective collection and reuse post. However, the posts for selective collection are not prepared for the effective reusing of fluorescent lamps and components.

3. Mohamed Gomma Elnour, Hala Abbas Laz (2013):

Clean Production in Auto repair workshops.

This paper suggests that the future is very risky unless the authorized persons are aware of what is going on auto repair workshops, and to plan for guarantee cleaner production by suitable scientific means. It also suggested establishment of special unit dealing with encouraging works, studies, and researches for treatment and recycling of out repair workshops wastes.

4. Preeti Sharma, Aksha Shrama, Preeti Srivastava (2016):

Automobile waste and its management.

The automobile is major material consumer. Nowadays everything is become changes and having a vehicle is very popular. The production of automobiles results in generation of waste materials. With the rapidly increasing volume of vehicles, there is a parallel need to increase waste management initiatives by governments across the world and also of modern facilities for reuse and recycling of waste materials like metal, solvents, batteries, plastics etc.

5. Dasanayaka, S.W.S.B., Al Serhan, O. and Roudaina, H. (2017):

'Environmental and health impact of small garages and workshops.

Groundwater and soil pollution Collected waste chemicals from the storage containers, improper disposal of contaminated large pieces of cloths used for cleaning works and recycling, used oil containing hazardous material are all sources of environmental pollution. A partial list of potentially hazardous chemicals when not disposed of correctly is displayed below in Other solid wastes generated are metal spare parts (such as leaf springs and coils, gaskets, engine blocks, clutch plates, bulb holders, sockets of indicators, plastic and rubber parts (tyre, battery cases, rubber, oil shell, wires, seat covers, broken foot mats and other different types of body materials etc).

IV. METHODOLOGY

1. Identification of garages

Identify the number of garages in the specific study area and classified each of them into two section such as Authorized and Unauthorized.

2. Interview with the owner and workers of the garages

Here we interviewed with the each owners and the workers of garages which helped us to find out the informative data regarding our analysis.

3. Preparation of Question ire.

As per our interview with the owners and workers we managed to prepare the standardized question ire to get awareness of the waste disposal and its effects on surrounding environment.

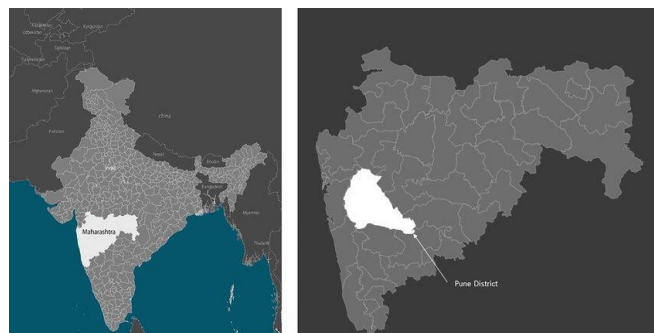
4. Analysis of the Data collected from the specified question ire and from the visit to each garages.

V. GARAGE WASTE

The unwanted and unusable materials produced by the garages it is called garages waste like oil, grease, fabric material, metal parts of two wheeler, wires, Cleaning clothes, water, E-waste, etc which are harming the environment. As per the Garage waste is more in Pune city because as per RTO no. of two wheeler passed from this city is more and highest in the India.

From this we have taken that waste produced by bulbs of two-wheeler which is hazardous to environment.

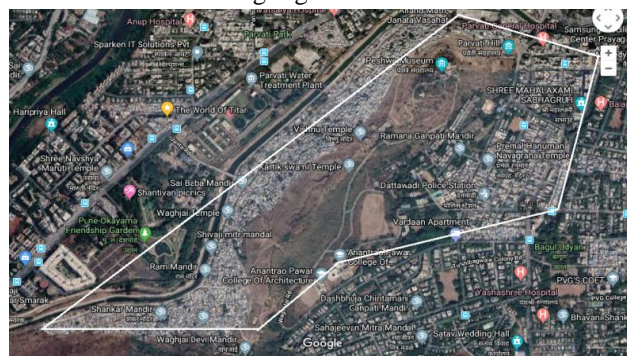
VI. STUDY AREA



Source:- Google

Fig no: 1 showing geographical location

This is India map in which Maharashtra is highlighted and same Pune is highlighted in Maharashtra map



Source:- Google

Fig no: 2 Aerial view of study area in Parvati region

A. About Study Area

India is a rapidly developing country due because the road network is very good for communication, as well as transport and other use. So the use of vehicles is more in India. In that Maharashtra has rapidly growing cities like Mumbai, Pune, Nagpur, etc. Pune city has record break two wheeler users in India and well know as city of two wheelers. With keeping in mind the future growth of the population and numbers of users, we have selected the Parvati region for the study and analysis purpose as area is close to National highway and is densely populated area and has more industrial and commercial activity with more number of vehicle users to address the issues related to the waste mismanagement with special reference to the garage waste.

Garages

It is a shelter or repair shop for Auto-motive vehicle. In this shop various types of works are done related to repair of vehicles like denting, painting, oiling, washing, servicing, etc. As per decided the study area is divided into two zone for easy way of analysis.

VII. RESULT

Initially we visited around 30 garages and observed the each garage produced around 100 gm of defused bulbs, and also 500gm of used clothes of cleaning oily parts of vehicles. Initially as an average of 3 vehicles per day per garage is been serviced which basically generates oil around 22.5 liters after changing the existing oil used for that specific vehicle and also it resulted the other wastages such as bulbs and oil soaked cotton clothes were also generated within the study of 7 days (per week) in a specified area.

The further analysis of waste generated and data collected will be addressed by the authors in due course of time.

Table no. 1:- New Vehicles Registered per Year

Year	Total Two Wheelers	Total Four Wheelers
2010-11	127960	41973
2011-12	155540	51129
2012-13	146240	48406
2013-14	145794	42410
2014-15	166199	49151
2015-16	178157	52880
2016-17	179673	62375

Note: The total Four Wheelers includes Motors Cars, jeeps, & tourist Cabs.

Table no. 2:- Data collected from Garages

Number of Garage visited	30 Garages
Defused Bulbs	100 gm
Cloths used for Cleaning oil parts	500 gm
Average of vehicle serviced Daily	3 vehicles
Waste oil generated	3 liters

Note: Data Mentioned above is for single Garage.

VIII. CONCLUSION

The authorized and unauthorized garages in the study area are identified. We understand that working of garage workers, the conditions of the garages, their day to day waste management practices.

During the last four month study we found that most of the garages won't have any disposal system for their waste produced. The waste produced by these garages directly burn or mixed with the conversional solid waste (MSW). The cloths used for hand cleaning and oil parts cleaning mostly has oil content which are burnt after their use. This burning offer another burden of toxic gas emission like Sox, NOx, CO₂ and complex formation of gases.

The bulbs which are been used contains specific materials like glass, metal etc. which causes harm to the environment as well as human health. This provision looks minor but as per the growing rate of vehicles it might cause a big difference. The material used to make vehicle bulbs contains toxicity. Proper provision should be done accordingly as per the type of the bulb.

After completion of this project it will address the need of proper disposal system its advantages and disadvantages, issues related to direct and indirect source of land, air, and water pollution.

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3. Sagar Gawande et. Al. (2019) Reliable Approach for Management and Disposal of Electric Lamps for Pune Region of Maharashtra State, 139-144, Springer, Singapore
4. Mohamed Gomma Elnour, Hala Abbas Laz (2013): Clean Production in Auto repair workshops.
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