

Storm Water Management A Case Study of Nashik City

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Abstract- Stormwater management means to manage surface runoff. Stormwater management can reduce the runoff of rainwater. It includes controlling flooding and reducing erosion to improve water quality. This Strategy used in our Nasik city (Untwadi Road Signal) to planning of prevents the impacts of Stormwater. We know that, in rainy season the water is flow over the ground surface. This rain water does not have any impurity, it collect in drainage which flow by a force of gravity and then it discharge near lake or river. Urbanization reduces the infiltrate land its causes of the flooding it occurs scouring and waterlogging problem. Then after to identify area of problem and suggest BMPs (Best Management Practices) techniques.

Keywords- Rainfall; runoff; stormwater drains; flooding

I. INTRODUCTION

Due to urbanization of city the infiltration of land is reduce; it results in the low infiltration of rain water in the ground. The stormwater runoff occurs when the rainfalls over the infiltration land such as roadway, walk way, parking lots, rooftop and other surface that prevent the infiltration of stormwater. This runoff volume increase and flooding problem generate in city. This runoff existing in the drain in near lake and river. The sedimentation, nitrogen, bacteria, phosphorus, oil, grease, trash, pesticides, metal and other matter present in the environment also pollute the stormwater in urban areas. The stormwater drain in sewer line to meet the sewage water its more pollute, then after drain in lake or river the other industrial wastewater pollutes the stormwater. The Stormwater management practice to prevent the pollution of runoff and use in storing tank the and water infiltration in ground. Stormwater management is the science of managing stormwater runoff from adverse impacts on the environment. The main goal is to manage water quantity and analysis of problems associated with of stormwater impact, and give analytical solution to it.

Objective: Level 1

1. To identify problems associated with the study area “Untwadi road Nashik”
2. To study the drainage system of study area and give proper solution to the problems.
3. To solve the problem of traffic congestion during rainy season.
4. To discontinue the sewage which is generated from the source.

II. PROBLEM STATEMENT: LEVEL 1

1. After survey of study to area, identify problem of the Stormwater.in the city both side of road provided the Stormwater drain line network to discharge of Stormwater in Nasadi river.
2. The inadequate storm drainage network are does not escape stormwater, due to the low belt in the topography near the signal the runoff of water from multiple direction is diverted towards the low belt



3. This Nasardi river already polluted by Industrial and Residual sewer system. Storm water runoff polluted on Ground surface such contain as vehicle dropping oil and grease, metal, sediments, nitrogen, trash, phosphorus, pesticides, bacteria and other. The impervious area reduces the infiltration. In rainy season the water is flow over the ground surface. This rain water does not have any impurity, it collects in drainage flow by a force of gravity and then it discharge near lake or river. Stormwater runoff polluted by oil and grease which is

drop by vehicles, metal, sediments, nitrogen, trash, phosphorus, pesticides, bacteria and other.

- Rudra Industries
- Automation Industries



Fig. 2 Impervious area



Fig. 4 Study area

4. Due to flooding erosion of the pavements. The Stormwater is the main source of fresh water its drain through discharge into river and we have to store this water for domestic purpose.



Fig. 3 Condition of manhole



Fig. 5 Nashik on high alert

Fig. 6 Influent treatment plant for Industrial on heavy rainfall wastewater

5. The storm drainage line due sedimentation not properly work the debris close the storm drain.

III. STUDY AREA: LEVEL 1

The study has been focused on the small area in Nashik: untwadi road. It is located near the bank of Nasardi River having latitude 19.9906°N and longitude 73.7621°E. It is one of the congested areas in Nashik where problem of water logging occurs frequently. Due to this there is major loss of property and deterioration of road, which affect the economy of the city. The existing stormwater drains in this area are constructed many years ago and the size of drains is small this cause increase in the volume of runoff water.

3.1 Sources: Level 2

This is the list of industries near Nasardi river:

- R.K. Industries
- H.K. Industries
- District Industries Centre
- S.N. Industries

3.1.1 Proposed solution: Level 3 After the existing survey of study area, we identify the problem of stormwater. We When we observe the area we saw that there the stormwater line is not installed so the second solution w can give is to install a stormwater drainage line which starts from Sambhaji Chowk as it have low topography and then it discharge it into the Nasadi River.



Fig. 7 Stormwater line installation

IV. CONCLUSIONS

1. The literature review study shows that there is a scope for studying and analysing to identifying the problem in given study area and provide best management practise to prevent the impact of stormwater.
2. After studying we came across different problems such as the stormwater line is not provided in our study area so providing stormwater line at low belt.

3. Discontinue the sewage coming from different sources.

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