Research Paper Engineering

To Study the Storm Water Drainage of Ahmedabad, Gandhinagar and Vadodara City

* Kanan Y. Patel ** Shibani Chourushi

* W.R.M., L. D. College of Engineering, Ahmedabad

** W.R.M., L. D. College of Engineering, Ahmedabad

ABSTRACT

This paper describes the study urban storm drainage performance indicators. The paper begins by presenting a general framework of objectives and performance indicators as logical intermediate steps between values and the decisions taken to reflect them. The paper then con- siders practical approaches to performance and indicator measurement, based on field experience in India. General conclusions about drainage performance indicators are then presented, stressing the challenge of finding indicators which are valid indicators of performance.

Keywords : Drainage; Flooding; Indicators; Objectives; Performance

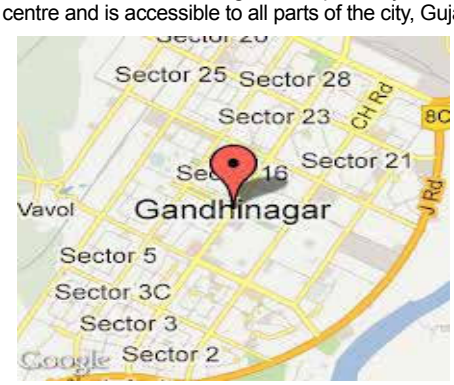
INTRODUCTION

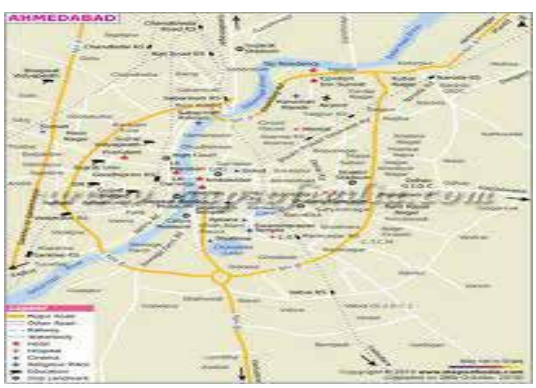
Infrastructure is important in eradicating poverty through various job creation opportunities and by so doing, it enables to speed up economic development and ultimately ensures improved quality of life.

For example, the increase in population generates greater infrastructure demand, urban storm water drainage facilities. When urban Storm water drainage facilities are not properly provided nor integrated in a given urban area, the performance of infrastructure can be limited. Problems like flooding and erosion when persistent can shorten the life span of road infrastructures and other urban utilities. With urbanization, permeability increases because of the increase in impervious surfaces. This in turn changes the drainage pattern, increases overland flow resulting in flooding and related environmental problems. The impact of this is severe on spatial structures like road. This is because, flooding and its related environmental problems like sheet and gulley erosion. Given the significance not only in socio-economic development, but also a path way for the location of other infrastructure, issues that affect its performance and longevity are critical areas of research.

STUDY AREA

The study area, Gandhinagar, Ahmedabad, Vadodara cities, is located in the Gujarat. It is located between 23'13'N latitude and 72'38'E longitude, 23'03'N latitude and 72'40'E longitude, 25'25'N latitude and 76'70'E longitude respectively. It is situated at the centre and is accessible to all parts of the city, Gujarat.





OBJECTIVES

I. To study the performance of storm water drainage for Ahmedabad, Gandhinagar and Vadodara city.
II. To compare the performance of storm water drains for Ahmedabad city with Vadodara city for last three years.
III. To design the storm water drainage for a newly developed area in Ahmedabad.

METHODOLOGY

PERFORMANCE INDICATOR		
Indicator	unit	definition
Coverage of storm water drainage network	%	Coverage is defined in terms of the percentage of road length covered by the storm water drainage network
DATA COLLECTED (for Gandhinagar)		
a. Total length of road network in the ULB	85.23 km	Only consider roads that are more than 3.5 m wide carriageway
b. Total length of primary, secondary and tertiary drains	83.00 km	Only consider drains that are trained, made of pucca construction and are covered.
Coverage of storm water drainage networks	97.38 %	Coverage = [(b/a)*100]

DATA COLLECTED (for Ahmedabad)		
a. Total length of road network in the ULB	km	Only consider roads that are more than 3.5 m wide carriageway
b. Total length of primary, secondary and tertiary drains	km	Only consider drains that are trained, made of pucca construction and are covered.
Coverage of storm water drainage networks	%	Coverage = [(b/a)*100]

RESULTS AND DISCUSSION

DATA COLLECTED (for Vadodara)		
a. Total length of road network in the ULB	1090 km	Only consider roads that are more than 3.5 m wide carriageway
b. Total length of primary, secondary and tertiary drains	1035 km	Only consider drains that are trained, made of pucca construction and are covered.
Coverage of storm water drainage networks	94.95 %	Coverage = [(b/a)*100]

CONCLUSIONS

This paper presents related on the development of performance indicators for urban storm drainage. Although the methods for performance indicator described here. From all results here show that there should be properly storm drainage are provided in cities.

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