STUDY OF

STATUS OF RIVER YAMUNA IN AND AROUND DELHI.

A DISSERTATION SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENT FOR THE AWARD OF DEGREE OF

MASTER OF ENGINEERING IN CIVIL ENGINEERING WITH SPECIALIZATION IN ENVIRONMENTAL ENGINEERING



SUBMITTED BY KULDEEP SINGH MAAN

R.N. 04/ENV./2006 UNIVERSITY ROLL NO.12532

UNDER THE ESTEEMED GUIDANCE OF

Dr. S.K. Singh,PROFESSOR AND HEAD

Mr. Bharat Jhamnani LECTURER

DEPARTMENT OF CIVIL & ENVIRONMENTAL ENGINEERING
DELHI COLLEGE OF ENGINEERING
BAWANA ROAD, DELHI-110042
(UNIVERSITY OF DELHI)
2009

CERTIFICATE

This is to certify that the work contained in this dissertation entitled 'Status

or River Yamuna in and around Delhi' submitted by Kuldeep Singh Mann,

University Roll No.- 12532 in the requirement for the partial fulfillment for the

award of the degree of Master of Engineering in Civil Engineering

(Environmental Engineering), is a record of bonafide research wok carried out

by him under our supervision and guidance. He has fulfilled the requirement of

submission of the thesis, which to our knowledge has reached requisite standards.

The result contained in the dissertation has not been submitted in part or full in any

other university or institute for award of degree or diploma.

Mr. Bharat Jhamnani

Lecturer

Dr. S.K. Singh, Professor and Head

Department, Civil & Environmental Engineering Delhi College of Engineering, Delhi -42. **ACKNOWLEDGEMENT**

I wish to avail this opportunity and express my deep sense of gratitude to

Dr. S.K. Singh, Professor and Head of Department and Mr. Bharat Jhamnani,

Lecturer, Civil & Environmental Engineering, Delhi College of Engineering

Delhi, for their perpetual encouragement.

I would also like to thank Sh.P.K.Khandelwal, Superintending Engineer,

M.C.D. and Sh. Pankaj Gupta, Executive Engineer, Delhi Jal Board for their

kindly help in completing of this project.

I would also like to take this opportunity to present my sincere regards to all

the faculty members of the Department for their support and encouragement.

I am grateful to my mother for her moral support all the time; she has been

always around to cheer me up, in the odd times of this work. I am also thankful to

my classmates for their unconditional support and motivation during this work.

Kuldeep Singh Mann

College Roll No. 04/Env/2006 University Roll No. 12532

ABSTRACT

The River Yamuna originates from the glacial lake of Sapta Kund approximately 12km. right up mountain form the Yamunotri in the Himalayas. It finally merges with the Ganga and Underground Saraswati at Prayag in Allahabad. Enroute it runs for approximately 22.0km along Delhi. This river quenches the thrust of almost 60% population of Delhi and in return it cursed to become a practically dead river, which can resemble more than drain than to river. In lower reaches its water is good for nothing. This is alarming situation towards the environmental degradation as mentioned above.

The objective of this project study is to study and quality of River Yamuna, to identify the sources of pollution of River Yamuna and to suggest preventive measures for prevention of pollution in River Yamuna. The recent judicial activism has also floated and idea to review Legislation in this regard.

The most alarming finding of the study is the total lack of dissolved oxygen in the entire reach, biochemical oxygen demand is more than limits at all the locations and unbelievably high coli forms count. But there is also a ray of hope as the river in the course of its flow despite all odd situations is showing the natural tendency of digesting pollution by the minimum surface aeration available.

This study had also revealed lacunas in the legislations and the norms prescribed there under.

LIST OF CONTENTS

Chapter-1	Introduction		1-9	
1.1 Gen	eral	1		
1.1.	Origin of River Yamuna		2	
1.1.2	2 History of River Yamuna		2 3 3	
1.1.3	B Geography of River Yamuna		3	
1.1.4	Geology of River Yamuna		4	
1.2 Rel	evance and need of present study	8		
1.3 Obje	ectives of study	9		
Chapter-2	Literature Review		10-34	
2.1	Introduction			
	10			
2.2	Pollution potential in the yamuna basin		12	
2.2.	Point source of pollution		13	
2.2.	2 Diffused source of pollution		14	
2.3	B Legislation points about water quality		15	
2.4	Water Quality Classification		16	
	5 Indian Standard		17	
2.6	6 Environmental Laws in India		18	
Chapter-3	Methodology		35-38	
Chapter-4	Results and discussion		39-72	
4.	1 Introduction			
39				
4.2	2 Characteristics of drains water at different locations		40	
4	3 Characteristics of River Yamuna at different locations	in Del	hi	
46				
4.4	Water quality status of River Yamuna around Delhi		62	
4.:	Reasons for declining water quality in Delhi			
67				
Chapter-5	Initiative taken by Government to Control Pollution in River			
	Yamuna		73-84	
5.1	Introduction			
73				
			74 75	

5.4	Works taken by M.C.D. under Yamuna Action plan Phase-II	79
5.5	Recent Initiative taken by Delhi Jal Board	81
-	Conclusions and recommendations Conclusions	85-90 85
6.2 87	Recommendations	
References		91-93
Annexure		94-95