

Sandeep Suresh  
11 December, 2006  
River Pollution: Saving the Wabash River

## MEMO

**To:** Allen Brizee  
**From:** Sandeep Suresh  
**Date:** 12/11/2006  
**Subject:** Audience Analysis for the Problem-Solution Report

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### Introduction

I will be analyzing my audience to whom I will be addressing the problem of pollution in the Wabash and the reason why it is necessary to direct their attention to this problem. Through my research, I have been able to obtain important information to suggest that the pollution of the Wabash River is a persistent problem that needs immediate attention. Through my observations and surveys, it has come to my attention that a major percentage of the population of West Lafayette which comprises of mainly students, are not fully aware of the extent of the problem in the Wabash River. The Wabash River has played an integral part in the history of Indiana and has provided a distinct identity to the West Lafayette region. I wish to address this issue to the city council of West Lafayette who are important decision makers in this issue. In addition, I also wish to address professors who not only have experience but also ideas to alleviate this problem. In addition to the targeted audience, there are many others who might read this report like the residents in West Lafayette and also people around the world (if submitted online).

### Decision Makers

The decision makers comprise of those people who will be able to approve the solution and enforce it. The main decision maker would be Jan Mills, the mayor of West Lafayette who would be able to address the proposed solution to the city council which can then make a decision. If accepted, the solution would then be implemented and will encourage the participation of all residents in West Lafayette.

### Stakeholders

The stakeholders would consist of those people who would be affected directly by the current issue. The stakeholders would be the residents in West Lafayette who will participate in the program. Essentially, the students at Purdue University constitute a large percentage of the population of West Lafayette. As a result, this would benefit the whole community residing in West Lafayette. I believe this policy will be one that will encourage a stronger and unified community that will flourish through team effort of all the residents.

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### **Shadow Readers**

Shadow readers are those who are not directly involved in the policy change. These might consist of readers residing in Indiana or in other parts of the United States. Important people like politicians or educators who have the power to influence change, might even read this report. There might also be readers around the world who will be able to access this report if posted online.

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447, Wiley Hall  
500 North Intramural Drive  
West Lafayette, IN 47906  
11 December, 2006

Jan Mills  
Mayor's Office  
City Hall, 609 West Navajo Street  
West Lafayette, IN 47906

Dear Ms. Mills:

Enclosed is my problem solution report, *River Pollution: Saving the Wabash River*. My report includes the history of the Wabash River, the beginning of pollution in the Wabash and the current problem of the lack of awareness that we face in the West Lafayette region. This problem needs to be addressed immediately so that we can prevent further damage to the Wabash River. I feel my solution will not only address the current issue but also encourage active community participation.

My solution involves the creation of a new program, which will include a four-week awareness campaign followed by discussion sessions and activities for residents of West Lafayette. Through this program, I believe, we can bring the residents of West Lafayette to participate and contribute ideas that can benefit the Wabash River. My plan will comprise of an overall awareness campaign that will encourage the community to volunteer in cleaning the Wabash. This program will be aimed at the residents in West Lafayette. This program will help in educating them about the importance of the Wabash River and the need to participate in cleaning the Wabash.

I am fully committed to saving the Wabash River and will devote all the time needed to achieve the goals of this program. I am positive that if this program is implemented, we will be able to restore the Wabash to its original condition. With the cooperation of the residents of West Lafayette, I am confident that we will be able to accelerate the progress of this program and achieve an environmentally clean surrounding. In addition, I am confident that this public effort will make the community stronger and more unified.

I thank you for taking the time to read my proposal. If you have any questions, comments or suggestions, please feel free to contact me at [ssuresh@purdue.edu](mailto:ssuresh@purdue.edu).

Thank you,

Sandeep Suresh

Enclosure: Problem Solution Report

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Prepared for

English 106-8301, First-Year Composition  
English Department  
Purdue University, West Lafayette, IN

**By**

**Sandeep Suresh  
Freshman, Engineering Major**

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11 December, 2006  
River Pollution: Saving the Wabash River

**Title:** River Pollution: Saving the Wabash

**By:** Sandeep Suresh

**Abstract:** My problem-solution report will deal with the problem of pollution in the Wabash River. It is evident from the sight and the smell of the murky waters of the Wabash that the river is polluted. Possible causes are waste treatment plants that do not function properly and nutrients which get dissolved in water due to soil erosion creating a breeding ground for bacteria. If this problem is not treated immediately, we will face a catastrophe which can adversely affect the local environment and community.

At present, the lack of awareness amongst many students and even the lack of concern is an emerging issue which needs immediate attention. My solution includes a four-week intensive awareness campaign that will encourage the citizens of West Lafayette to participate in the “Mission De-pollution Program”. This program should take around one year to achieve its main goal and should cost no more than four hundred and sixty dollars. This program will help the members of the community to be more conscious and help in curbing the pollution in the Wabash.

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“I pledge on my honor that I have not given nor received any unauthorized assistance in the completion of this assignment. All work contained herein is my own. All referenced work is cited correctly.”

## **Introduction**

The purpose of this problem solution report is to address an issue that is of concern to the Lafayette and West Lafayette community. The Wabash River has been polluted for a very long time and its state continues to worsen. The river received its name from the Miami Indian word *Wabashike* or ‘white water’, which described the white appearance of the river due to limestone at the bottom of the river. However, due to water pollution, this characteristic feature can no longer be observed. The Wabash River has lost its identity and we have to act fast to restore it to its past glory.

My plan, if adopted, would help in increasing awareness and participation of the community. I have spent hours on research to find a cost-effective solution that can be applied. I believe this problem can be tackled by the overall contribution of the community and should take one year for it to be effective. Through my planning, I am confident that this program should cost around four hundred and sixty dollars. If we can work towards this plan as soon as we can, we will be able to see a brighter future for the Wabash River.

In the next section, I will define the term ‘water pollution’ which includes the definition from Merriam-Webster’s Collegiate Dictionary.

## **Definition**

In order to start my research, I had to define my problem which was ‘water pollution’. The term ‘pollution’ is noun form of the verb ‘pollute’. According to Merriam-Webster’s Collegiate Dictionary, the term ‘pollute’ is defined as:

- (1) To make physically impure or unclean.
- (2) To contaminate (an environment) especially with man-made waste

From the above definition, we get a clear idea that water pollution involves the contamination of water bodies like rivers, lakes, ponds and oceans.

It has been observed that water pollution in the Wabash River is ‘non-point source’ pollution. The United States’ Environmental Protection Agency website states that ‘non-point source’ pollution as, “pollution caused by rainfall or snowmelt moving over and through the ground. As the runoff moves, it picks up and carries away natural and human-made pollutants, finally depositing them into lakes, rivers, wetlands, and even our underground sources of drinking water.”

Some of the common sources of this type of pollution are sediment from agricultural practices, oil or grease from industrial sites and even bacteria from pets and animals (PR).

In the next section, I will discuss the various instances over the past years that have led to the pollution of the Wabash River.

## **Background**

The Wabash River has experienced a drastic change over the past century due to many factors that have contributed to the pollution of the River. With rise in population and industrialization, there is a simultaneous increase in pollution.

The first factor which contributed to the pollution is waste treatment plants which do not function properly. Certain compounds such as ammonia from wastes and disinfectants such as chlorine should be removed from effluents which are discharged into the Wabash River. Recent steps taken, such as upgrading the Waste Treatment plant in 2004, have helped in significantly reducing the rate of pollution.

The second factor is rainwater that runs off fields where animals graze. The eroded soil which contains nutrients flows along with the water. The nutrients in the water, in turn, create a suitable environment for bacteria like *E. coli* to flourish.

The third factor is the minor level of mercury in fish and other aquatic species in the Wabash. This occurs during the rains when air from power plant emissions dissolves with the water in the river.

In the next section, I will discuss the initial research that was done for this problem-solution report.

## **Initial Research**

My research involved gathering information from many sources on the Wabash River pollution. I had searched for information from the various resources like CQ Researcher, Lexis Nexis and Academic Search Premier that are available from the Purdue Libraries website. From these resources, I was able to understand the extent of the problem that is prevalent in the Wabash and dwell into the possible causes of pollution in the river. This helped me understand the need to find a long-term solution that includes awareness as well as action.

I conducted a survey and an interview to gain an insight into the public view and an experienced opinion on the current issue.

## **Interview**

I interviewed Trent M. Sutton, Associate Professor of Fisheries Biology at Purdue University. Professor Sutton had been referred to me since he had the knowledge to understand the present situation in the Wabash. Through this interview, I was able to gain a deeper insight and a new look into the present problem in the Wabash.

Initially, my research led me to believe that a major contributor to the Wabash River pollution was the discharge of chemicals into the river. Professor Sutton was able to dispel this myth that was fixed into the public mindset. He informed me that the main cause of pollution at present was sedimentation and nutrient regiment in the river due to soil erosion. He was also quick to highlight that we have to strive to achieve better waste management methods to control soil erosion from taking place (See Appendix B).

## **Survey**

I conducted a survey of 25 students at Purdue University to find out the following:

- If students have actively participated in any event or activity that was related to the protection of the environment.
- If they were concerned of any environmental issue that affects the community that they live in.
- If they would be willing to participate in any event that would benefit the environment or participated in any related community service activity while attending Purdue.
- If they were aware of the Wabash River pollution and if they had any ideas that they wished to contribute.

In the next section I will discuss the results of the survey that was conducted. (See Appendix A)

## **Survey Results**

The survey had a combination of forced questions and essay type questions. Through the survey, I wanted to obtain answers to whether students were willing to participate in cleaning the Wabash and the various reasons, if any, as to why students are not able to participate in these events. I also wanted to obtain various ideas from the students on how to solve the present problem.

This survey revealed that eighty-eight percent knew about the Wabash River. Out of this pool of people, ninety percent were aware that the river was polluted. Seventy-two percent of the people had participated previously in some activity or event that benefited the environment. However, when asked if they would participate in any event that would benefit the environment in Purdue, sixty percent of the students were hesitant in giving a definite reply and many students replied 'maybe'. Only thirty-four percent were confident in participating.

On the survey, students were asked the reason (if any) as to why they were prevented from participating in community-related events. Most students replied that their time was consumed in studies and homework. Some said that they had a job which was another reason for not participating (Table 1).

When students were asked to contribute ideas which would control the pollution in the Wabash, many students believe that imposing heavy fines on people who trash garbage or even designing a better filtration process would help in controlling the pollution in the Wabash.

The table below represents the response by 25 students:

Question	Response		
Have you participated in any activity that has benefited the environment?	72% yes	28% no	
Would you be concerned if an environment related problem affected your community?	60% yes	24% no	16% depends
Have you participated in any environmental activity while at Purdue?	16% yes		84% no
Would you participate if presented with the opportunity?	60% yes	36% no	4% maybe
Have you seen or heard of the Wabash?	96% yes	4% no	0% maybe
If yes, have you heard from any source to suggest that it is being polluted?	91% yes	9% no	0% maybe

**Table 1: Survey Results**

In the next section, I will review the problems that we are facing and the various other issues that are of immediate concern.

### **Problem Summary**

#### **Problem Statement**

For many years the Wabash River has been plagued with many problems such as bacterial growth due to nutrients which flourish their growth. The soil that is being washed away from the banks of the river contains these nutrients which dissolve in water. In addition, waste treatment plants that do not function properly are another major cause of water pollution. The sewage that is released is not properly treated and is a cause of river pollution. It is evident that this is a problem of environmental concern. Hence, the participation of the whole community is imperative to prevent the current problem from progressing.

## Pollution in the Wabash

The Wabash is an important river of Indiana and has a lot of history behind it. From the mid seventeenth century to the eighteenth century, it had been an important channel for the French to trade goods between Quebec in Canada and Ohio. As a result, the Wabash was a boon to traders. With the rise of the industrial age and evolving technology, the Wabash began to be polluted, slowly died unnoticed and was ignored by the public.

The first main reason that resulted in the pollution in the Wabash River was due to sewage treatment plants that did not function effectively. The first water treatment plant was set up in the fifties. Close to a decade later, this plant started facing many problems that were evident. This plant was obsolete, worn out and was unable to handle the present overflow it was facing. In accordance with the new NPDES permit, the plant had to maintain the new standards which required the removal of ammonia and chlorine from effluents. Ammonia and chlorine were the two contributors to the decline in fish populations and were harmful to the aquatic life present in the Wabash (WPCPPD).

The second main reason is the fact that nutrients from washed away soil results in the growth of bacteria which renders its quality. Therefore, soil erosion is another contributor towards water pollution in the Wabash. The growth of various types of bacteria, algae and fungi clog the streams and lakes. Large amounts of money are wasted to render it drinkable (ESRC).

Awareness through public campaigns or even by passing out flyers may only help in informing the residents of West Lafayette. What we really need to do is to motivate the public to take one step forward and work towards finding a method to act on. In many places like Colorado and Kentucky, state monitoring programs heavily rely on volunteers for monitoring river health (Cushing). In addition, there is a need to promote environmental education since an educated community will be able to understand the real problems and appeal to the governing body of the community to look into the matter.

In the next section, I will discuss the different changes that have to be made to control the present situation.

## **Recommendations**

In order to see a major change in the Wabash, we have to attend to the many issues that currently hinder us from moving forward.

The community has to be informed and educated on the present issue. If the people are educated and concerned about the present issue, then it will have a remarkable effect on the situation. They can support public policies that benefit the rivers and oppose that harm the rivers. They can voice their opinions to their elected representatives or to the representatives of government agencies (Cushing).

New methods to prevent sedimentation and nutrient regiment have to be adopted. This will help in preventing the growth of bacteria and the contamination of water.

For this to take place, we have to adopt a feasible solution that has a practical and a cost-effective approach. I will discuss the solution for the current problem in the following section.

## **Solution**

My solution to this program will have the following six stages:

- 1) Portfolio introduction
- 2) Invitation
- 3) Formation
- 4) Discussion
- 5) Investigation
- 6) Implementation

Portfolio introduction is the first stage. In this stage, I will first introduce my portfolio to mayor Jan Mills. If accepted, she can introduce the outlines of the program to the city council. If adopted by the members of the council, the next stage can be implemented.

The second and third stages will involve printing flyers for the callout and distributing or posting them around campus and the West Lafayette region in areas frequented by people. These include places like libraries, shops restaurants and cafes. This could also be achieved by publishing a notice in the local newspapers. The event can be held on a Saturday so that it is convenient for most people to attend. During the event, people who are interested can apply for the different posts in the program which will be titled, “Mission De-pollution Program” (MDP). The posts include:

- 1) Meeting coordinator: The duties of the meeting coordinator entitle him/her to select the places to hold the meetings, time and organize the meeting and take notes of the ideas and views generated through each meeting.
- 2) Survey coordinator: The duties of the survey coordinator entitle him/her to organize and direct the ‘river watchers’ to observe certain points of the Wabash and collect data which identifies which points are serious, moderate and of no harm. S/he will be nominated by the members of the group and should be a person who has experience in this field and good organizational skills.
- 3) River watchers: They will work in groups of four which will observe the points assigned to them and note down their observations and identify if the point is critical or not. They will consist mainly of students who wish to participate in the program.
- 4) Volunteer workers: They will consist of students and residents in the West Lafayette region. They will perform work on the river which will help in preventing sedimentation in the Wabash River.

After the formation of the group, the fourth stage will involve meetings held on the first and third Saturdays of the month involving discussions and brain-storming sessions. Through these sessions, more ideas on how to prevent pollution can be generated. Every meeting will be one hour long and the time will be divided as follows:

- 1) The first ten minutes will be a brainstorming session which will encourage members to stand up and voice their ideas on how to control the problem.
- 2) The next forty minutes will be utilized in discussing the various opinions voiced earlier and debate whether they should be adopted or not.
- 3) The last ten minutes will be set aside to provide members with light refreshments and time to interact with the other members of the MDP.

The fifth stage will include surveying the potential sites, gathering data and identify which of the sites require immediate action. These meetings will be held fortnightly

The sixth stage will include adopting methods like filter strips i.e. growing strips of vegetation like grass to help in controlling the runoff. They can be used for low-density developments. Other methods that can be employed are sodding and terracing (ESRC).

**Timeline**

This is the following timeline that the program will follow:

	December	January	February	March	April	May	June	July	August	September	October	November
	<b>2007</b>											
Present Mayor Jan Mills with my portfolio which will be later addressed to the city council												
Prepare flyers to invite residents to callout and hold informational session												
Hold event and explain the terms of the program and allow people to register as volunteers												
Hold discussion and brain-storming sessions fortnightly												
Volunteers will survey critical areas in the West Lafayette region												
Volunteers will implement the methods to prevent soil erosion												

**Table 2: Timeline for MDP**

The timeline for the program will be one year long if all steps go as planned. During the month of January, I wish to hold the callout which will encourage students not only to come forward and participate but also inform them of the present situation and the common misperception.

From the months February through March, the weather will be too cold to hold any outdoor events. So, during these months, I believe we can utilize this time to come up with any additional ideas that can be implemented by the group. During the months of June and July, volunteers of the program can assist in surveying critical areas of the Wabash River in the West Lafayette region. If all goes well, I believe this program should start from August onwards when volunteers can assist by forming groups which will adopt the methods stated by the program to prevent soil sedimentation in the Wabash River (Table 2).

The program will not be a complete success unless we have an affordable budget.

### **Budget**

My budget for MDP will be as follows:

<b>Item</b>	<b>Cost per item</b>	<b>Number of items</b>	<b>Amount</b>
Flyers for the callout	\$ 0.40 per copy	500 copies	\$200.00
Posting advertisement in the Journal and Courier for 2 days	\$ 160.00 for 2 days	1 advertisement	\$160.00
Printing registration forms for potential members	\$ 0.40 per copy	250 copies	\$100.00
<b>Total cost of the program :</b>			<b>\$ 460.00</b>

**Table 3: Approximate costs for MDP**

In addition to the above costs, I propose a small membership fee of ten dollars per member. This money can go towards the cost of refreshments after the meetings. The extra money collected after the expenses can be used to purchase other equipment if required.

I feel that by minimizing costs, we will be able to make this program a huge success.

### **Conclusion**

The main issue driving this problem solution report is the current problem of pollution in the Wabash due to sedimentation. The Wabash has played an integral part in the history and nature of Indiana. Indiana's rich history speaks of the 'white river' that once served as the trade route between Canada and Ohio and had two historic battles that were fought near it.

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I believe through the, "Mission De-pollution Program", we will be able to achieve a cleaner Wabash. Through this program, I wish to unite the community and encourage involvement and participation. If the community is involved, it increases awareness and concern amongst the residents.

I believe that you will be able to see the need for such a program and will greatly appreciate your support. Please contact me at [ssuresh@purdue.edu](mailto:ssuresh@purdue.edu) for any comments, suggestions and ideas. I am confident this program will be a success and an example that will be used all over the country.

Works Cited

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**Appendix A**

Survey

Tick **any one** answer below unless the question says otherwise. (Add comments if you feel the need):

1. Have you been a member of any environmental organization or participated in any activity that has benefited the environment?

YES                       NO

2. Are you concerned if there is an environmental problem that can affect your community?

YES                       NO                       DEPENDS

3. At present, are you a resident of West Lafayette?

YES                       NO

4. Have you ever been involved in any community-service related activities while you were in West Lafayette?

YES                       NO

5. If no, what has been the reason that has prevented you from participating in these activities?

\_\_\_\_\_

\_\_\_\_\_

6. If you were presented with the opportunity to participate in an event that will benefit the environment, would you agree to do so?

YES                       NO                       MAYBE

7. Have you seen or heard of the Wabash River?

YES                       NO                       MAYBE

If yes, have you seen or heard from any source to suggest the Wabash River is being polluted?

YES                       NO                       MAYBE

8. Do you have any ideas or suggestions that could help or prevent pollution in the Wabash River?

\_\_\_\_\_

\_\_\_\_\_

## **Appendix B**

### Personal Interview with Professor Trent M. Sutton

1. How are you involved with Purdue, and what has been your role in the Wabash River?  
A: I am an Associate Professor of Fisheries Biology at Purdue University. Currently, there are no projects at present I am involved in but I have been observing the Wabash in its present state.
  
2. Do you believe that the pollution in the Wabash is a real problem?  
A: It depends on what you believe is the main cause of pollution. It is a common misperception by the public that the Wabash River is polluted due to pollutants that are being released into the river. However, this statement is false. At present, the Wabash has a lot of sedimentation and nutrient regiment due to soil erosion. A lot of this has to do with lack of proper waste management. Apart from this, we have to take into account that there are landlords who have land through which the Wabash flows. To get permission from the landlords to survey the situation in these areas takes up a lot of time.
  
3. How do you believe we can overcome this current problem?  
A: I believe that there is a lot of awareness education required along with research to find out different ways in which we can prevent soil erosion. Proper waste management will help in minimizing nutrient regiment in water bodies.

**Appendix C**

Writing Log

<b>Task</b>	<b>Time Spent</b>
Brainstorming/gathering ideas	1 hr.
Fill out statistics sheet	½ hr.
Fill out empirical research map	45 min.
Conference with Mr. Brizee	15 min.
Extra Research	½ hr.
Letter of Transmittal	1 hr.
Audience Analysis	1 hr.
Cover page, title page, table of contents, introduction and background	2 ½ hr.
Forming survey questions	1 hr.
Sending out survey and analyzing the findings from the survey	2 hr.
Interview with Trent Sutton	1 hr.
Working on solution, timeline and budget	2 hr.
Working on power point slides	1 hr.
Reviewing paper for grammatical errors	2 ½ hr.
<b>Total Time :</b>	16 ½ hrs. (at \$20/hour ~ \$330)