

**THE GREAT BUBBLE BARRIER
AMSTERDAM, NETHERLAND**

**WUNDERKINDS
BSACIST CRESCENT
INSTITUTE OF
SCIENCE AND TECHNOLOGY**

THEME 1 CASE STUDY



Indian Plastics Institute



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THEME 1: IDENTIFY A PROVEN INITIATIVE (PROJECT OR PROGRAM) IN A CITY, TOWN OR VILLAGE THAT REDUCES PLASTIC POLLUTION FROM ENTERING A WATERWAY

Profile of Stakeholder:

The CIIC is the crescent innovation ir which has authorization from IIC and mentor organization for younger inc is a fully functioning and funding org act as an angel investor.

TEAM MEMBERS:

1. [KEERTHIKA.N. B](#)
2. [LIYAKATH AHAMED .M](#)
3. [SHANTHINI DEVI.A](#)
4. [THARUN.J](#)

SCHOOL:
B.S. ABDUR RAHMAN CRESCENT INSTITUTE
OF SCIENCE AND TECHNOLOGY

Describe the Plastic Waste Problem and The Proposed Solution

Problem: Since 1950 plastic production has reached a great height which indicates the success of plastics. The global production of plastics is growing exponentially. It's extremely remarkable properties made it useful for lots of purposes. Negligence by the people while using plastics. Households contribute to majority of these wastes which are poorly recycled and dumped in landfills. In the rarest of cases even natural disasters can be considered for plastic pollution. This pollution can have harmful effects on the habitat and organism living in both land and water sources.

Solution: The first step we need to take for solving this problem is to change our mindset. Plastics are nonbiodegradable materials, dumping them in lands and waters will only lead to accumulation of plastics on natural resources. On the other hand, if we use educate ourselves and others about the 3Rs, the plastic pollution is a problem solved rather than a problem in hand. Reducing the usage of plastics might be little difficult but reusing and recycling of plastics is much easier. The properties of plastics indicate they can be used many a times without getting damaged. Nowadays recycling factories are available in all regions. Another great method is the bubble barrier.

PART I: PROVIDE BACKGROUND INFORMATION**Describe the city where the Initiative takes place?**

World's first ever rubbish barrier made entirely out of bubble has been unveiled in Amsterdam. It was an innovative attempt to catch plastic waste before it enters to North Sea. This idea was proposed by a Dutch startup, the Amsterdam municipality and regional water board. The bubble barrier is an attempt to collect plastic waste, more specifically the tiny particles of plastics. The pieces that get collected by the barrier can be collected later. This was first applied in westerdok canal in Amsterdam. Prototype models have shown that it can divert more

than 80% of the waste floating and sunk in the water bodies. The bubble barrier uses compressed air to push out the plastic wastes present in water bodies.

Provide the scale of the problem of plastic waste in this city?

The accumulation of plastic waste in landfills and water bodies is a great problem faced by world right now. Research suggests that 8M tons of plastic waste end up in world seas every year. The Netherland region is a general attraction for tourists, Amsterdam being a beautiful city for scenery and architecture has been an attraction ever since tourism became a great hobby. Properties of plastics make them easily available for all utilities and affordable. Amsterdam being a place for tourism has been facing the pollution due to plastics a lot. There is a loss in biodiversity due to this.

Why did the Initiative start in this city?

The initiative bubble barrier is found by 3 Dutch friends namely Anne Eveleens, Fransis Zoet and Saskia Studu. They were discussing about the pollution over a beer time in Amsterdam. This brightened them about the curtain of bubbles raising the impurities in a liquid. Also as mentioned earlier, Amsterdam being a tourist city was facing a great threat to their ecology due to the pollution caused by plastic. Two teams came together to work on the above-mentioned idea, thereby they created the great bubble barrier. While considering the idea, it is something that should be implemented in every city.

PART II: THE INITIATIVE'S IMPACT

What are the benefits to society? What has been accomplished? Have the societal benefits outweighed the amount of resources expended to generate the results?

- Pollution due to plastic is faced by every society, the great bubble barrier removes 80% of plastics from the water bodies. Water bodies being the most affected part of the ecology due to pollution due to plastic will be solved in a large scale by the great bubble barrier.
- The bubble barrier achieves the clean water body by clearing as many flowing inland waterways in the world. By this way it improves the quality of water and organism living inside water. Improving the quality of water in turns improve quality of humans and other animals.
- The great bubble barrier filters plastic in the water bodies by forming bubble screens in rivers, thereby cleaning the river as well as not harming any living organism present in the river. The plastic filtered will be picked up there by available for further usage or recycling the plastic.
- This method shows the people visibly the amount of plastic dumped in water bodies making them aware of the crisis the world is facing right now. This will create a sense of awareness in people for littering plastics in water bodies as well as landfills. Which makes this much required one.

What are the benefits for the environment? Has the Initiative reduced or eliminated the amount of plastic in the streets or waterways? What has been accomplished?

- The bubble barrier supports all weather conditions; it has high durability nature in it. This innovation has cleaned plastic waste under all weather conditions effectively without any damage faced. It has overcome all the weather conditions in the city is applied at the moment.
- The bubble barrier has achieved 80% plastic floating, which is a great percentage of plastics caught after the implementation of the plan. The bubble barrier cleans the water bodies from plastic present in them thereby promising a clean and safe water for citizens.
- It can catch plastics from the size of 1mm and sized larger, these plastics collected will be present at one side of the river bank waiting to be collected manually, this process cleans the river and provides safe environment for living organism and humans living in around the water bodies.

What are the benefits for the economy? Has the Initiative created new business? Can it create new jobs?

- The bubble barrier is generally a cheap and affordable device for cleansing the water bodies, it is economical and best for the environment also. Considering its application, the maintenance requires people with technical knowledge and for the collection of waste people residing near the water bodies will be ideal.
- In general, the maintenance and timely replacement of the equipment of the bubble barrier is cheap and affordable, but when handled by personal with lack of knowledge about the equipment handles frequent change in equipment will be demanded, so for the betterment of the machine and cost effectiveness technical people can be hired.
- The collection of plastic waste from either side of the river will require people residing around the water bodies, who knows about the ecology and other factors involved in hand removal of the plastic.

PART II: WHAT IS POSSIBLE IF THE INITIATIVE HAD MORE RESOURCES IN ITS CURRENT LOCATION

Are the Initiative's operations sustainable "as they are?" Will it be in operation for next five years? If yes, why? If no, why not and what can be improved?

The bubble barrier is self-sustainable source and it has been in implementation in Amsterdam for the past 5 years. It is cost effective solution which provides clean environment. The bubble barrier collects plastic in waterways before it reaches the sea. This method cleans the waterways and protects the organism living in the water bodies. Considering the future of the bubble barrier for the next 5years, it is for sure a much needed one and will be up and working in all major countries. It uses renewable source of energy and also it can work 24/7. In ideal conditions the bubble barrier can collect plastic waste at a rate higher than 80% and can be self-functioning solution, with the increase in plastic usage and the environmental situation this will be highly required for the future.

Assume your team had the funds to increase the budget to maximize social impact. How would the team spend this additional funding, and what would be the incremental results/benefits?

- Solar panel can be installed with the increased budget for power generation which will be renewable and eco-friendly (100,000).
- A recycling plant can be set nearby for the recycling the plastics collected (500,000-900,000).
- The sea bin project which stores the plastic waste can be linked with this for better results (300,000).

INCREMENTAL RESULTS/BENEFITS:

- Without considering the recycling plant set near the project, the plastic waste collected can be sold to a recycling plant or can be developed as a useful product and be sold.
- The collected plastics can be converted as plastic roads and the plastic roads can be proposed as a solution for irregular roads, which will generate an extra income if approved.
- While considering the recycle plant and solar panels set we can use the plant to recycle plastics from other collectors and sell it to the ones who collect recycled plastics.

PART III: “MAKE THE CASE” TO REPLICATE THIS INITIATIVE IN FIVE OTHER LOCATIONS IN INDIA (OR WORLD)

How can this Initiative be replicated in other cities in India?

India itself is a densely populated country, apart from which it gets a huge income due to tourism. Which means there will be huge dumping of waste items. The peninsular country relies greatly on the river flow for its water flow. In addition, the country's backbone is agriculture which is mainly based on these river bodies. Especially the delta regions where there will be abundant availability of minerals. When these rivers are getting polluted the agriculture, the families living around and the cities relying on these rivers will be affected. The replication process can be done without any complications. The installation of these plants will not change the environment and the water flow. As an example, let's take river ganga in Varanasi, they already implemented the clean ganga by enabling a huge filter in the river to take out the plastics. The great bubble barrier won't stop the filter already available but will clean out even smaller plastics that was left out by the filter placed. As a result, not just the river will be clean but also will allow the filter already in place to act without any disturbance.

What kind of resources will be required to replicate current innovation? Money? People? Change in regulation/policies?

As mentioned earlier the great bubble barrier is cheap and affordable, once the clearance for the project is achieved the money required will not be high. The revenue scheme can be jotted down as the salary required for the workers installing the bubble barrier and initial setup of electrical source. As monthly charges the maintenance cost and salary for appointed officials will be required. While considering the changes that should be done by the people living near, the main change they need to take is the change in mindset and politically speaking, the bubble barrier will be of great help for cleaning the river.

Why would these new Initiatives be worth the time, resources and effort?

When considering the far future, the plastic usage will never be decreasing so will the pollution due to plastic. Also speaking for the future India, the best gift that an ancestor could give to his generation is not the wealth but mother nature as pure as he got from his predecessor. That's for the far future of our children but our tomorrow will be better if these rivers are clean, for example a clean river will increase the level of oxygen present in the atmosphere. These initiatives won't be just a use for the organization but also for the people living near the water bodies and the government governing these initiatives.

What challenges need to be overcome for replication?

The installation of bubble barrier won't be facing much of a problem. Under ideal circumstances it can be done in matter of days to install the equipment and the plant for the bubble barrier. After installation during rainy season when the flow of water will be high, at that time the plastic collection rate should also be high but the increase in flow may happen at any time so predicting it will be a great challenge. Also, on contrast in summer, the flow of water will be much less that the hydro power generator will be difficult to operate.

Which cities of India will you choose and why?

As the citizens of India, we feel every river should be cleaned. But is this possible or affordable. Of course not, but we could choose the main cities in the country. While shortlisting on the cities we finalized, Chennai, Mumbai, Kolkata and Varanasi. As residing in Chennai we feel the river passing through Chennai should be clean as new. A news article showed that, since plastic wastes started accumulated on the banks of river people stopped visiting. The river ganga in Varanasi is known for its greatness in curing the sins of people but no one is known for cleaning ganga same follows for river in Kolkata too.

What type of stakeholder and partnerships will be needed to replicate the current initiative?

Initially for the implementation and kick starting the project we will need the help of stakeholders who are ready to donate a small amount of money. In the later stages we will need the help of organization that are already doing social services using volunteers and college students. The profit attained from the bubble barrier will be less compared to other businesses but there will be a state of happiness while accomplishing this initiative.

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TEAM PROFILES

TEAM LEADER:

KEERTHIKA N B (<https://www.linkedin.com/in/keerthika-balasubramanian-6225231b1>)

Myself Keerthika the team leader of this organization, we as a team have decided to take this innovative solution for reducing plastic waste in water bodies as an entrepreneurial idea. As the team leader of this energetic and young organization, I decide to lead this team with an open mind and extreme discipline. I wish to take this team and organization to the next level in the future. We also like to solve many more environmental problems that pose a great threat to our eco system.

TEAM MEMBERS:

LIYAKATH AHAMED M (<https://www.linkedin.com/in/liyakath-ahamed-m-596185215>)

I am Liyakath Ahamed, I myself has initiated many ideas to stop littering. Since my young age I greatly respected our mother nature. As a team member I will always support the decision taken by the team and the leader of the team. Considering, the organization in future range I wish to implement many more ideas for saving mother nature for the future generation. I am happy that we have taken this cause for our entrepreneurial idea.

Shanthini Devi. A (<https://www.linkedin.com/in/shanthini-devi-a-8544a9221>)

Myself Shanthini Devi, I always see myself as the team operating agent who will always work for the team. I often see the neighborhood I live and think what I can do to make it a better place to live. As a team member I never complain about the team's work and failure and will always look forward to make the organization a better one. I am seeing forward to work with this productive group as an entrepreneur.

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Tharun. J (<https://www.linkedin.com/in/tharun-jeeva-834794217>)

I am Tharun, as a youngster I always wondered what can be done by young bloods to improve the environment for the betterment of our generation and future. As a team member I always give potential ideas to improve the team and accept the decision taken by team members and the head. I always want to be independent and be my own boss and look forward to continue my contribution to the team I am currently working with.

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PLEASE PROVIDE THIS INFORMATION FOR THE JUDGES: REFERENCES/INTERVIEWS

INTERVIEWS (LIST PERSON, DATE OF INTERVIEW)

We are currently taking the interview.

REFERENCES

MENTOR:

1. Dr . Murali Manohar
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