

# **PLASTIC POLLUTION AND OUR WATER WORLD**



# **Foreword**

**In an increasingly complex global future “Hemamala Upahara” book project, led by Mahamaya Girls’ College, stands as a turning point in girls’ education. Over a decade, it has successfully nurtured thousands of children to become young authors.**

**This year, by collaborating with other schools, we aimed to provide students with a wealth of new experiences. The goal was to develop multi-faceted skills, including communication, values, and creative growth. As a result, children have written books that pay tribute to Princess Hemamala, who brought the Sacred Tooth Relic- the supreme symbol of the Buddhist world – to the Hill Country**

**( Kandy)**

**I extend my gratitude to everyone involved, including the students who contributed their creativity and the teachers who guided them.**

**Shashikala Senadhira**

**Principle**

**Mahamaya Girls’ College**

## **Congratulatory Message**

**It is a great honor for me, as the Governor of the Central Province, to send a congratulatory message for the launch of the books created through the Hemamala Tribute Book Creation Project initiated by Mahamaya Girls' College, Kandy.**

**Education is the fundamental foundation for the progress of society, and it is further strengthened through books and literary creations. It is clearly commendable that students' talents, creativity, and intellectual abilities are emerging through projects such as this.**

**I believe that this book creation project will provide valuable knowledge and a precious literary contribution not only to the students but to the entire society. Furthermore, I hope that through such efforts, future writers who will bring pride to Sri Lanka will emerge.**

**I extend my heartfelt appreciation and blessings to the Principal, the academic staff, the students, and everyone involved who dedicated themselves to this successful endeavor. I wish this project and the book launch ceremony great success.**

**Sarath B.S. Abeykoon**

**Governor, Central Province**

**Emeritus Professor, University of Peradeniya**

**2026-05-10**

## **Congratulatory Message**

**I highly appreciate the noble and outstanding effort of the Principal and the academic staff of Mahamaya Girls' College, Kandy, the student daughters, the students of other participating schools, and everyone who dedicated themselves to plan and implement this book publication project. The project was organized under the leadership of Mahamaya Girls' College, Kandy, with the participation of other schools in the Kandy Zone, with the aim of encouraging children toward book creation within the current school system, as a tribute to Hemamala Kumariya who brought the Sacred Tooth Relic to Sri Lanka.**

**For several decades, Sri Lanka has been committed to providing free, compulsory, quality, and equitable education to all children, thereby producing a future generation of intelligent and skilled citizens. In such a context, this book creation program for school children helps develop creative ability, critical thinking, and other positive qualities for a balanced and well-rounded personality, and contributes to building a future knowledge-based society.**

**May all activities of the Hemamala Tribute Book Creation Project be successful through the blessings of the Sacred Tooth Relic.**

**Pradeep Nilanga Dela**

**Diyawadana Nilame,**

**Sri Dalada Maligawa.**

**2026.05.10.**

**Book Title**

**Plastic Pollution And Our Water  
World**

**Author's Name**

**Disini Ranulya**

**School**

**Mahamaya Girls' College**

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# How Plastic Pollution Affects Local Water Bodies

## 1. Introduction

Plastic pollution has become a serious environmental problem around the world. Local water bodies such as rivers, lakes, canals, and reservoirs are heavily affected due to irresponsible waste disposal. This research explores how plastic pollution occurs, its impacts, and possible solutions. The study aims to raise awareness among students and the community to protect water sources.

## 2. Background of the Study

Water is one of the most important natural resources. Many communities depend on local water bodies for drinking, bathing, agriculture, and fishing. However, plastic waste has increased over the years and now threatens the quality of water. Research shows that plastic items take hundreds of years to decompose, making them extremely harmful to ecosystems.

## 3. What Is Plastic Pollution?

Plastic pollution refers to the accumulation of plastic objects and particles in the environment, especially in water bodies. These plastics include bottles, bags, wrappers, micro plastics, and other waste materials that do not break down easily.

## 4. Types of Plastics Commonly Found in Water Bodies

- PET bottles
- Polythene bags
- Styrofoam items
- Fishing nets and ropes
- Plastic straws and cutlery
- Packaging materials
- Micro beads from cosmetics





### **5. Sources of Plastic Pollution**

- Improper waste disposal by the public
- Throwing garbage into rivers and canals
- Industrial waste dumping
- Tourist activities
- Storm water runoff carrying plastics
- Fishing industry waste
- Household waste mismanagement

### **6. Why Plastic Pollution Is Increasing**

- Overuse of single-use plastics
- Lack of proper waste collection systems
- Low awareness about environmental protection
- Population growth
- Cheap cost and convenience of plastic materials

### **7. Water Bodies Affected by Plastic Pollution**

Local water bodies such as rivers, lakes, streams, ponds, and reservoirs are commonly polluted. In Sri Lanka, many rivers and canals near towns and cities are polluted due to human activities.

### **8. How Plastic Enters Local Water Sources**

- Plastics thrown on the ground washed away by rain
- Overflowing garbage bins
- Illegal dumping
- Plastics carried by wind into streams
- Waste thrown directly into rivers and lakes



### **9. Effects of Plastic Pollution on Aquatic Life**

Plastic pollution harms fish, turtles, birds, and other aquatic animals in various ways:

- Animals mistake plastics for food
- Ingestion leads to internal injuries or death
- Tangling in fishing nets causes suffocation
- Toxins from plastics contaminate water and food chains
- Destruction of natural habitats

### **10. Micro plastics and Their Impact**

Micro plastics are tiny plastic particles less than 5mm. They are even more dangerous because:

- They cannot be filtered easily
- They enter the food chain through fish and other animals
- They absorb harmful chemicals
- They remain in the environment for centuries

### **11. Effects on Human Health**

Plastic pollution indirectly affects humans:

- Contaminated drinking water
- Eating fish that contain micro plastics
- Increased risk of diseases
- Chemicals from plastics may affect organs and hormones



## **12. Environmental Consequences**

- Water pollution
- Loss of biodiversity
- Flooding due to clogged drainage systems
- Soil contamination
- Disruption of ecosystems

## **13. Social and Economic Impact**

- Reduced tourism in polluted areas
- Loss of income for fishermen
- Increased government cost for clean-up
- Health-related expenses for communities

## **14. Case Studies (Local and Global)**

### **Local Example**

- Kelani River – one of the major rivers in Sri Lanka , especially around Colombo, it suffers from heavy plastic pollution due to urban waste and industrial runoff. Plastic bottles, bags and packaging materials are commonly found.
- Beira Lake – Located in the heart of Colombo, this lake has significant plastic waste accumulation, mainly from nearby residential and commercial areas.
- Negombo Lagoon – This coastal lagoon receives plastic waste from fishing communities and nearby towns, affecting marine life and local livelihoods.
- Kalu River – Flowing through the Western Province , this river carries plastic debris from upstream towns and cities.
- Mahaweli River – Although largely clean in upper reaches, urban settlements along the river contribute plastic waste downstream.

## Global Example

- The Great Pacific Garbage Patch contains millions of tons of plastic floating in the ocean, affecting marine life worldwide.
- Ganges river is one of the most polluted rivers in the world. Plastic bags, bottles, and packaging materials are washed into the river.
- Nile River – Plastic waste from cities along the river accumulates, threatening fish populations and human water use.
- Mediterranean Sea – Coastal cities in Europe, North Africa, and the Middle East contribute to plastic pollution, which harms marine biodiversity.
- Lake Victoria - Plastic bags and packaging materials are common, affecting fishing communities and water quality.

## 15. Preventive Measures

- Reduce the use of single-use plastics
- Use reusable bags and bottles
- Promote recycling
- Educate communities
- Conduct clean-up programs
- Use alternatives like paper and cloth

## 16. Waste Management Solutions

- Proper garbage collection systems
- Recycling centers
- Composting organic waste
- Sorting waste at home
- Government-funded waste disposal programs

## 17. Role of School and Community

- Organizing awareness programs
- Creating eco-friendly school campaigns
- Participating in community clean-up events
- Encouraging students to reduce plastic use

### 18. Government Policies and Laws

- Ban single-use plastics
- Fines for illegal dumping
- Regulations for industries
- Public awareness campaigns
- Strengthening waste management systems

### 19. Recommendations

- Improve waste management in local areas
- Increase recycling facilities
- Promote biodegradable products
- Encourage youth participation in environmental protection
- Strengthen community cooperation



## 20. Conclusion

Plastic pollution remains one of the biggest environmental challenges. It affects local water bodies, aquatic life, the environment, and human health. By taking small steps like reducing plastic use and promoting recycling, we can protect our water sources for future generations.

## 21. References

- Science textbooks
- Media websites( Educational)
- Articles
- “Plastic pollution in the marine ecosystem of Sri Lanka” research paper.



# Afterword

With the approval of the Ministry of Education, this research-based project has empowered thousands of student authors for over ten years. Educationists recognize it as a program that significantly enhances the quality of school education.

In alignment with modern educational reforms, encouraging students to author a research work is a milestone in this journey. In this digital age of "Smart" technology, the modern school must demonstrate through research that books and technology should be used together. This is because the unique joy a child receives from a book cannot be replaced by anything else.

To prevent children from drifting away from books—which remain our primary educational tool and storehouse of human knowledge—Mahamaya Girls' College has spearheaded the "Hemamala Upahara" project for many years. Its primary objectives are to foster academic discipline, promote values, and pay tribute to Princess Hemamala, who fulfilled a historic mission to empower women.

We express our gratitude to the Principal, teachers, parents, alumni of Mahamaya Girls' College, representatives of other schools, the Diyawadana Nilame, and the staff of the Sri Dalada Maligawa (Temple of the Sacred Tooth Relic) for their support.

Seneviratne Mahalekam

(Project Creator)

