



Enviro-Solvers Hackathon

2023



by
Tamil Nadu Pollution Control Board

Enviro Solvers Hackathon 2023

The Enviro Solvers Hackathon was a collaborative event conducted by Tamil Nadu Pollution Control Board (TNPCB) as a part of mission LIFE aimed at finding innovative solutions to environmental challenges associated with water scarcity and ill effects of single use plastics. .

Themes

Single Use Plastic
Reduced

Water Saved

The hackathon brought together a diverse group of participants, including college students, engineers, and environmental enthusiasts, MSMEs, Industries, NGOs and research professionals.

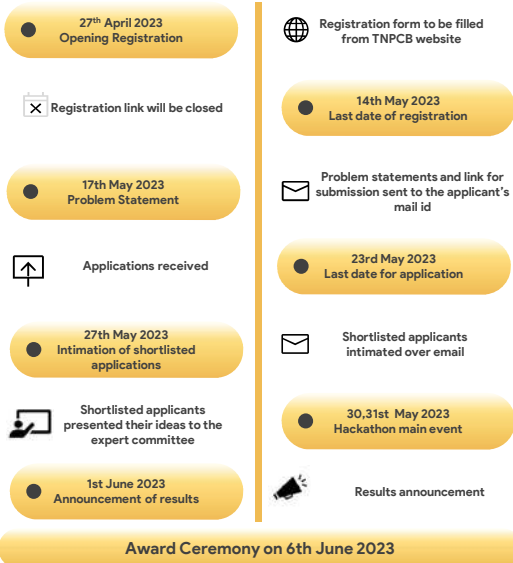
Eligibility

Individual/Team =< 3 Members
Qualification: Graduation/
Pursuing graduation

Awards for each theme

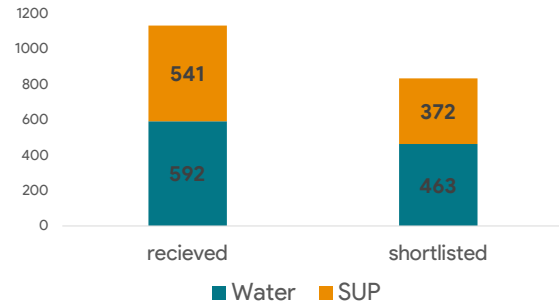
- ① 3 Lakhs
- ② 2 Lakhs
- ③ 1 Lakh (3#)

Timeline



Registrations Received

- Based on the initial advertisements issued on websites, social media handles of TNPCB, and direct communications to the Educational and research institutes and industries.
- More than **1000** registrations were received from both the categories (Water Saved and SUP Reduced).
- The received applications were shortlisted based on the minimum eligibility criteria and relevance of the idea as mentioned in the advertisements and FAQ document.
- More than 800 applications were shortlisted for the next round to whom the problem statement and submission templates were provided

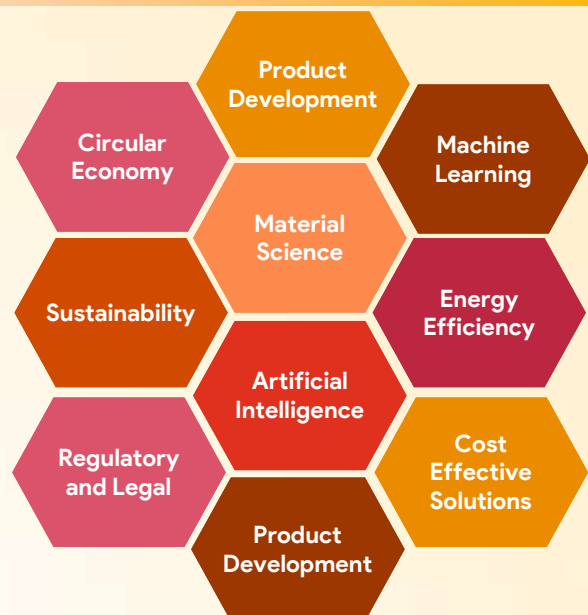


Total No. of Registrations received **1133**

Total No. of Shortlisted Application **835**

Problem Statement

- The problem statements were decided in such a way that the hackathon will help in developing solutions to the current pressing issues and problems associated with Single Use Plastics and Water Scarcity.
- Problem statements were finalized to ensure that the solutions developed could range from **developing a product** or a **material** to leveraging the benefits of **Machine Learning and artificial intelligence**.
- The problem statements were decided in such a way it would invite participation from students to industries but at the same time solving problems across sectors
- For the shortlisted applicants, problem statements along with the submission templates with guidelines were communicated



Problem Statements

Theme: Water Saved

1. Innovative, energy efficient and economical solutions for **reducing freshwater demand** in industrial, agricultural and other water intensive sectors
2. Tools or Techniques for accurate assessment of **water footprint** of a product or an activity throughout its life cycle
3. **Enhancement of precious freshwater availability** by efficient Run off management, Catchment management, Harvesting structures, Surface and ground water storage system, and Transportation and distribution system
4. **IOT and AI** based device for effective water management in cities or large-scale industries
5. Low-cost reclamation and **repurposing of wastewater** (municipal, industrial, agricultural and any other relevant sectors)
6. **Policy or regulatory or legal intervention** for efficient water management and effective control of water exploitation

Problem Statements

Theme: Single Use Plastic Reduced

1. Innovative, economical, efficient and scalable **alternatives for liquid packaging** (Food/daily essentials) and **perishables packaging** (Fruits, flowers, meats, fishes, etc)
2. Common man techniques for easily **differentiating the compostable plastics** from non-compostable ones
3. Energy efficient and practical techniques for enhancing efficiency and reducing the duration of **composting of compostable plastics**
4. **IOT/AI** technologies to improve the exiting plastic waste management system
5. Strategies/digital solutions **for large scale production**, efficient marketing, promotion and supply of eco alternatives to SUP
6. **Computer based applications** for monitoring EPR compliance and tracking of plastic waste
7. Solutions to **prevent penetration of microplastics** into ecosystem.

Applications Received

- Based on the problem statements and submission templates issued to more than 800 applicants, 196 applications in Water saved Category and 176 applications in SUP Reduced category were received.
- Applications were received from colleges, research Institutes, industries, NGO's and individuals throughout the state of Tamil Nadu.

Applications received in Water Saved **196**

Applications received in SUP reduced **176**

Evaluation of applications



The applications received under each category were evaluated by an Internal committee which had senior officials from TNPCB, who evaluated the applications based on the below mentioned parameters

Technology / Design	Impact	Business Value	Business Value			
Innovation	Suitability	Sustainability	Clarity			
Feasibility	Measurability	Affordability	Presentation			
	Sustenance	Scalability				
40	+	30	+	20	+	10
Total Points = 100						

Ideas received from the applicants were evaluated based on the above criteria's for a total score of 100 points and the top 15 ranked applicants in each category were invited for the presentations during Hackathon Main event





Hackathon Main Event
SUP Reduced Presentations

 30-05-2023
 TNPCB, Chennai



Hackathon Main Event
Water Saved Presentations

 31-05-2023
 TNPCB, Chennai

Evaluation by Expert Committee

The shortlisted applicants under the categories SUP Reduced and Water Saved presented their solutions in front of the expert panel on 30th and 31st May 2023 respectively. The expert committee consisted of Regional officers from CPCB, MoEFCC, senior officers from TNPCB and academicians from renowned institutes like Anna University, VIT and SSN. The experts evaluated each of the proposed solutions based on the below mentioned parameters

Level of Innovation	20	Technical Feasibility	10
Appropriateness	10	Business Value	10
Effectiveness	10	Scalability	5
Efficiency	5	Financial Feasibility	10
Scale of Impact	5	Presentation Skills	15
Total Points = 100			

The average of the scores provided by each expert was calculated for every participant to arrive at the final top 5 participants to be awarded in the World Environment Day 2023 celebrations for both the categories

SUP Reduced Winners

First Place			Second Place		
Innovative, Cost-Effective And Viable Edible And Eco-Friendly Alternatives In Food Packaging For Circular Economy			Sustainable Food Packaging materials from Sun hemp fibres as a substitute for synthetic plastics in food industry		
Kaviyashree. S, Pooja. L, Raajeswari.Pa			SriKavi. A		
Avinashilingam Institute for Home Science and Higher Education for Women, Coimbatore			Sri Ramakrishna College of Arts and Science for Women, Coimbatore		
Third Place					
AGRIVERY- Sustainable package container and methods of improving shelf-time of food items thereof		Plasti-Track (Cloud based Mobile Application)		THUTRI - One-Stop Platform for SUP Alternatives	
Ananth Sai Shankar. V Sathiyar. A.R Yokesh. J		Shyam Shankaran. R		Shyamkumar. M Adithiyar. S Sowmiya. K	
Velammal Engineering College, Chennai		NLC India Limited, Chennai		Sri Sairam Engineering College, Chennai	

Water Saved Winners

First Place

Carbon Quantum Dots from Industrial Smoke Captured Microalgae as Photocatalyst for Textile Effluents- A Novel Approach

Sivasankar S, M. Chamundeeswari

Dyanamic Megaceutics, Namakkal

Second Place

Eco-friendly and energy-efficient treatment for the rapid removal of ammonia from secondary treated effluent water in the pre-treatment of a process converting STEW into process water for industrial use

S. Ashok Kumar A. Kannan

Chemfab Alkalis Limited, Puducherry

Third Place

Water Conditioning Unit

Sivasamy P Mugundhan

Sigma En Tech, Tiruppur

Grey Water Treatment Subunit in Washing Machines: A Hybrid Approach Towards Water Management

S. Vishali, S. Sam David

SRMIST, Kattankulathur, Chengalpattu

Bioinspired Hydrogel capsules for increased water retention and nutrient absorption

R. Brindha, Jennet Debora, V. Lokesh

Anna University,
BIT Campus, Trichy

Award Ceremony

The winners of the Enviro Solver Hackathon 2023 from both the categories were presented with their awards and cash prizes by

Thiru. Siva V Meyyanathan, Hon'ble Minister for Environment and Climate Change, Government of Tamil Nadu in the Presence of **Smt. Supriya Sahu, IAS.**, Additional Chief Secretary to Government, Department of Environment, Climate Change and Forests, Government of Tamil Nadu

The banner for the award ceremony includes the following elements:

- Logos:** LIFE (Lifestyle for Environment), Tamil Nadu Pollution Control Board, and World Environment Day 2023.
- Text:** "தமிழ்நாடு மாசு கட்டுப்பாடு வாரியம்" (Tamil Nadu Pollution Control Board), "WORLD ENVIRONMENT DAY 2023", and "Enviro-Solver's Hackathon Award".
- Image:** A photograph showing the award presentation ceremony with officials and winners.
- Website:** www.tnpcb.gov.in