

TURN THE TIDE

NEWSLETTER

Green Psyche Environmental Association,
Faculty of Livestock, Fisheries & Nutrition
Wayamba University of Sri Lanka



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WHY? A NEWSLETTER.

From the Senior Treasurer's Pen,

It is with great pleasure and pride that we present the fourth issue of Turn the Tide, the official bimonthly newsletter of the Green Psyche Environmental Association, Faculty of Livestock, Fisheries, and Nutrition, Wayamba University of Sri Lanka.

This publication is dedicated to raising awareness among youth on the most pressing environmental and sustainability challenges of our time. Anchored in four key thematic pillars—Biodiversity, Climate Change, Food and Nutrition, and Green Entrepreneurship—Turn the Tide aims to spark meaningful dialogue, promote critical thinking, and inspire purposeful action.

Through the voices of experts and thought leaders, we share innovative ideas and practical solutions that empower young minds to become active contributors to a greener, more sustainable future.

As we mark our fourth issue, I am deeply encouraged by the growing engagement of students across faculties and universities. Building a strong, connected network of passionate youth is essential in addressing the environmental issues that affect us all. This sense of community and shared purpose is one of the driving forces behind this newsletter.

I sincerely hope that Turn the Tide continues to awaken a sense of responsibility and leadership among its readers, encouraging them to take bold, visionary steps toward building a resilient and sustainable world.

Thank you for being part of this journey. Together, let us truly turn the tide.

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BIODIVERSITY

MEET THE OCEAN'S MOST EFFICIENT CLEANUP TEAM

When we think about ocean pollution, what often picture plastic bottles floating on the surface, bags entangled in coral reefs, or sea turtles struggling with discarded waste. However, a far more insidious threat lies beneath the waves, "microplastics". Along the Negombo coast, studies have found that over 60% of beach sand and sea water contain microplastics.

In Sri Lanka coastal waters, micro plastic concentrations range from 0.12 to 1.85 particles per litre. Alarmingly, microplastics have also been detected in edible fish and even in table salt along the southern and western coastal belts, revealing that these tiny pollutants are now entering our food chain



Ocean Filter Feeders: Nature's Unsung Heroes Against Microplastic Pollution

While human activities have significantly increased microplastic pollution in our oceans, nature has developed amazing mechanisms to combat this crisis.

Coral Reef Sponges: Coral reef sponges are among the ocean's most powerful natural filters. Even a tiny piece of sponge can filter more than 24 litres of seawater every day, capturing microplastics within their porous bodies. These quiet cleaners serve as natural traps for harmful plastic particles.



Barrel sponge (*Xestospongia muta*)

Salps and Pyrosomes: In the surface waters around Sri Lanka, salps and pyrosomes, free-floating tunicates, play a vital role in purifying the sea. As they drift, they filter massive volumes of water. A single salp can filter 100 and 200 liters of seawater daily, capturing microplastics ranging from 1 to 10 micrometres.



Pyrosomes (*Purosoma* spp, *Pyrosomella* spp, *Pyrostrmma* spp)

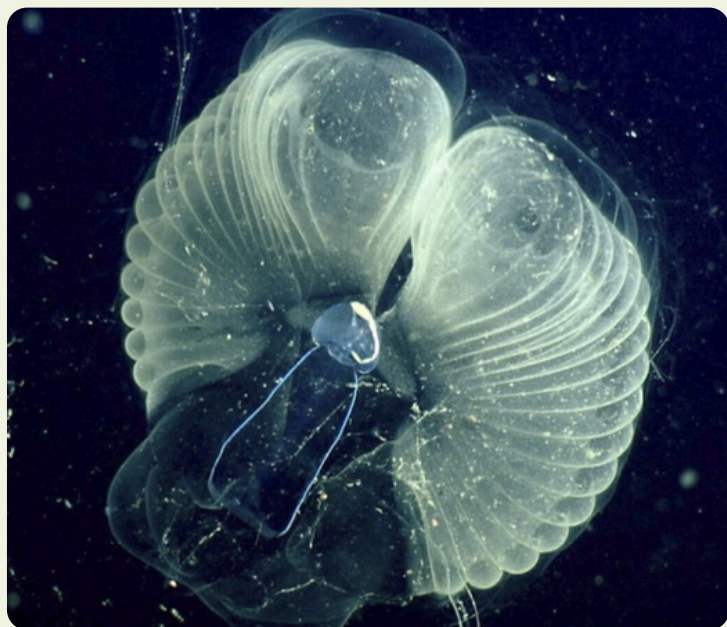
Bivalves: In estuarine environments such as Negombo Lagoon and Galle, bivalves like mussels and oysters form dense beds that act as living filtration systems. One mussel alone can filter up to 25 litres of seawater per day. Collectively, these beds process tens of thousand of litres.

Studies show that rock oysters may contain between 2.6 and 5.1 micro plastic particles per gram of their wet tissue.

Giant Larvaceans: Giant larvaceans, found in deeper waters of the southern and eastern coasts in Sri Lanka, build intricate mucus “houses” that trap tiny particles, including micro plastics. These organisms can filter up to 76 litres of seawater per hour, making them extraordinary contributors to deep-sea cleanliness.



Bivalves (*Ruditapes philippinarum*)



Giant larvaceans (*Bathochordaeus*)

Giant Larvaceans: Giant larvaceans, found in deeper waters of the southern and eastern coasts in Sri Lanka, build intricate mucus “houses” that trap tiny particles, including micro plastics. These organisms can filter up to 76 litres of seawater per hour, making them extraordinary contributors to deep-sea cleanliness.

These incredible marine organisms work silently every day to cleanse our oceans of toxic microplastics. However, their ability to continue this essential work depends on the protection of their habitats.

To support them, we must:

- Reduce plastic waste and prevent chemical runoff
- Conserve coral reefs, estuaries, and deep-sea ecosystems
- Establish and enforce marine protected areas
- Regulate unsustainable fishing practices
- Promote responsible aquaculture

By safeguarding these natural ocean cleaners, we not only protect biodiversity but also give our oceans a chance to recover ensuring a healthier marine environment for future generations.

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CLIMATE CHANGE

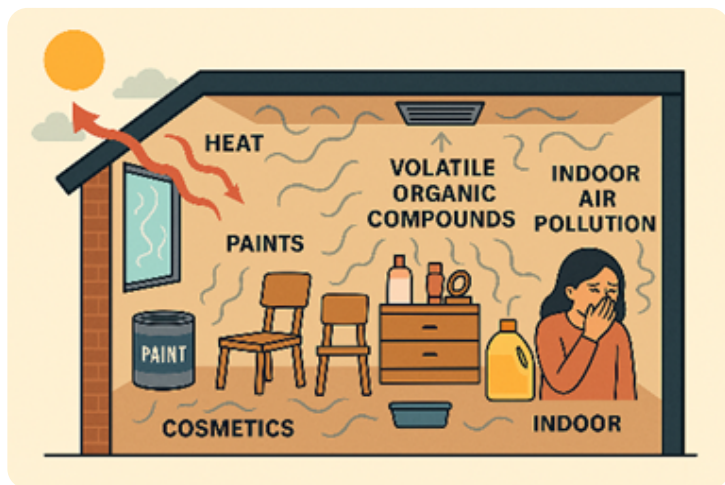
BREATHING EASY IN A WARMING WORLD: HOW CLIMATE CHANGE IS AFFECTING INDOOR AIR QUALITY

Climate Change and Indoor Air Quality: An Invisible Crisis

As global temperatures continue to rise and climate patterns shift, indoor air quality has emerged as an urgent public health concern. The condition of indoor air quality refers to the state of air within homes and educational facilities and workplaces and its impact on health and comfort. Often overlooked, the air we breathe inside our homes, schools, and workplaces can be just as polluted than the air outside. Climate change is exacerbating this issue, making it critical to understand how our indoor environments are being affected and what we can do to protect ourselves.

What's Happening Indoors?

Climate change influences indoor air quality through multiple pathways. Rising heat intensifies the release of volatile organic compounds (VOCs). These are harmful chemicals emitted as gases from certain solids or liquids, including paints, furniture, cleaning agents, cosmetics, and plastics. The health risks from VOCs become more severe when these substances remain inside buildings with restricted ventilation.

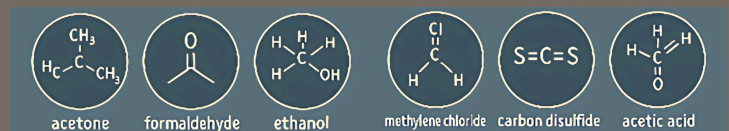


Emission sources of volatile compounds

Sri Lanka's Indoor Air Struggles

Climate change in Sri Lanka is causing deteriorating indoor air quality due to heat waves, insufficient ventilation systems, and weather patterns.

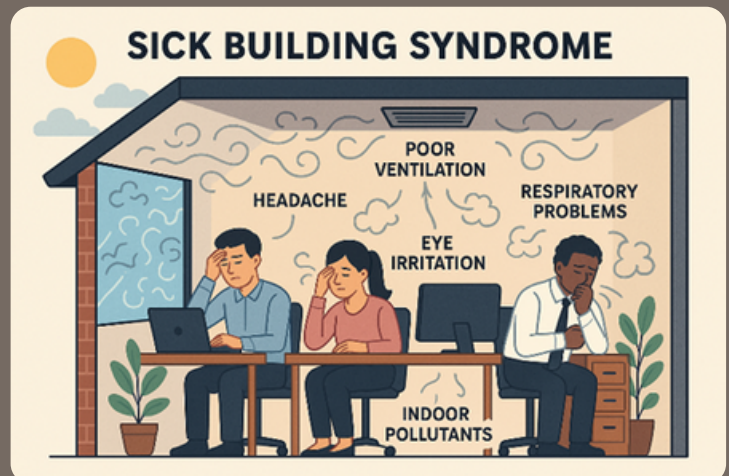
Common household products like synthetic cleaners and plastic-based materials emit pollutants that accumulate indoors. High coastal humidity and slow flood drying areas foster the growth of mould and dust mites, triggering conditions like asthma and other respiratory ailments.



Volatile organic compounds

Sick Buildings, Real Symptoms

Sick Building Syndrome refers to health issues such as headaches, fatigue, and breathing problems that are linked to time spent in certain buildings without identifiable medical causes. However, doctors increasingly recognize that poor indoor air quality, due to factors like mold, chemicals, and inadequate ventilation, can cause or worsen conditions such as asthma, bronchitis, and respiratory infections.



Sick building syndrome

Why This Matters to You?

Indoor air quality directly impacts your daily well-being, sleep quality, and long-term health. Exposure to high levels of indoor pollutants can lead to chronic conditions, reduce productivity, and impair quality of life.

As climate change continues to alter environmental conditions, these issues are expected to become more frequent and severe – unless we take action

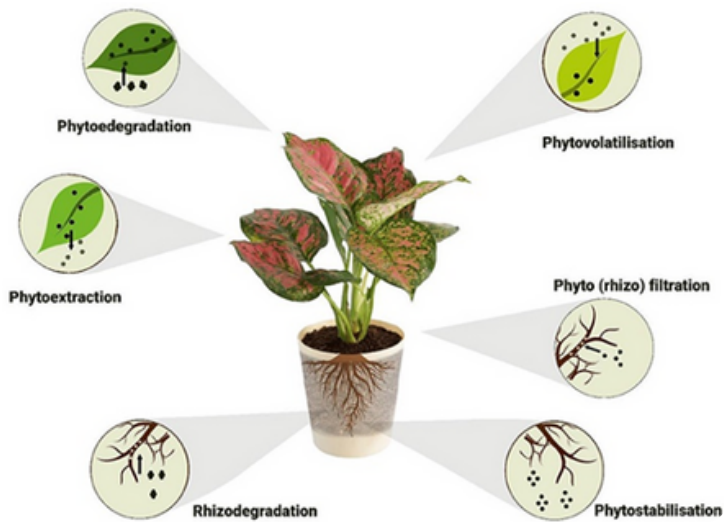
What You Can Do: Green Solutions for Cleaner Air

A simple, sustainable solution lies in indoor plants. Through a natural process called phytoremediation, certain plants purify indoor air by absorbing VOCs, carbon dioxide, and other pollutants – while also releasing oxygen. In addition, they help balance humidity and improve ventilation naturally.

Green plants don't just beautify indoor spaces – they serve as living air filters, making them powerful allies in promoting both environmental sustainability and human health.



Indoor plants



Phytoremediation types

Small Changes, Big Impact

The first step toward climate change adaptation involves improving indoor air quality. The air cleaning process of phytoremediation-enabled indoor plants removes toxic substances from the environment. Better airflow combined with low-emission materials and reduced energy consumption create a pollution-reducing solution. These measures protect your health while decreasing your environmental footprint.

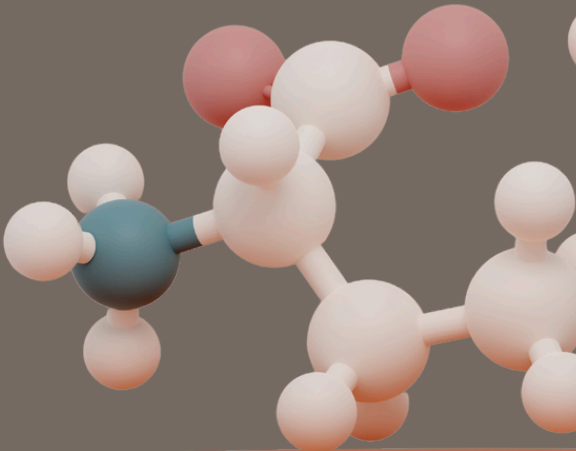
We must protect the air we breathe within our homes and adapt our lifestyles to meet the challenges of a changing world.

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FOOD AND NUTRITION SECURITY

FEEDING THE WORLD WITHOUT FUELING POLLUTION

As we commemorated World Environment Day on 5th June 2025, it is an opportune moment to reimagine a future where everyone has access to healthy, nutritious food without compromising the health of our planet. According to data from the Food and Agriculture Organization (FAO), approximately 2.4 billion people experienced moderate to severe food insecurity between 2021 and 2023. This highlights the urgent need to secure global food systems in an environmentally sustainable manner.

Let's turn into the theme of the environment day this year – Ending plastic pollution. Tackling plastic pollution isn't just about cleaning up our environment. Let's explore how ending plastic pollution plays a vital role in building a more sustainable and food-secure world.

This year's World Environment Day theme—Ending Plastic Pollution—calls attention to a pressing issue that extends beyond environmental cleanups. Addressing plastic pollution is critical to achieving long-term food security and sustainability.

The agriculture sector, in particular, is deeply reliant on plastic. Each year, it consumes around 12.5 million tons for crop and livestock production, in addition to 37.3 million tons used in food packaging. This widespread use of plastic creates a troubling paradox: the very systems intended to feed and sustain us are simultaneously contributing to environmental degradation.

To ensure a food-secure and resilient future, it is imperative that we rethink our dependence on plastic throughout the entire food chain—from farm to table. Transitioning towards more sustainable practices and materials is not only beneficial for the environment but also essential for the health and well-being of future generations.

Plastic's Hidden Toll on Our Food Systems

Soil Degradation: Research shows that when plastic residues in soil exceed 240 kg per hectare, crop yields can drop by 11–24%.

Microplastics are also shown to reduce harvests of staple crops like wheat, maize, and rice by 4–14%—a loss that could push up to 400 million more people toward hunger.

Water Contamination: In a recent environmental study, 20 out of 21 surface water samples contained microplastics—averaging 1,310 particles per liter. Deep-sea research found plastic pollution in 70 out of 75 samples, with 95% of the particles identified as plastic fibres.



Food Chain Infiltration: A study done in 2024 detected microplastics in 88% of protein-rich foods, spanning 16 different sources. Health experts estimate that an average person now consumes around 50,000 tiny plastic particles each year—an alarming entry point into the human body.

The packaging problem

Environmental studies show food packaging accounts for 40% of global plastic waste. Industry surveys reveal over 80% of food packaging is unsuitable for recycling, while environmental data indicates only 9% of the 9.2 billion tons of plastic ever produced has been properly recycled.



Solutions for a sustainable future

Innovative Alternatives: Biodegradable plastics made from renewable resources—such as corn, sugarcane, and vegetable oils—offer promising solutions. Adopting circular economy principles like reducing, reusing, and recycling can drastically cut plastic waste and build more resilient systems.

Technology and Awareness: Investing in advanced collection and recycling technologies, combined with impactful social media campaigns, can spark global momentum. Collaborations with influencers and active community engagement further amplify these efforts, turning awareness into action.

Positive Impact: Research in the food industry shows that sustainable packaging can reduce food loss by up to 20% by extending shelf life. It also helps lower harmful chemical exposure and greenhouse gas emissions, creating healthier outcomes for both people and the planet.

A Call to Action: The fight against plastic pollution is also a fight for food security. Economic studies reveal that plastic pollution costs ocean ecosystems over \$13 billion annually, and marine research warns that global seafood supplies could shrink by 7%.

The time to act is now. Let's feed the world—without fuelling pollution. Our planet's future depends on it.

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"Every piece of plastic ever made still exists today"

SUSTAINING TOMORROW: EMPOWERING NUTRITION FOR ALL

TURNING TRASH INTO TREASURE: SRI LANKA'S GREEN ENTREPRENEURS LEAD THE WAY

Plastic waste is one of the most pressing environmental challenges of our time. Nearly half of all plastics produced globally are designed for single use, yet they persist in the environment for centuries. In 2017, Sri Lanka ranked as the world's fifth-largest contributor of plastic waste to the ocean. Today, the country produces around 1.59 million metric tons of plastic waste annually, but only an estimated 5% is properly managed. With a population of 21.4 million, Sri Lanka generates about 7,000 metric tons of solid waste daily, with the Western Province alone responsible for nearly 60% of it. Amidst this growing crisis, a new wave of innovation is rising.

Innovation Rising from Waste: Sri Lankan entrepreneurs are pioneering eco-friendly business models across sectors such as waste management, renewable energy, sustainable fashion, agri-tech, and green tourism. These start-ups not only address climate change but also drive economic growth by creating sustainable solutions and green jobs. One standout example is Eco Spindles, a company that turns used PET bottles into high-quality textile yarn. With the capacity to recycle 50 million bottles per month, they are transforming plastic waste into valuable export products.

Meanwhile, other start-ups are looking beyond plastic. Innovations include: Coconut husk packaging, utilizing 60% of the 2.5 billion husks discarded annually, Palm-leaf tableware, turning agricultural waste into biodegradable alternatives. These ideas are turning waste into wealth—and unlocking new opportunities for rural and small-scale industries.

A Circular Economy in Action: The shift toward a circular economy is gaining momentum. Material recovery facilities, paired with blockchain-based deposit systems, aim to boost Sri Lanka's recycling rate from 5% to 40% by 2030. If fully implemented, these systems could create over 50,000 green jobs,

proving sustainability and economic development can go hand in hand.

Tech and Policy Driving Change: Kudawala, a Colombo-based start-up, uses a digital platform that rewards households for sorting and recycling waste. Early pilot programs show a 30-40% increase in participation, proving smart incentives drive behavioural change. At the policy level, the Clean Sri Lanka initiative promotes Extended Producer Responsibility (EPR), holding companies accountable for the plastic they produce. Backed by expert guidance and monitoring tools, over 200 businesses have adopted EPR practices, resulting in a 25% drop in illegal plastic dumping in urban areas since 2022.

Educating for a Sustainable Future: Education is a cornerstone of this transformation. Through community centres and school programs, a new generation of "Eco-Champions" is emerging. These efforts promote zero-waste living and inspire youth to see sustainability in lifestyle and the career path.

A Greener Tomorrow, Led by Innovation: Plastic waste is no longer just an environmental threat. It's a resource waiting to be reimaged. For Sri Lanka's forward-thinking entrepreneurs, this challenge is also an opportunity to innovate, create jobs, and build a competitive edge in the global green economy. With strong policy support, community engagement, and continued innovation, Sri Lanka is well-positioned to turn its plastic crisis into a success story.

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SUSTAINABLE SUCCESS: INNOVATING FOR A GREENER TOMORROW

EXPERT VOICES FOR A GREENER TOMORROW

Baobabs and Feral Donkeys in Donkey Island, Sri Lanka: Zero-Cost Biodiversity Assets

Zero-Cost Biodiversity and Urban Eco-Wildlife

Zero-cost biodiversity assets are naturally occurring species or ecosystems that thrive with little to no human intervention or financial input, yet provide immense ecological, economic, and cultural value. Unlike cultivated crops or intensively managed wildlife, these species rely on their natural adaptations to local conditions. As such, they represent valuable "natural capital" that communities can sustainably benefit from without the burden of maintenance or protection costs.

In Mannar, Sri Lanka, baobab trees and feral donkeys are excellent examples of these zero-cost biodiversity assets. Both species have adapted remarkably well to the region's arid environment. Baobabs enrich the soil, support local ecosystems, and offer nutritious fruits and leaves. Feral donkeys, having coexisted with humans for centuries, add to the area's urban eco-wildlife and present opportunities for community-based wildlife tourism. Together, they form an integral part of Mannar's ecological and cultural landscape.

Baobabs

The Global Legacy: Baobabs (*Adansonia* spp.), often called the "Tree of Life," are iconic across Africa, Madagascar, Arabia, and Australia. Of the nine known species, six are endemic to Madagascar, two to mainland Africa and Arabia, and one to Australia. These trees provide food, water storage, medicinal benefits, and habitats for various animals including birds, insects, and monkeys.



Cultural and Historical Roots in Mannar: In Sri Lanka, baobabs are primarily found in Mannar and are believed to have been introduced centuries ago by Arab traders or African missionaries. One of the most renowned baobabs, located in Pallimunai, is thought to be over 700 years old. Local legend says Arab traders brought both baobab seeds and camels to the island, embedding the tree deeply in the region's cultural heritage.



Largest Baobab tree in Mannar



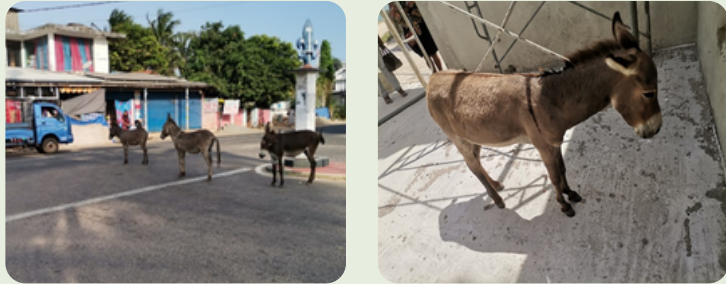
Baobab trees by the road side of Mannar to Talei Mannar

Known locally as "Ali Gaha" (Elephant Tree) due to its thick trunk, the baobab also holds religious significance. Catholic fishing communities refer to it as the "Judas Bag Tree," linking the tree's 30 seeds per fruit to Judas Iscariot's betrayal of Jesus. It is also commonly called the "Monkey Bread Tree" since monkeys feed on its fruit. These cultural interpretations highlight how the baobab has evolved into a meaningful symbol for local communities.

Ecological Role and Ecosystem Services: Baobabs are ecological powerhouses. Their spongy trunks can store water, making them vital for survival in dry zones. They stabilize soil, act as carbon sinks, support pollinators, and provide fodder for donkeys and monkeys. Their nutrient-rich leaves are used in traditional food and medicine. Requiring no human care, baobabs deliver an impressive range of ecosystem services making them true zero-cost biodiversity assets.

Feral Donkeys

Colonial Footprints and New Perspectives: Feral donkeys were introduced to Sri Lanka during the Portuguese and Dutch colonial periods, mainly for transport and the salt trade. Over time, as settlements expanded, they became feral. Today, they roam freely in Mannar, earning the area the affectionate name “Donkey Island.” Once considered a nuisance, these donkeys are now increasingly seen as part of the island’s ecological and cultural identity.



Donkeys wandering around Mannar town

Eco-Cultural Tourism Opportunities

In Africa, baobabs anchor thriving eco-tourism economies such as Madagascar’s avenue of baobabs and baobab product enterprises in Ghana and Tanzania. Likewise, donkey sanctuaries in Spain, Kenya, and Greece blend conservation with tourism.

Mannar can draw inspiration from these models. Establishing Baobab Heritage Gardens and a Donkey Sanctuary under the Department of Wildlife Conservation could preserve these species while promoting sustainable tourism. A proposed “Baobab and Donkey Trail” linking Pallimunai’s ancient baobab, folklore sites, and donkey-viewing areas could offer guided walks, donkey safaris, storytelling sessions, and eco-friendly food experiences.

This approach would not only attract eco-conscious travelers but also support traditional livelihoods, especially within the local fishing and Dhobi (washer) communities.

A Sustainable Vision for Mannar

To secure a sustainable future for Mannar’s unique natural and cultural heritage, it is essential to formally protect its baobabs and feral donkeys. Creating baobab forest gardens and a protected donkey sanctuary can conserve these species while supporting community-led tourism and conservation.

By integrating biodiversity preservation with eco-tourism, Mannar can serve as a model for low-cost, high-impact development—honoring its past while building a resilient future.



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Cradle to Grave: The Hidden Lifecycle of What We Use and Discard



Most of us don’t think about what happens to a product once we’re done with it. A phone stops working, and it’s replaced. A plastic container is tossed after a single use. A pair of jeans wears out, and we move on. But behind these simple acts lies a global pattern of linear design—a system we call “cradle to grave.”

What is Cradle to Grave?

Cradle to grave refers to the linear lifecycle of products:

Extract → Manufacture → Use → Dispose

Each product is created from raw materials, used for a limited time, and then discarded, often in ways that harm the environment.

This model became dominant during the Industrial Revolution and continues today, despite mounting evidence that it's economically inefficient, environmentally harmful, and socially short-sighted.

The Real-World Impact

Electronics

Each year, the world generates over 50 million tons of e-waste (UN Global E-waste Monitor, 2020). Most of it ends up in landfills or is shipped to developing countries, where it leaches heavy metals like lead, mercury, and cadmium into the environment.

Fashion

The fashion industry produces 92 million tons of textile waste annually (Global Fashion Agenda, 2020). The average garment is worn just 7-10 times before disposal. Synthetic fibres such as polyester do not biodegrade and shed microplastics into oceans with every wash.

Packaging

Roughly 40% of all plastic produced is used for packaging (OECD, 2022). Most of it is designed for single use and discarded within minutes. While recycling exists, only 9% of plastic waste is actually recycled. The rest is incinerated, dumped, or left to pollute ecosystems for centuries.

Food and Nutrition

Perhaps the most emotionally and ecologically troubling example is food waste. According to the FAO (2021), one-third of all food produced globally is wasted. Yet producing this food consumes vast resources:

- 2,500-3,000 litres of water for just 1 kg of rice
- Over 1,500 litres for a single beef burger
- Fertilizers and pesticides often pollute waterways, creating dead zones

When we waste food—because it's misshaped, overcooked, or forgotten—we also waste the water, energy, labour, and carbon used to produce it. In landfills, it decomposes without oxygen, releasing methane, a potent greenhouse gas.

Why This Model Persists?

The cradle-to-grave system thrives because it aligns with our current economic model: make more, sell more, replace often.

It feeds fast production and fast profits, while externalizing the environmental costs to society, future generations, and ecosystems.

- Products aren't designed to last.
- Food/cloths are cheap enough to waste, but expensive to clean up.
- Repair, reuse, and redistribution are under-supported.
- Products are often not designed with the end user in mind, e.g. when meals, portions, or packaging don't match consumer habits, they are more likely to be wasted. From overly large portions to confusing labels or unattractive ingredients, poorly tailored food offerings end up uneaten.

Convenience has become a default—but convenience, unchecked, has consequences.

Understanding how deeply embedded the cradle-to-grave mindset is—across industries and dinner tables—helps you ask better questions: for example,

- Can we design meals and packaging for reuse?
 - How can surplus food be redistributed?
 - Could kitchen waste become compost, not landfill?
- The cradle-to-grave lifecycle may be dominant now, but it's not destiny. In nature, nothing is wasted—everything is part of a cycle.

What would it take to move from a linear system to a circular one, where products and food are designed from the outset for reuse, regeneration, and renewal? To answer this, we can explore the Cradle-to-Cradle philosophy, which offers a transformative blueprint for sustainable design.

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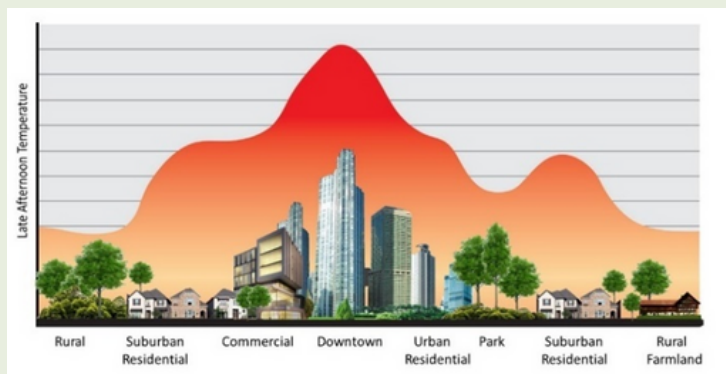
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Urban Heat Island Effect and Mitigation through Urban Greening in Sri Lanka

Urbanization in Sri Lanka—especially in cities like Colombo and Kandy—has intensified the Urban Heat Island (UHI) effect, where urban areas experience significantly higher temperatures than their rural surroundings.

This is driven by dense building concentrations, minimal vegetation, heat-retaining materials such as concrete and asphalt, and anthropogenic heat emissions. The UHI effect is particularly pronounced at night, with temperature differences reaching up to 12°C, due to the slow release of heat absorbed by urban surfaces.



Urban heat island effect

Research in Colombo reveals a strong link between increased Land Surface Temperature (LST) and urban development, indicated by the Normalized Difference Built-up Index (NDBI). Between 2007 and 2017, the average surface temperature in the city has risen from 30.1°C to 31.2°C, highlighting serious environmental and public health concerns.

The UHI effect poses multiple challenges: Elevated temperatures contribute to heat stress and heat-related illnesses, increased energy uses due to increased cooling demand, air pollution, impaired water quality, reduced labour productivity, and even threats to urban biodiversity.

Urban greening offers a practical and sustainable solution. By integrating vegetation into the built environment—through green roofs, green walls, urban parks, street trees, vegetated ground cover, and home gardens—cities can significantly cool down while gaining a host of additional benefits.

For instance:

- Green roofs can lower rooftop temperatures by over 7°C
- Street trees can reduce ambient temperatures by up to 4°C
- Green walls improve both air quality and insulation

These nature-based solutions also enhance urban aesthetics, support biodiversity, improve mental well-being, and foster community resilience.

Despite challenges like limited space, funding constraints, and institutional coordination gaps the opportunity is real. Innovations in vertical gardening and green infrastructure are on the rise, and increasing public awareness is paving the way for wider adoption. Supportive policies and investment in UHI-related research are essential for scaling these solutions.

Urban greening isn't just about planting trees—it's about planting the seeds of a sustainable future. For green entrepreneurs, this is a call to action: innovate, adapt, and lead the way toward a cooler, greener, and more resilient cities.



(a) Green roof



(b) Living wall



(c) Green façade

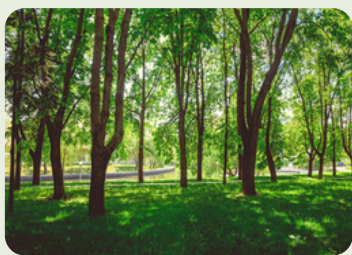


(d) Street trees





(e) Urban parks



(f) Urban forests



(g) Vegetation cover on ground



(h) Urban home gardens



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An Evidence-Based Framework for the Use of Oxygenated Water to Enhance Crop Yield in Home Gardens

The practice of irrigating with oxygenated water has emerged as a promising technique for home gardeners seeking to maximize crop yields. A comprehensive analysis of scientific literature confirms that this method can produce significant, measurable improvements in plant health, root mass, and yield. However, its primary function is corrective, not universally additive. The benefits are most pronounced when alleviating hypoxic (low-oxygen) conditions in the root zone of crops is common but often undiagnosed issue in home gardens.

Plant roots are fundamental oxygen consumers, requiring it for aerobic respiration. This metabolic process fuels the active transport of water and essential mineral nutrients into the plant. When oxygen is scarce, this energy production falters, impairing nutrient uptake and stunting growth. Optimal dissolved oxygen (DO) levels in water are considered to be above 8 mg/L, while levels below 4 mg/L are hypoxic and detrimental to plant health.

The common causes of hypoxia in home gardens happen due to, soil compaction, overwatering, container gardening and high temperatures.

A well-oxygenated root zone not only boosts nutrient absorption but also fosters a larger root mass and promotes beneficial aerobic microorganisms while suppressing harmful anaerobic pathogens like *Pythium* (root rot). Quantitative data reveals that the benefits of oxygenated water are highly dependent on the crop and growing conditions. The most dramatic yield increases are seen in controlled or soilless environments where hypoxia is a greater risk.



Yield improvement in Governor's Plum under oxygenated water application

Analysis of Domestic Oxygenation Methods

Two primary categories of oxygenation are suitable for home use, such as mechanical aeration and electrolysis, each with distinct profiles of effectiveness and safety.

- **Mechanical Aeration (Safe and Recommended)** - Using a spray nozzle on a garden hose can increase DO levels to natural saturation but cannot achieve super-saturated levels.
- **Venturi Injector** - This is the most highly recommended method for home gardeners. A Venturi injector is a simple, non-powered device that uses water pressure to create a vacuum and suck air into the water stream. It is inexpensive, maintenance-free, and can be easily installed on a garden hose or drip system, offering a safe and effective way to boost DO levels.



- **Electrolysis (High Potential, High Risk)** - Electrolysis uses an electric current to split water molecules (H_2O) into hydrogen (H_2) and oxygen (O_2), enabling super-saturated DO levels unattainable by mechanical means. This method presents two significant dangers for home users. First, for every molecule of oxygen produced, two molecules of highly flammable hydrogen gas are also created, posing a serious explosion risk in enclosed spaces like garages or basements. Second, the use of improper electrode materials, particularly stainless steel as commonly suggested in DIY guides, can leach toxic and carcinogenic heavy metals like hexavalent chromium ($Cr(VI)$) into the water used for irrigating food crops. Hence this method is recommended for ornamental plants.



a) Spraying water compressed with air



b) Simple electrode device for Electrolysis

Based on this analysis, a tiered, safety-first approach is recommended for home gardeners.

In conclusion, while oxygenated water is a valid horticultural tool, its application must be guided by an understanding of its corrective nature and an unwavering commitment to safety. Foundational gardening practices remain the cornerstone of a healthy and productive garden.



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Building a sustainable future: Green psyche's Milestones

Our Contribution to World Environment Day 2025

• Awareness program and clean-up campaign at "Kubhuk Sevana"

In celebration of World Environment Day, on June 3rd, 2025, the Pannala Divisional Secretariat organized an awareness program and a cleanup campaign at "Kubhuk Sevana" and its surrounding area. This initiative was carried out in collaboration with the university, the Irrigation Department, Forest Department, farmer associations, and representatives from the nearby industrial zone.



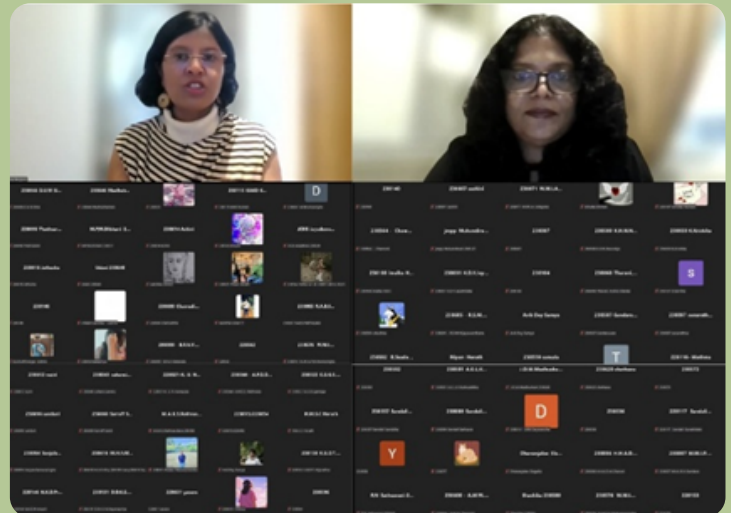
• Plastic and Polythene Clean-up Campaign Around the University

In line with this year's World Environment Day theme, "Ending Plastic Pollution," a clean-up campaign was conducted to collect plastic and polythene waste scattered along the roadsides and surrounding paddy fields near the university. This initiative aimed to raise awareness and promote responsible waste disposal practices among the community.



• Webinar in Commemoration of World Environment Day 2025

To mark World Environment Day on June 5th, a webinar was organized on the theme "Circular Economy: A Pathway to Ending Plastic Pollution and Beyond." The session aimed to raise awareness and promote dialogue on sustainable solutions to plastic pollution through the principles of circular economy.



• "Serpent Sense" - Snake Awareness Program

This program was conducted with the aim of dispelling common fears and myths about snakes, promoting coexistence, and reducing unnecessary killing. It emphasized the vital role snakes play as protectors of the ecosystem—not enemies, but essential guardians of ecological balance.



"LET'S TURN THE TIDE" CALLING ALL AUTHORS!

THE NEWSLETTER PUBLISHED BY,
GREEN PSYCHE ENVIRONMENTAL ASSOCIATION,
FACULTY OF LIVESTOCK FISHERIES & NUTRITION,
WAYAMBA UNIVERSITY OF SRI LANKA

"Turning the Tide" is a periodic newsletter published by the Green Psyche Environment Association of the Faculty of Livestock Fisheries and Nutrition at Wayamba University of Sri Lanka. Its primary objective is to provide an open platform for undergraduates, fostering awareness, discussion, and engagement in environmental and sustainability issues.

We hope this newsletter will inspire youth in Sri Lanka to reassess their social responsibility, gain a clearer understanding of our current environmental trajectory, raise awareness among their peers, and take meaningful actions towards a sustainable future/tomorrow.

We look forward to reading your thought-provoking contributions!

GUIDELINES:

- **Focus on Impact:** Make sure your submission clearly aligns with the theme, delivering a powerful takeaway that leaves a lasting impression.
- **Concise & Captivating:** Limit your piece to 700-1000 words, ensuring each word counts.
- **Engage Your Readers:** We prioritize articles that capture attention and inspire action, so craft a message that resonates.
- **Creative Freedom:** While your article structure is up to you, ensure it flows logically and effectively develops your topic.
- **Keep It Simple:** Strive for clarity and simplicity, avoiding unnecessary complexity.
- **Compelling Narrative:** Feel free to inject energy into your writing—craft a lively narrative that keeps readers hooked from start to finish.
- **Seamless Transitions:** Ensure smooth transitions between paragraphs, guiding the reader effortlessly through your thoughts.
- **Polished & Dynamic:** Lastly, make sure your grammar and language contribute to a dynamic, readable style.



KEY THEMES

Biodiversity

"Nurturing Nature's Diversity
for Better Tomorrow"

Climate Change

"Changing the Climate Story:
Awareness to Action"

Food and Nutrition security

"Sustaining tomorrow:
Empowering Nutrition for All"

Green Entrepreneurship

"Sustainable Success: Innovating
for a Greener Tomorrow"

Submit your Articles to:
greenpsychewusl@gmail.com

INTO THE CLUB

VISION

A life-sustaining civilization that ensures a healthy communication triad: human himself, human - human, human - nature.

MISSION

Actively dedicating for the building of the human resource that is required for the sustainable existence of life on Earth.



Dr. T. Ursula S. Peiris
Editor
Turn the Tide Newsletter



Bashitha Samarakoon
Designer
Turn the Tide Newsletter

OBJECTIVES

- Overcome the over-consumption mindset of Sri Lankans with regard to environment.
- To promote the positive attitudes among Sri Lankans regarding the well-being of the nature.
- To bring about a transformation of the public consciousness leading towards a sustainable lifestyle.
- To mediate the development of agriculture and natural environment aiming at a sustainable lifestyle.
- Creation and promotion of other activities that fulfil the aforementioned mission.
- Reduce the University's ecological footprint, improve quality of life on-campus, create a legacy of sustainability at Wayamba University, enrich the community and contribute to global sustainability.
- Cultivate self-sufficiency, land stewardship, and ethical consumerism in the minds of students and the community.
- Emphasize organic living practices and locally-centered lifestyles.
- Provide education, fellowship, activities, and opportunities through student participation in sustainability.

We gratefully acknowledge the hard work and participation of everyone who contributed to this endeavor.

Editorial board, Turn the tide Newsletter



TURN THE TIDE NEWSLETTER

Green psyche Environmental Association,
Faculty of Livestock, Fisheries and Nutrition,
Wayamba University of Sri Lanka.



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