

TURN THE TIDE

NEWSLETTER

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



Biodiversity	2
Climate Change	4
Food and Nutrition security	6
Green Entrepreneurship	8
Eco-Insights	10
Calling all authors	17
In to the club	18

WHY? A NEWSLETTER.

From the Senior Treasurer's Pen,

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

Turn the Tide serves as a platform for learning, dialogue, and inspiration, aiming to strengthen environmental awareness among young people and engage them with today's pressing sustainability challenges. Guided by four core themes, Biodiversity, Climate Change, Food and Nutrition, and Green Entrepreneurship, this publication encourages critical thinking and meaningful action toward a sustainable future.

This issue features valuable contributions from both students and experts, highlighting diverse perspectives on environmental and social sustainability. Student articles discuss the silent disappearance of fireflies, climate change awareness and mitigation, nutrition for all from an SDG perspective, and smart water conservation entrepreneurship in agriculture. Expert contributions further expand these discussions through topics such as ecological restoration using *Premna* species, the value of neglected and underutilized crops, the link between climate change and food security, and sustainable fashion choices through understanding clothing labels.

As we celebrate the sixth issue, it is inspiring to witness the growing enthusiasm and collaboration among students, academics, and professionals across faculties and universities. Building an environmentally conscious academic community is essential in responding to the complex challenges faced by society today.

I sincerely thank all contributors, editorial team members, and readers for their continued dedication and support. Together, let us continue to turn the tide toward a more sustainable, responsible, and resilient future.

CONTACT

☎ 071 476 1733 / 071 811 8694
✉ green.psyche.env@wyb.ac.lk



Dr. T. Ursula S. Peiris
Department of Nutrition & Dietetics
Faculty of Livestock, Fisheries & Nutrition
Wayamba University of Sri Lanka

A THREAT TO THE NIGHT'S GLOW: THE SILENT DISAPPEARANCE OF FIREFLIES

Have you noticed that nights are growing quieter and dimmer? It is not because the stars or the moon has vanished, but because tiny glowing insects are slowly disappearing. Fireflies, once a familiar sight illuminating dark evenings, are now becoming increasingly rare across many parts of the world.

Fireflies are insects belonging to the family Lampyridae. Their most distinctive feature is bioluminescence, the ability to produce light through a chemical reaction involving luciferin and the enzyme luciferase. For centuries, fireflies have inspired folklore, celebrations, and cultural traditions, with ancient communities often associating their rhythmic flashes with joy, renewal, and harmony with nature.

Today, however, fireflies face a global decline, largely driven by human activities. Many people remain unaware that these ecologically valuable insects are at risk of local extinction.

Ecological and Scientific Importance of Fireflies

Fireflies provide several critical ecosystem services that often go unnoticed:

Ecological Role

- Fireflies are integral components of the food web.
- Their larvae prey on agricultural pests such as snails, slugs, and worms, contributing to natural pest control.
- Both larvae and adults serve as food for birds, amphibians, and other insects.



Indicators of Environmental Health

- Fireflies thrive in clean, undisturbed habitats with healthy soil and minimal chemical pollution.
- Stable firefly populations often indicate good environmental quality, while their decline signals habitat degradation and ecological imbalance.

Scientific and Medical Value

- Firefly bioluminescence is driven by luciferase, a compound widely used in medical diagnostics, genetic research, and disease detection, including cancer and infectious diseases.
- This natural light-producing system has become an essential tool in modern biotechnology.



Major Threats to Firefly Survival

The decline of fireflies is closely linked to several human-induced pressures:

- Habitat loss and fragmentation due to urbanization and land-use change.
- Excessive use of pesticides and insecticides, which kill larvae and contaminate soil.
- Artificial Light at Night (ALAN), causing light pollution that disrupts mating signals and circadian rhythms.
- Climate change, altering temperature and moisture conditions essential for their life cycle.

Fireflies rely on darkness to communicate through species-specific light patterns. Excessive artificial lighting interferes with this process, reducing reproductive success and population survival.

Why Light Pollution Matters?

Artificial Light at Night disrupts natural day-night cycles, affecting not only fireflies but also birds, mammals, and humans. Continuous exposure to unnatural lighting confuses biological rhythms, alters behavior, and weakens ecosystem resilience.

Fireflies themselves use light as a warning signal to predators, indicating that they are toxic or unpalatable. When artificial lights dominate the environment, this natural defense mechanism becomes ineffective.

Conservation Efforts and What We Can Do

Recognizing the urgency of the crisis, organizations such as Global Firefly Conservation Initiatives have taken steps to protect these insects through:

- Public awareness and education programs.
- Habitat restoration and protection.

However, conservation cannot succeed without individual and community participation. Environmental stewards can contribute by:

- Reducing unnecessary outdoor lighting and using firefly-friendly lighting designs.
- Supporting organic and pesticide-free agriculture.
- Protecting wetlands, grasslands, and forest edges.
- Partnering with conservation organizations to promote sustainable practices.



Looking Ahead

The disappearance of fireflies is more than the loss of a beautiful natural spectacle. It is a warning sign of ecological imbalance. The question we must ask is not only what we see today, but what future generations will inherit.

Protecting fireflies means protecting darkness, biodiversity, and the delicate rhythms of nature. With conscious action, we can still hope for nights illuminated by nature’s own living lights.



References:

- National Center for Biotechnology Information (2024) Insects, 15(1), 71. Available at: PMC Article (Accessed: 18 Aug 2025).



D.M.B.R.Dissanayake
22/23 Batch
Faculty of Livestock, Fisheries and Nutrition
Wayamba University of Sri Lanka



**NURTURING NATURE’S DIVERSITY FOR
BETTER TOMORROW**

CLIMATE CHANGE

CLIMATE CHANGE AWARENESS AND MITIGATION

The Earth is exhibiting clear symptoms of distress. Most notably through rising global temperatures, shifting rainfall patterns, and increasingly frequent extreme weather events. Scientists describe this condition as climate change, a long-term alteration of the Earth's climate system primarily driven by human activities. Although these changes have been unfolding for over a century, widespread concern has only emerged as their impacts have become immediate and personal, affecting food systems, health, water security, and livelihoods.

Today, there is broad scientific consensus that climate change represents one of the most significant challenges facing humanity. As Brian McDermott observes, "Climate change is a lot like death. We all understand it is inevitable, but few of us truly accept it." This hesitation to fully acknowledge the scale and urgency of the problem has delayed decisive action, despite overwhelming evidence.

Evidence of a Warming Planet

Climate change is measurable and observable through multiple indicators. Global average temperatures have increased steadily since the mid-19th century, with the most rapid warming occurring in recent decades. The period from 2015 to 2024 includes the warmest years ever recorded, underscoring an accelerating trend rather than a temporary fluctuation. Since 1850, global temperatures have risen by approximately 0.11°F per decade, resulting in an overall increase of about 2.32°F above the 20th-century average. Climate projections consistently indicate that continued emissions will intensify this warming.

The oceans, which absorb more than 90% of excess atmospheric heat, provide further evidence of climate change. Rising ocean heat content has led to more frequent and severe marine heatwaves, disrupting marine ecosystems, coral reefs, and fisheries. Simultaneously, glaciers and polar ice sheets are melting at unprecedented rates.

As a consequence, global sea levels are rising. Between 1901 and 1971, sea levels increased by approximately 0.05 inches per year; today, this rate has increased to nearly 0.15 inches per year, posing serious risks to coastal regions worldwide.

Climate Change Impacts in Sri Lanka

Sri Lanka clearly reflects these global trends at a local scale. Changes in monsoon patterns, increased temperature extremes, and prolonged dry spells are increasingly evident. These climatic shifts have heightened the country's vulnerability to floods, landslides, droughts, and coastal erosion, threatening food security, infrastructure, and human safety. For a climate-sensitive island nation like Sri Lanka, climate change is not a distant concern. It is a present and escalating risk.



Human Drivers of Climate Change

The dominant cause of contemporary climate change is human-induced greenhouse gas emissions. Activities such as the burning of fossil fuels for energy, industrial production, intensive agriculture, deforestation, and improper waste management release large quantities of carbon dioxide, methane, and nitrous oxide into the atmosphere. These gases trap heat, intensifying the natural greenhouse effect and driving global warming.

Global Governance and Its Limitations

International institutions such as the Intergovernmental Panel on Climate Change (IPCC) and the United Nations Framework Convention on Climate Change (UNFCCC) provide scientific assessments and policy guidance to address climate change. Global agreements including the Paris Agreement aim to limit temperature rise and promote climate resilience. Climate change is also increasingly recognized as a human rights issue, linked to the rights to life, health, food, and shelter. However, despite these frameworks, global emissions continue to rise, highlighting a persistent gap between commitments and implementation.

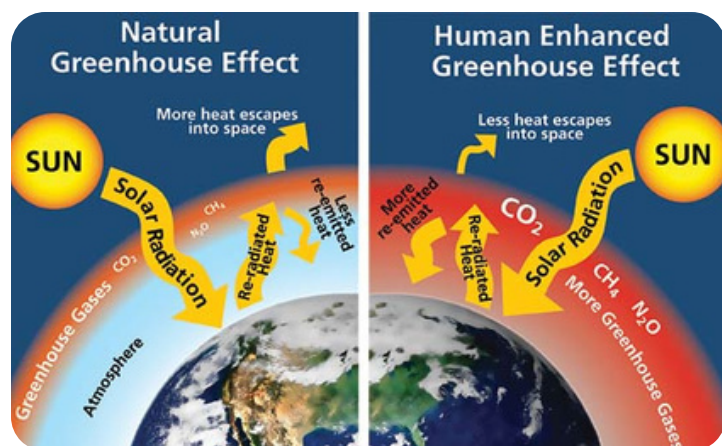
Why Immediate Action Matters?

Former U.S. President Barack Obama stated, "We are the first generation to feel the full effects of climate change, and the last generation that can do something about it." This statement reflects a critical reality: delays in action today will impose irreversible costs on future generations. Climate change mitigation is therefore not optional. It is an ethical, social, and economic necessity.

Individual Contributions to Climate Mitigation

While systemic change is essential, individual actions play a meaningful role in reducing emissions and shaping social norms:

- Transitioning to energy-efficient lighting (LEDs).
- Maintaining electrical appliances to reduce energy loss.
- Using public transportation and reducing private vehicle use.
- Minimizing food and water waste.
- Adopting renewable energy where possible.
- Protecting forests and participating in tree planting initiatives.



Long-Term and Collective Solutions

To achieve meaningful mitigation, coordinated long-term strategies are required:

- Large-scale transition to renewable energy systems.
- Expansion of electric mobility and efficient public transport.
- Investment in clean and low-emission industrial technologies.
- Strengthening climate education and public awareness.
- Enforcing and enhancing international climate agreements.

Conclusion

Failure to act decisively on climate change will undermine the ecological systems that sustain human life. Environmental degradation, if unchecked, will exacerbate inequality, conflict, and insecurity.

However, the opportunity to change course still exists. Through informed decision-making, collective responsibility, and sustained commitment, humanity can secure a livable planet for future generations. Climate action cannot be postponed.

It must begin now, with responsibility shared by individuals, institutions, and nations alike.

References:

- Intergovernmental Panel on Climate Change (n.d.) Intergovernmental Panel on Climate Change. Available at: IPCC Official Website (Accessed: 05 Aug 2025).
- Conservation International (n.d.) Conservation International. Available at: Conservation International Official Website (Accessed: 05 Aug 2025).



R.M.S.K. Rathnayaka
23/24 Batch

Faculty of Livestock, Fisheries and Nutrition
Wayamba University of Sri Lanka

**CHANGING THE CLIMATE STORY:
AWARENESS TO ACTION**

FOOD AND NUTRITION SECURITY

SUSTAINING TOMORROW: NUTRITION FOR ALL – AN SDG-ALIGNED PERSPECTIVE

Nutrition is a fundamental pillar of sustainable development, directly influencing human health, environmental stability, and socio-economic progress. Ensuring universal access to adequate nutrition is central to achieving several Sustainable Development Goals (SDGs), particularly SDG 2: Zero Hunger, SDG 3: Good Health and Well-Being, and SDG 12: Responsible Consumption and Production. Nutrition is not merely about food intake; it represents the foundation of healthy populations and resilient communities.



SDG 2 emphasizes ending hunger, achieving food security, improving nutrition, and promoting sustainable agriculture. Nutrition for all requires that every individual, regardless of age, income, or social background has access to safe, nutritious, and affordable food. A nutritionally balanced diet includes carbohydrates, proteins, fats, vitamins, and minerals in appropriate proportions.

However, access to these nutrients depends on food availability, affordability, and awareness, all of which are shaped by food systems and environmental conditions.

Despite global commitments, food insecurity remains a major challenge, particularly in low- and middle-income countries where food prices are high and resources are limited. Malnutrition, encompassing both undernutrition and overnutrition, poses a dual burden. While undernutrition persists among vulnerable populations, the prevalence of overweight, obesity, and diet-related non-communicable diseases such as diabetes is rising.

This directly undermines SDG 3, which aims to ensure healthy lives and promote well-being for all at all ages. According to the World Food Program (WFP), every country in the world is affected by malnutrition in one form or another, with the lack of affordable, nutritious diets at the center of this global crisis.

Climate change, extreme weather events, inefficient food systems, poverty, and gender inequality further restrict access to nutritious food.

Children are among the most affected. UNICEF reports that more than 400 million children globally live in poverty and are deprived of at least two basic needs, including adequate nutrition and sanitation. This intergenerational impact of malnutrition threatens long-term human capital development and environmental sustainability, reinforcing the need for integrated solutions.



Addressing these challenges requires sustainable and responsible food systems, aligned with SDG 12, which promotes responsible consumption and production patterns. The Food and Agriculture Organization (FAO) highlights that even before the COVID-19 pandemic, the world was off track to eliminate hunger and malnutrition by 2030.

The pandemic further exposed vulnerabilities in global and local food systems. Promoting sustainable agriculture, strengthening local food production, reducing food loss and waste, and encouraging environmentally responsible dietary choices are essential strategies for improving nutrition while protecting ecosystems.



At the local level, supporting climate-resilient agriculture, adopting innovative technologies to improve farming efficiency, and increasing public awareness about sustainable and healthy diets can significantly contribute to SDG progress. Nutrition education empowers consumers to make informed choices that benefit both personal health and the environment.

Ensuring nutrition for all is not only a human right but also a strategic investment in sustainable development. Progress toward SDG 2, SDG 3, and SDG 12 requires collective action from policymakers, communities, producers, and consumers alike. By integrating nutrition, environmental sustainability and responsible consumption, we can build healthier populations, resilient food systems and a more sustainable future; truly sustaining tomorrow.

A resilient society is not defined by how quickly it responds, but by how intelligently it transitions from response to relief, from relief to recovery, and from recovery to resilience. Recovery is not a single act; it is a disciplined sequence of decisions made under pressure, where every delay carries a cost and every shortcut mortgages the future.

The question after any disaster is not whether rebuilding will happen it always does. The real question is whether rebuilding will reduce risk or merely reset the clock to the next disaster.

That question is answered not years later, but in the first few weeks.



References:

- World Health Organization (WHO)
- UN World Food Programme (WFP)
- Stories and features | UNICEF
- Home | Food and Agriculture Organization of the United Nations



W. K Pasindi Inupama
Faculty of Allied Health Sciences
General Sir John Kotelawala Defence
University

EMPOWERING AGRICULTURE THROUGH SMART WATER CONSERVATION ENTREPRENEURSHIP

Agriculture accounts for nearly 70% of global freshwater withdrawals, making efficient water management a cornerstone of food security and environmental sustainability. Climate change-driven challenges such as increasing drought frequency, erratic rainfall patterns, and rising temperatures are placing additional pressure on already stressed water resources, particularly in developing countries. In response, green entrepreneurship has emerged as a powerful driver of innovation, giving rise to smart water conservation startups that integrate digital tools, sensor-based irrigation systems, and renewable energy technologies. This article explores how such ventures contribute to climate-resilient agriculture and sustainable rural development.



The Need for Smarter Water Management in Agriculture

Conventional irrigation practices such as flood irrigation result in significant water losses through evaporation, runoff, and over-irrigation. These inefficiencies are often compounded by weak water governance structures and limited access to modern agricultural technologies. Consequently, there is an urgent need for scalable, affordable, and farmer-friendly solutions that enable optimal water use. Smart water conservation startups are addressing this gap by developing technology-enabled systems that enhance irrigation efficiency while remaining accessible to smallholder farmers.

Smart Water Solutions: The Backbone of Sustainable Farming

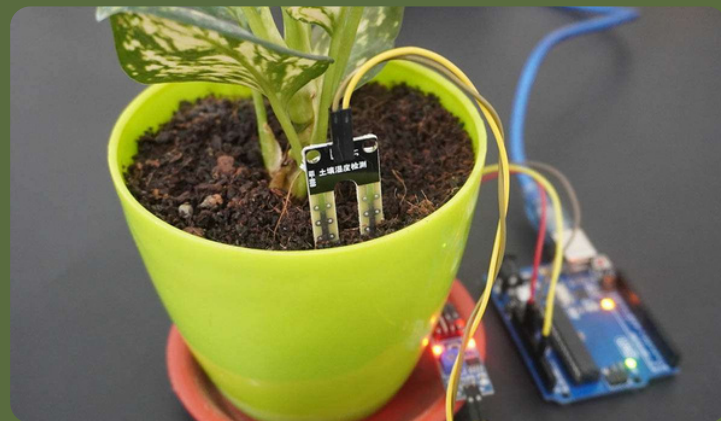
Smart water conservation startups act as engines of green innovation, introducing data-driven and resource-efficient solutions to modern agriculture. As green entrepreneurs, these ventures are redefining how farming communities manage, conserve, and value water, one of the planet's most critical natural resources. Key innovations include:

- Affordable IoT-based soil moisture sensors.
- Solar-powered automated irrigation systems.
- AI-driven irrigation scheduling algorithms.
- Community-based digital platforms for water governance and sharing.

Together, these solutions support precision farming, reduce water wastage, and improve long-term agricultural sustainability.

Smart Farming, Sustainable Futures: The Role of IoT Soil Moisture Sensors

IoT-based soil moisture sensors represent a significant breakthrough in sustainable agricultural innovation. These devices use advanced probes to measure soil moisture levels and transmit real-time data via IoT technologies such as Wi-Fi, Bluetooth, or GSM networks. Features such as automated alerts, integration with smart irrigation systems, low energy consumption, and weather-resistant design allow farmers to irrigate crops based on actual soil needs rather than guesswork.



The benefits are both environmental and economic: improved water-use efficiency, healthier crops, higher yields, and reduced input costs. From an entrepreneurial perspective, these technologies promote efficient resource management, climate-resilient farming, and new opportunities for agro-tech startups. By conserving water, protecting soil health, and reducing energy use, IoT soil sensors demonstrate how smart green technologies can align environmental stewardship with economic viability.

Harnessing the Sun: Solar Water Pumps and Climate-Resilient Agriculture

Amid fluctuating fuel prices and unreliable rural electricity supplies, solar water pumps are transforming irrigation practices across agricultural landscapes. These systems convert sunlight into electricity, providing a clean, dependable, and low-maintenance alternative to diesel-powered pumps. As a result, farmers benefit from reduced fuel costs, lower greenhouse gas emissions, and improved irrigation reliability, even in remote, off-grid regions.

Solar water pumps are also catalyzing green entrepreneurial ecosystems. Entrepreneurs are expanding beyond installation services to offer IoT-enabled monitoring, micro-financing, maintenance, and cleaning services, generating employment and empowering rural youth. In many cases, surplus solar energy supports rural electrification, powering lights, charging stations, and small appliances, thereby reducing dependence on unreliable grids.

With operational lifespans of 15–20 years, solar pumps are available in surface and submersible models, as well as AC and DC variants, making them adaptable to farms of all sizes.



Each installation reduces diesel consumption and carbon emissions, positioning green entrepreneurs as vital contributors to climate change mitigation and sustainable rural development.

Conclusion: Turning Innovation into Impact

Together, smart water conservation technologies and solar-powered irrigation systems are reshaping the future of agriculture. They illustrate how green entrepreneurship can simultaneously advance environmental sustainability, economic growth, and social empowerment. By integrating innovation, renewable energy, and digital solutions, these ventures enable farmers to optimize water use, enhance crop productivity, and build climate-resilient livelihoods.

Beyond agriculture, such initiatives stimulate rural employment, business innovation, and inclusive development, proving that profitability and environmental responsibility can go hand in hand. As global water scarcity and climate risks intensify, green entrepreneurial solutions are not merely supporting agriculture they are paving the way toward a sustainable, resilient, and prosperous agricultural future.

References:

- Sazzad, M.M., Ahmed, T., Kibria, G. & Khan, I., 2025. IoT based soil moisture measurement and type prediction using advanced regression and machine learning models. Scientific Reports, 15, Article 35730. Available at: <https://www.nature.com/articles/s41598-025-19444-2>
- Solar Prabha Editorial Team, 2025. Solar water pumps: Eco-friendly innovation for agriculture. SolarPrabha.com. Available at: <https://solarprabha.com/blog/solar-water-pumps-for-agricultureinnovation>



Udani Thennakoon
22/23 Batch
Faculty of Livestock, Fisheries and Nutrition
Wayamba University of Sri Lanka

“ENTREPRENEURS ARE TRULY TURNING DROPS INTO CROPS.”

EXPERT VOICES FOR A GREENER TOMORROW

Strengthening Slope Stability and Degraded Land Rehabilitation in Sri Lanka: Premna Species as a "Bioshield"

Background

Sri Lanka is confronting an intensifying trend of landslides, driven by extreme rainfall events. These events underscore the urgent need for scalable, nature-based solutions. This paper proposes the strategic use of native *Premna* species (Lamiaceae) to enhance slope resilience. Beyond their deep-anchoring root systems, *Premna* species provide rapid, dense canopy cover that mitigates soil erosion. This dual ecological benefit presents a high-potential Green Venture opportunity for small businesses to supply high-quality plants for national conservation projects.



The Need for Biological Infrastructure

The Disaster Management Centre and the National Building Research Organization (NBRO) have identified over 1,322 recent landslide events (NBRO, 2025). Human land use and the removal of native vegetation are primary drivers of this vulnerability (Nawagamuwa et al., 2025). While engineering solutions are essential, they are often cost-prohibitive.

There is a critical shortage of site-ready biological stabilizers to meet the demand of national rehabilitation targets, creating a market entry point for private green enterprises.

Premna Species as a Strategic Biological Tool

Premna species, particularly *Premna serratifolia* (syn. *P. integrifolia*), possess unique botanical traits that make them superior candidates for bioengineering. A critical factor in preventing landslides is the reduction of "splash erosion" and surface runoff.

Premna species are characterized as fast-growing, much-branched shrubs or small trees that can reach heights of 7–12 meters (Orwa et al., 2009).

Dense leaf canopy as a "bioshield"

Premna produces simple, large leaves (up to 15 cm long) arranged in a dense, spreading crown (NParks, 2025). This canopy acts as a primary "bioshield," intercepting heavy rainfall and reducing the kinetic energy of raindrops that otherwise detach soil particles.

By providing early and continuous ground shade, the canopy maintains soil moisture levels and promotes the accumulation of leaf litter. Research indicates that broadleaf litter layers can reduce soil loss by over 80% compared to bare soil by increasing surface roughness and infiltration (PMC, 2014).

Mechanical Soil Reinforcement

Beneath the surface, *Premna* develops extensive, branched root networks. In bioengineering, the tensile strength of plant roots is vital for increasing the "Factor of Safety" (FOS) on steep slopes (Nawagamuwa et al., 2025). *Premna* roots penetrate deep into the soil matrix, acting as biological anchors that bind unstable soil layers to more stable substrates.

The label as a sustainability tool

Conscious consumerism begins with understanding how to care for your clothes.

Educating ourselves about the proper care for different fabric types and following label instructions is a powerful step towards responsible consumerism. This small label is like an instruction manual for turning your wardrobe into a sustainable practice—helping you make choices that support durability, reduce waste, and care for the planet.

Green Venture Investment & Small Business (The "Bio-Anchor" Nursery Model)

The ecological necessity of Premna creates a viable business case for Green Venture Capital and SME development.

There is a significant opportunity for small businesses to establish specialized nurseries. Premna is highly amenable to vegetative propagation via stem cuttings, which allows for rapid mass production without the delays of seed dormancy (EarthOne, 2025; NParks, 2025). Smallholders can initiate production with minimal infrastructure, utilizing local materials for nursery beds.

Strategic Recommendations

- Policy Integration: Formally include Premna species in the National Landslide Risk Management Guidelines as a recommended "bio cover" and "bio-anchor."
- Economic Incentives: Offer "Green Startup" grants or low-interest loans for community-led nurseries in high-risk districts like Kandy, Badulla, and Nuwara Eliya.
- Certification Standards: Establish quality standards for Premna saplings to ensure small businesses can effectively participate in government procurement.

The devastating landslide crisis requires a shift toward sustainable, ecosystem-based management. The strategic deployment of Premna species with their fast-growing dense canopies and deep root systems offers a dual-action defense against soil degradation. By framing this as a green venture opportunity, Sri Lanka can simultaneously build environmental resilience and foster local economic growth.



References:

- National Building Research Organisation (NBRO). (2025). Application of bioengineering to slope stabilization in Sri Lanka with special reference to Badulla District. Retrieved from https://nbro.gov.lk/images/new_pathme.pdf
- Nawagamuwa, U. P., Sarangan, S., Janagan, B., & S. (2025). Study on the effect of plant roots for stability of slopes. ResearchGate. Retrieved from <https://www.researchgate.net/publication/265341883>
- Orwa, C., Mutua, A., Kindt, R., Jamnadass, R., & Anthony, S. (2009). Premna serratifolia Verbenaceae L. Agroforestry Database 4.0. World Agroforestry Centre.
- Li, X., Niu, J. and Xie, B., 2014. The effect of leaf litter cover on surface runoff and soil erosion in Northern China. PLoS ONE, 9(9), p.e107789. Available at: PubMed Central (PMC)



Prof. A. W. Wijeratne

Department of Agribusiness Management
Faculty of Agricultural Sciences
Sabaragamuwa University of Sri Lanka
Belihuloya

From Feeding to Nourishing: Revitalizing Neglected and Underutilized Crops

“NUCs are not crops of the past—they are solutions for the future.”

In a world increasingly shaped by climate change, food insecurity, and persistent malnutrition, food systems are under growing strain. This challenge is particularly acute in countries like Sri Lanka, where agriculture is central to livelihoods, culture, and national stability. Despite advances in agricultural science, a key question remains: why do many innovations fail to reach farmers or deliver meaningful impact? Part of the answer lies not only in new technologies, but in rediscovering and reintegrating neglected and underutilized crops (NUCs) into modern agriculture.

These traditional crops, long embedded in local farming systems, offer an underexplored pathway to building resilient, nutritious, and sustainable food systems.

A Food System at a Crossroads

Sri Lanka's agricultural landscape reflects a striking paradox. The country has achieved rice self-sufficiency through sustained policy support and investment. Yet this success has not translated into improved nutrition. Diets remain dominated by energy-dense staples, while micronutrient deficiencies and low dietary diversity persist. More than 15% of children under five face food insecurity, highlighting a fundamental disconnect between agricultural production and nutritional needs. At the same time, agriculture is increasingly vulnerable to climate variability. Droughts, erratic rainfall, and salinity intrusion are reducing productivity and increasing risk. Over 12% of rice-growing areas are affected by drought, and much of the sector depends on rainfall due to limited irrigation.

These pressures expose two key gaps: a ceiling in staple crop productivity and a persistent nutrition deficit. Addressing these challenges requires a shift, from maximizing yields of a few crops to enhancing diversity, resilience, and nutritional outcomes across the entire food system.

Why NUCs Matter

Neglected and underutilized crops offer a strategic entry point for this transformation. Naturally adapted to local agro-ecological conditions, these crops often require fewer external inputs while demonstrating strong tolerance to environmental stresses. They are also rich in essential nutrients and historically contributed to balanced diets. Sri Lanka holds a significant advantage, with over 1,170 edible plant species and dozens of prioritized NUC varieties. These include millets, legumes, traditional vegetables, and indigenous fruits—resources that combine nutritional value with ecological resilience. NUCs contribute to food systems in multiple ways. They enhance dietary diversity and nutrition, helping address deficiencies in vulnerable populations. Their resilience to drought and salinity supports climate adaptation, particularly in marginal environments. They also promote sustainable agriculture by enabling mixed cropping, improving soil health, and reducing reliance on chemical inputs.

Beyond production, NUCs strengthen food sovereignty by reducing dependence on imported seeds and inputs. They also create economic opportunities, as growing demand for healthy foods opens new markets for value-added products. Importantly, NUC cultivation is often linked to women's traditional roles, meaning their expansion can support gender empowerment and household food security.



Barriers to Adoption

Despite their potential, NUCs remain marginal in mainstream agriculture. A major constraint is the fragmentation of institutional efforts. Research, policy, extension services, and markets often operate in isolation, limiting impact. Knowledge gaps further restrict adoption. While farmers may be familiar with these crops, they often lack access to improved practices, technical guidance, and information on market potential.

Strengthening extension systems and integrating traditional knowledge with scientific innovation are therefore essential. Climate preparedness is another critical area. Access to reliable agro-climatic information and risk management tools, such as crop insurance, can help farmers make informed decisions and reduce vulnerability. In addition, weak value chains limit growth. Constraints in processing, storage, financing, and market access hinder the scalability of NUC-based enterprises. Addressing these requires coordinated investment and stronger public-private partnerships.

Technology and Collaboration

Technology can play a key role in overcoming these barriers. Low-cost, locally appropriate solutions, such as drip irrigation, improved storage, and small-scale processing—can increase productivity and reduce post-harvest losses. Digital tools can enhance knowledge sharing and market access. However, technology must be inclusive and context-specific. Farmers need to be actively involved in designing and implementing innovations to ensure they are practical and scalable. Equally important is collaboration. Transforming food systems requires coordinated action among farmers, researchers, policymakers, private sector actors, and civil society. Breaking institutional silos and fostering platforms for knowledge exchange are essential for scaling impact.



Toward a Nourishing Future

The transition from “feeding” to “nourishing” represents a fundamental shift in food systems thinking. It emphasizes not just the quantity of food produced, but its quality—ensuring nutrition, resilience, and sustainability alongside productivity.

For Sri Lanka, this transition is both urgent and achievable. By leveraging its biodiversity, traditional knowledge, and emerging innovations, the country can build a more resilient and nutritionally secure food system. Neglected and underutilized crops are central to this vision. They are not relics of the past, but practical solutions for the future. Unlocking their potential will require coordinated efforts, sustained investment, and supportive policies that promote diversification and innovation. The foundation already exists. The challenge now is to scale these efforts and integrate them into mainstream agriculture—moving decisively from feeding populations to truly nourishing them.

“Breaking silos is the biggest opportunity for transforming agriculture.”



Dr. H.A.C.K. Ariyaratne
Senior Lecturer
Department of Botany
Faculty of Science
University of Peradeniya.

Climate Change and Food Security: A Vicious Cycle

Food security in Sri Lanka has been significantly challenged in recent years due to the combined effects of the 2022 economic crisis, structural inequalities, and increasing climate-related shocks. While the country is currently experiencing a gradual recovery, ensuring stable and equitable access to food remains a major concern. According to the World Food Program (WFP) Household Food Security Survey 2024, household food security conditions have improved compared to the peak crisis period; however, the situation remains fragile and uneven. At the same time, climate change has emerged as a critical driver of food insecurity, affecting agricultural productivity, food availability, and household resilience.

Current Food Security Situation in Sri Lanka

Sri Lanka has shown measurable progress in improving food security. The WFP survey (December 2024) indicates that 16% of households are food insecure, a decline from 24% in 2023 and 28% in 2022. This improvement reflects stabilizing food prices, improved income levels particularly in agricultural sectors and reduced reliance on extreme coping mechanisms.

Despite this progress, a substantial proportion of households remain vulnerable, indicating that recovery is still incomplete and fragile. Food insecurity is unevenly distributed across different sectors:

- Estate sector: 34%
- Rural sector: 15%
- Urban sector: 14%

Additionally, female-headed households (18%) experience higher food insecurity compared to male-headed households (15%). Regional disparities are also evident, with districts such as Mullaitivu, Kilinochchi, and Nuwara Eliya reporting higher vulnerability levels.

Diet quality remains a critical concern. 26% of households consume inadequate diets dominated by staples such as cereals, sugar, and oils, and intake of fruits, dairy, and protein-rich foods also low. The estate sector shows the highest level of inadequate food consumption (47%), indicating serious nutritional deficiencies. This suggests that even when food is available, it is often nutritionally insufficient, leading to hidden hunger and malnutrition.

Coping Strategies and Economic Pressure

A large proportion of households continue to rely on coping mechanisms:

- Estate sector: 34%
- Rural sector: 15%
- Urban sector: 14%



Households spend a significant share of income on food:

- 54% of total expenditure
- 22% of households spend more than 65% on food

These indicators demonstrate that many households remain economically vulnerable and highly sensitive to shocks.

Impact of Climate Change on Food Security

Climate change is increasingly influencing food security in Sri Lanka through multiple pathways. Sri Lanka's agriculture is highly climate-sensitive. Climate change has led to irregular rainfall patterns, increased frequency of droughts and floods and shifts in cropping seasons.

These changes directly affect the production of staple crops such as rice, vegetables, and fruits. Reduced agricultural productivity leads to lower food availability and higher market prices, thereby limiting household access to food. Many Sri Lankan households, particularly in rural and estate sectors, depend on agriculture for income. Therefore, climate-related shocks such as droughts and floods destroy crops, reduce employment opportunities, lower household income and ultimately lead to food insecurity and malnutrition among households that live in the rural and estate sectors.



Further, this situation reduces purchasing power, forcing households to adopt coping strategies such as reducing food consumption or borrowing money. Climate change affects food supply chains, leading to reduced supply of key food items and increased transportation and production costs. As a result, food prices rise, disproportionately affecting low-income households who already spend a large share of their income on food. Climate impacts often lead households to shift toward cheaper, less nutritious foods. As highlighted in the WFP survey, diets are already low in diversity and climate-induced income shocks worsen this trend. This situation contributes to increased risks of malnutrition, particularly among children and vulnerable groups. Thus, climate change not only affects food security directly but also intensifies existing socio-economic disparities.

Sri Lanka is making progress in recovering from the food security crisis, as evidenced by declining food insecurity rates and reduced reliance on severe coping strategies. However, climate change presents a significant and growing threat to these gains. While current improvements indicate that the country is on a positive trajectory, the persistence of vulnerabilities combined with increasing climate risks suggests that progress is not yet sustainable. Without strengthening climate resilience, the country risks reversing recent achievements.

In conclusion, Sri Lanka's food security situation has improved since the 2022 crisis, but it remains fragile and uneven. The findings from the WFP Household Food Security Survey 2024 highlight persistent challenges, including inadequate diets, economic vulnerability, and regional inequalities.

Climate change further complicates this situation by affecting agricultural production, livelihoods, food prices, and dietary patterns. As a result, it acts as a multiplier of food insecurity, threatening long-term progress.

Therefore, while Sri Lanka is on the right track in terms of short-term recovery, achieving sustainable food security will require:

- Climate-resilient agricultural practices
- Strengthened social protection systems
- Improved access to nutritious food
- Targeted support for vulnerable populations

Only through integrating food security and climate resilience strategies can Sri Lanka ensure long-term, equitable, and sustainable food security for all.



R.P.M. Sandamali
Consultant for Multi Sector Action Plan for
Nutrition (MSAPN) Implementation Ministry of
Trade, Commerce, Food Security and
Cooperative Development



A Guide to Sustainable Fashion Choices: Decoding the clothing label



Introduction

As consumers in today's complex economic system, each purchase we make is like casting a vote for the kind of world we want to live in. Buying a garment is more than a simple transaction. It reflects your values and has environmental and social consequences. Being a responsible consumer means making thoughtful choices that support sustainability. Fortunately, there is something in every garment that can help you make these decisions: the clothing label.

The story your clothes tell

A clothing label may seem small and easy to ignore, but it's a vital communication channel among the brand, manufacturer, and you. This tiny tag shares key information about your garment's fabric, where it was made, and most importantly, how to care for it properly. By noticing and understanding this label, you can make informed choices and take good care of your clothes, helping them last longer and reducing environmental impact.

Reading the label: your first step to conscious buying

The label includes important facts like the brand, fabric type, country of origin, care instructions during use and after use and sometimes sustainability certifications. Certifications such as GOTS (Global Organic Textile Standard) indicate that the garment meets strict environmental and social criteria during production. These certifications offer additional assurance about the garment's sustainability credentials.

The care code

The care instructions use standardized symbols to guide you on washing, drying, and ironing to maintain the fabric and shape. Following these steps saves energy and reduces environmental harm. For instance, washing in cold water uses far less energy than hot washes, and selecting gentle cycles helps prevent microfiber pollution—tiny plastic fibres that damage rivers and oceans. Understanding these details helps you make smarter purchasing decisions and care for your garment in ways that preserve its quality and reduce harm. If you're unsure about any symbols, brand websites and textile care guides can provide clear explanations to help you follow them correctly.

From impulse to intent

Moving away from impulsive buying habits means taking time to understand and maintain your clothes. Simple actions like lowering wash temperatures, using less detergent, and avoiding excessive tumble drying can greatly reduce your garment's environmental footprint. Learning specific care needs for different fabrics extends the life of each item, cutting down on waste and the need to buy replacements frequently.



The label as a sustainability tool

Conscious consumerism begins with understanding how to care for your clothes. Educating ourselves about the proper care for different fabric types and following label instructions is a powerful step towards responsible consumerism. This small label is like an instruction manual for turning your wardrobe into a sustainable practice—helping you make choices that support durability, reduce waste, and care for the planet.



Ms. Bhagya Kanakaratne

Visiting Lecturer
Fashion, Textile and Clothing Technology
Faculty of Science
Sri Lanka Technology Campus

"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:
greenpsyche.env@wyb.ac.lk

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



Themira Devanarayane
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.



Follow us on
Facebook