

TURN THE TIDE

NEWSLETTER

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



WHY? A NEWSLETTER.

From the Senior Treasurer's Pen,

It is with great pleasure that we present the seventh 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 continues to serve as a platform for learning, dialogue, and inspiration, fostering environmental awareness among young people while encouraging engagement with today's most pressing sustainability challenges. Guided by four core themes: Biodiversity, Climate Change, Food and Nutrition Security, and Green Entrepreneurship this issue brings together diverse perspectives that promote critical thinking and meaningful action.

The student articles explore timely concerns such as biodiversity loss in Sri Lanka's central highlands, the impact of rising temperatures on urban populations, the importance of sustainable food and nutrition systems, and innovative approaches to eco-friendly food packaging. Complementing these contributions, the expert category highlights the value of traditional knowledge in biodiversity conservation, the growing need for anticipatory adaptation in responding to climate-related disasters, the urgency of resilient disaster recovery systems, and the contribution of cocoa farming to Sri Lanka's green economy.

Together, these articles emphasize that sustainability is not only an environmental concern but also a social, economic, and ethical responsibility. As we celebrate this seventh issue, it is inspiring to witness the growing enthusiasm and collaboration among students, academics, and professionals working toward a more environmentally conscious society.

I extend my sincere appreciation to 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, resilient, and responsible future.

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BIODIVERSITY

AFTER DITWAH: BIODIVERSITY LOSS AND THE PATH TO ECOLOGICAL RECOVERY IN SRI LANKA'S CENTRAL HIGHLANDS

Cyclone Ditwah stands as one of the most devastating climate-related disasters Sri Lanka has faced in recent years. Affecting over 1.4 million people, the storm hit hardest in the hill-country districts of Kandy, Badulla, and Nuwara Eliya. Landslides and floods claimed more than 600 lives. Yet beyond the immediate human tragedy lies a quieter, often overlooked crisis: the profound ecological damage to the Central Highlands—one of Sri Lanka's most biologically rich and fragile landscapes.



Hidden Damage in Fragile Mountain Ecosystems

In areas like the Knuckles Mountain Range, landslides tore through forests, uprooting towering canopy trees and burying entire layers of vegetation beneath them. These forests are home to many endemic species, and their destruction has led to severe habitat loss. The impacts go beyond what is immediately visible. Soil and debris washed into streams have altered waterways and degraded freshwater ecosystems, threatening fish and other aquatic life. Due to limited access, scientists are still struggling to fully assess the scale of the damage. Disturbed landscapes are now highly vulnerable to invasive plant species, which can rapidly colonize cleared areas, further weaken ecosystem stability and slow natural recovery.



A Chain Reaction: From Mountains to the Sea

The impacts of Ditwah did not remain confined to the highlands. Floodwaters carried soil, nutrients, and pollutants downstream, connecting upland destruction to coastal degradation. This cascade of effects has serious ecological consequences:

- Coral reefs risk being smothered by sediment deposits.
- Sudden freshwater influx disrupts marine salinity balances.
- Nutrient overloads can trigger algal blooms, reducing oxygen levels.

Together, these changes threaten marine biodiversity, fisheries, and coastal livelihoods.

This event underscores a critical reality: Sri Lanka's ecosystems function as one interconnected system. Damage in the mountains inevitably reaches the ocean.

Rethinking Recovery: From Restoration to Resilience

True recovery goes beyond repairing visible damage; it requires rebuilding ecological integrity and resilience. Priority actions should include:

- Restoring forests with native species to recover ecosystem structure and function.
- Stabilizing slopes with deep-rooted vegetation to reduce future landslide risks.

- Rehabilitating upper watersheds, which regulate water flow and act as natural flood defenses.
- Reconnecting fragmented habitats to support wildlife movement and genetic diversity
- Safeguarding species through both in-situ and ex-situ conservation strategies.

Equally important is integrating environmental value into decision-making. Tools such as natural capital accounting can help policymakers recognize ecosystems not as expendable resources, but as essential infrastructure.



Why This Matters Now

Cyclone Ditwah has revealed the vulnerability of Sri Lanka’s Central Highlands—not only to extreme weather, but also to long-term ecological degradation.

As climate change intensifies, such events are likely to become more frequent and severe. Without strategic, science-based restoration, the country risks entering a cycle of repeated environmental and human crises.



Cyclone Ditwah was not just a human disaster—it was an ecological turning point.

If recovery focuses only on rebuilding infrastructure, Sri Lanka risks losing irreplaceable biodiversity. But if restoration is science-based and ecosystem-focused, this crisis can become an opportunity to build a more resilient and sustainable future.

Protecting nature is not separate from protecting people; it is the foundation of long-term survival.



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NURTURING NATURE’S DIVERSITY FOR BETTER TOMORROW

RIISING TEMPERATURES AND THEIR IMPACT ON URBAN POPULATIONS

Rising temperatures are no longer just numbers in a report. They are shaping everyday life for billions of people living in cities. Instead of thinking about global averages, it's more useful to focus on what people experience right outside their homes.

The Concrete Oven: Urban Heat Islands

Cities tend to trap heat. Buildings, roads, and other surfaces made of concrete, steel, and asphalt absorb heat during the day and release it slowly at night. This is known as the Urban Heat Island (UHI) effect. As a result, cities can be up to 7°C hotter than nearby rural areas. More importantly, nights stay warm, giving people little chance to cool down and recover. Over time, this constant exposure to heat can lead to serious health problems, including exhaustion and increased risk of heart-related emergencies.

The Inequality of Heat

Heat does not affect everyone equally. In many cities, wealthier neighborhoods have more trees and green spaces that provide shade and cooling. In contrast, low-income areas often have fewer trees and more heat-absorbing surfaces. This creates a "thermal divide." People in these areas are also more likely to face "energy poverty," meaning they cannot afford air conditioning. Even when cooling centers are available, getting there in extreme heat can be difficult or dangerous especially for older adults or those with limited mobility.

Impacts on Public Health

Extreme heat puts significant stress on the human body. It forces the heart to work harder and can worsen existing health conditions. It also affects mental well-being, increasing feelings of stress, anxiety, and irritability. Sleep is another major issue. When nighttime temperatures stay above 25°C, people struggle to get deep, restful sleep. This leads to fatigue, reduced concentration, and lower productivity during the day.



Changing Work Patterns

Rising temperatures are also changing how people work. Many outdoor workers—such as construction crews, delivery drivers, and street vendors—are shifting their schedules to early mornings or nighttime to avoid extreme heat. This shift is partly due to "wet-bulb" temperatures, where high heat and humidity prevent the body from cooling itself through sweating. In such conditions, working outdoors becomes not just difficult, but dangerous.

How Cities Are Adapting

Cities are beginning to respond with practical and nature-based solutions. These include:

- Painting roofs white to reflect heat
- Planting more trees and creating small urban forests
- Installing public cooling features like fountains and misting stations
- Setting up community support systems to check on vulnerable residents

These measures help reduce heat and make cities more comfortable and safer for everyone.



Looking Ahead

Rising urban temperatures are not just an environmental issue. They are shaping how people live, work, and stay healthy. The impact is felt most strongly by those who are already vulnerable.

A city's true strength lies not just in its infrastructure, but in how well it protects its people. Creating cooler, more inclusive urban spaces is essential to ensuring that everyone, not just a few, can live safely and comfortably in a warming world.



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

FOOD AND NUTRITION SECURITY

FOOD AND NUTRITION SECURITY: NOURISHING PEOPLE AND PLANET

What if the biggest food crisis today isn't hunger, but hidden hunger?

Close your eyes and picture a typical Sri Lankan meal: a plate of rice, a few vegetables, perhaps some dhal. Now imagine that same plate: smaller portions, less variety, and rising prices making even these basics harder to afford. This is no longer hypothetical. It is a growing reality.



A Global Crisis Hiding in Plain Sight

The world produces enough food for everyone. Yet millions are still going hungry. According to the statistics, 733 million people face chronic hunger, 2.3 billion people experience food insecurity & 2.8 billion people cannot afford a healthy diet. But here's the most alarming truth: Many people are not starving. They are undernourished. This is known as "hidden hunger," when diets provide calories but lack essential nutrients.



When Food Fills the Stomach but Not the Body

Food security is not just about how much we eat. It's about what we eat. Today, we face a double burden of malnutrition: Children suffering from stunting and poor development, adults facing obesity and diet-related diseases & widespread micronutrient deficiencies weakening immunity. Cheap, processed, energy-dense foods are increasingly replacing diverse, nutrient-rich diets. In short: We are eating more but nourishing less.



Where Did We Go Wrong?

A major part of the problem lies in how our food is produced. Modern agriculture often relies on just a few staple crops, such as rice, wheat, and maize. While these provide energy, they lack the diversity needed for a balanced diet. However, this was not always the case. Traditional Sri Lankan food systems once embraced diverse rice varieties, leafy greens and fruits, and pulses rich in protein and nutrients. As a result, these diets supported both human health and environmental sustainability.



Nature Holds the Solution

Literally the path forward may lie in going back to our roots. Sustainable agriculture offers powerful, practical solutions: mixed cropping and agroforestry improve soil health and increase food diversity; home gardens provide fresh, nutritious food at low cost; and school gardens build awareness and encourage healthy habits early in life. Moreover, studies in Sri Lanka show that households with home gardens enjoy better dietary diversity and improved nutrition.



Eye-Opening Reality

A full plate does not guarantee a healthy life. Food insecurity can exist even in households that eat daily. The loss of biodiversity is directly linked to the loss of nutrition.

Everyone Has a Role to Play

Solving this crisis requires action at every level: governments must ensure access to affordable, nutritious food; communities can support local farmers and promote sustainable practices; and young people can drive change through innovation and awareness. Furthermore, even small steps matter, such as choosing diverse foods, reducing food waste, and supporting local produce.

Food security is not just about feeding people. it's about nourishing lives.

The future of food depends on protecting biodiversity, restoring sustainable farming practices, and making informed, conscious choices. Moreover, it requires a collective effort from individuals, communities, and governments alike. Because, ultimately, healthy people cannot exist without a healthy planet—and a healthy planet begins with how we grow and consume our food.



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SUSTAINING TOMORROW: EMPOWERING NUTRITION FOR ALL

GREEN ENTREPRENEURSHIP IN ACTION: ADVANCING SUSTAINABLE FOOD PACKAGING IN SRI LANKA

Plastic food packaging has become one of the most urgent environmental challenges worldwide. Nearly half of all plastics produced globally are designed for single use, yet they persist in the environment for centuries. In Sri Lanka, the issue is particularly severe. The country generates approximately 250,000 metric tonnes of plastic waste each year, but only 4%-11% is recycled. Alarming, nearly 69%—around 170,000 tonnes—remains unmanaged, posing serious environmental and public health risks.

Food packaging is a major contributor to this growing crisis. Each month, Sri Lanka discards an estimated 20 million yoghurt cups, 15 million lunch sheets, 20 million supermarket bags, and 1 million sachet packets. These figures highlight the urgent need to rethink how food is packaged, distributed, and consumed.



Enhancing Food Quality Through Natural Packaging

Beyond environmental benefits, natural packaging materials also enhance the overall food experience. Banana leaves and areca palm leaves, for example, impart a subtle, pleasant aroma and a distinctive earthy flavor to food. These natural characteristics elevate the sensory appeal of meals while ensuring a chemical-free and eco-friendly presentation.

Such packaging not only preserves food but also connects consumers with traditional practices, adding cultural and experiential value to everyday dining.



Innovations Driving Sustainable Packaging

Sri Lanka's eco-friendly packaging sector is supported by a range of innovative technologies that combine modern engineering with natural resources:

- Pulp moulding technology is used to create plates, trays, and containers from plant fibers like bagasse. The process involves converting raw materials into pulp, shaping them in moulds, and drying them into durable products.
- Compression moulding is applied to produce areca and palm leaf plates by cleaning, drying, and heat-pressing naturally fallen leaves without chemicals.
- Bioplastic (PLA) production transforms plant-based starch into compostable packaging through fermentation and polymerization processes.
- Fiber extraction and weaving technologies enable the use of bamboo and coconut coir to create strong, reusable packaging materials.
- Banana leaf wrapping techniques utilize traditional methods, where leaves are cleaned and gently heated to improve flexibility for wrapping.

- Thermoforming technology allows biodegradable sheets to be shaped into food trays and takeaway containers, supporting efficient large-scale production.

Together, these innovations demonstrate how sustainability and technology can work hand in hand to reduce environmental impact while meeting modern packaging demands.



Conclusion

Sustainable food packaging represents a powerful intersection of environmental responsibility, innovation, and economic opportunity in Sri Lanka. By converting agricultural waste into high-value packaging materials and embracing eco-friendly technologies, the country can significantly reduce plastic pollution while fostering rural development and entrepreneurship.

However, long-term success depends on collective action. Strong policy support, increased public awareness, and continued innovation are essential to accelerate this transition. With the right efforts, Sri Lanka has the potential to emerge as a leader in sustainable packaging—paving the way toward a cleaner, greener, and more resilient future.



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SUSTAINABLE SUCCESS: INNOVATING FOR A GREENER TOMORROW

EXPERT VOICES FOR A GREENER TOMORROW

Role of Traditional Knowledge in Biodiversity Conservation in Sri Lanka

Biodiversity conservation in Sri Lanka has long been influenced not only by formal scientific approaches but also by deeply rooted traditional knowledge systems. These indigenous practices shaped by centuries of interaction between communities and nature offer sustainable, adaptive, and culturally embedded strategies for managing ecosystems. This article examines the role of traditional knowledge in conserving biodiversity in Sri Lanka, highlighting its ecological relevance, practical applications, and integration into modern conservation frameworks.

Sri Lanka is recognized as one of the world's biodiversity hotspots, with high levels of endemism (Myers et al., 2000) across flora and fauna. While contemporary conservation efforts often emphasize protected areas and scientific management, traditional ecological knowledge (TEK) remains an underutilized yet powerful resource (Gadgil, Berkes, & Folke, 1993). TEK refers to the cumulative body of knowledge, practices, and beliefs developed by local communities through long-term interaction with their environment.

Historically, Sri Lankan communities have maintained a harmonious relationship with nature, guided by cultural, religious, and ethical principles particularly those embedded in Buddhist philosophy (De Silva, 2007). These systems have contributed significantly to biodiversity conservation, particularly in rural and coastal landscapes.

Traditional Knowledge Systems and Practices

1. Agroforestry and Home Gardens

One of the most prominent examples of traditional knowledge is the Kandyan home garden system.

These multi-layered agroforestry systems mimic natural forest structure, supporting biodiversity by integrating fruit trees, medicinal plants, timber species, and crops. They contribute to promote **species diversity**, enhance **soil fertility and water retention** and provide **habitat for wildlife**. These systems function as micro-reserves of biodiversity while supporting rural livelihoods.



Figure 1: Traditional Kandyan home garden system supporting biodiversity

2. Sacred Groves and Religious Beliefs

Biodiversity conservation in Sri Lanka is strongly linked to religious traditions, particularly Buddhism. Sacred groves and temple lands often serve as informal conservation areas where exploitation is restricted. They support biodiversity conservation in various ways such as protection of trees like *Ficus religiosa* (Bo tree), conservation of fauna through the principle of non-violence (ahimsa) and maintenance of ecological refugia around temples etc. These areas often act as **in-situ conservation sites**, preserving native species in otherwise human-dominated landscapes.



Figure 2: Sacred grove conservation influenced by Buddhist traditions.

3. Traditional Fisheries Management

Coastal communities have historically practiced sustainable fishing techniques based on ecological knowledge accumulated over generations. Examples for such practices that contribute to marine biodiversity conservation includes avoidance of fishing during spawning seasons, use of selective gear to minimize bycatch and informal zoning of fishing areas or habitat awareness. Such practices align closely with modern ecosystem-based fisheries management, demonstrating the scientific validity of traditional systems.



Figure 3: Sustainable traditional fisheries with seasonal restrictions.

4. Indigenous Medicinal Knowledge

Sri Lanka's traditional medical systems, including Ayurveda and Deshiya Chikitsa, depend heavily on biodiversity. Such practices include extensive use of native plant species, sustainable harvesting techniques and conservation of medicinal plant habitats etc. This knowledge system indirectly promotes biodiversity conservation by maintaining plant diversity and ecological integrity.



Figure 4: Indigenous Ayurvedic medicinal knowledge using plant resources.

Ecological Significance of Traditional Knowledge

Traditional knowledge contributes to biodiversity conservation through:

- Sustainability: Longterm resource use without depletion.
- Resilience: Adaptive strategies in response to environmental variability.
- Holistic Ecosystem Management: Integration of ecological, cultural, and spiritual values. Unlike reductionist scientific models, TEK operates within a systems ecology framework, emphasizing interconnectedness.



Figure 5: Knowledge transfer between generations in rural communities.

Challenges and Threats

Despite its value, traditional knowledge is increasingly threatened by:

Rapid urbanization and socio-economic change , Decline in intergenerational knowledge transfer, Expansion of industrial agriculture and fisheries, Risk of misappropriation or oversimplification, Tension between traditional practices and market-driven development and Weak policy recognition. The erosion of TEK represents both a cultural loss and a decline in sustainable environmental practices. Addressing these challenges requires documentation, and respectful integration of TEK into modern systems.



Figure 6: Threats to biodiversity from urbanization and industrialization.

Integration with Modern Conservation Approaches

Effective biodiversity conservation in Sri Lanka requires **hybrid governance models** that integrate traditional and scientific knowledge systems such as Community-based conservation initiatives, Participatory coastal and forest management , Careful validation, documentation and digitization of indigenous knowledge, Encourage interdisciplinary research, Support co-management approaches involving local communities and scientists, Policy frameworks recognizing local stewardship and Leveraging international frameworks for funding and implementation etc. Such **integration enhances both ecological effectiveness and social legitimacy.**



Figure 7: Integration of traditional knowledge with modern science.

Case Study: Tank Cascade Systems

Traditional tank cascade systems in Sri Lanka's dry zone represent sophisticated form of ecological engineering based on indigenous water management. These interconnected reservoirs regulate water flow, prevent floods, and support agricultural productivity. They also create wetland habitats that enhance biodiversity. Therefore, they demonstrate climate adaptation and ecosystem- based water management including, Networked reservoirs supporting agriculture, Wetland biodiversity conservation and Natural regulation of hydrology and soil systems. These systems exemplify **landscape-level biodiversity management rooted in indigenous knowledge.**

Traditional knowledge remains a cornerstone of biodiversity conservation in Sri Lanka. It provides ecologically sound, culturally embedded, and economically viable strategies for sustainable resource management. In the face of accelerating biodiversity loss and climate change, integrating traditional ecological knowledge with modern scientific approaches is essential for developing resilient conservation frameworks. Preserving and promoting this knowledge systems will not only safeguard biodiversity but also reinforce cultural identity and sustainable development pathways.

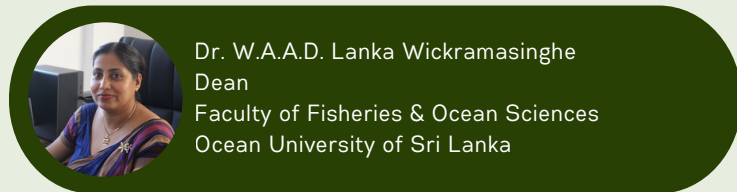


Figure 8: Tank cascade system demonstrating ecological water management.

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Climate Change and Our Oceans: Rethinking Disaster Preparedness The Power of Anticipatory Adaptation

Cyclone Ditwah and Joint Rapid Needs Assessment

Sri Lanka was hit by Cyclone Ditwah starting from 27 November 2025, bringing intense rainfall exceeding 350 mm within 24 hours in several parts of the country, followed by four consecutive days of persistent rainfall, creating the worst catastrophe experienced by the country in over a decade with severe flooding and landslides. Although the heaviest rainfall subsided within a few days, the impacts of flooding and landslides continued, particularly in the low-lying and downstream areas due to sustained river discharges, compounding the damage and disruption.

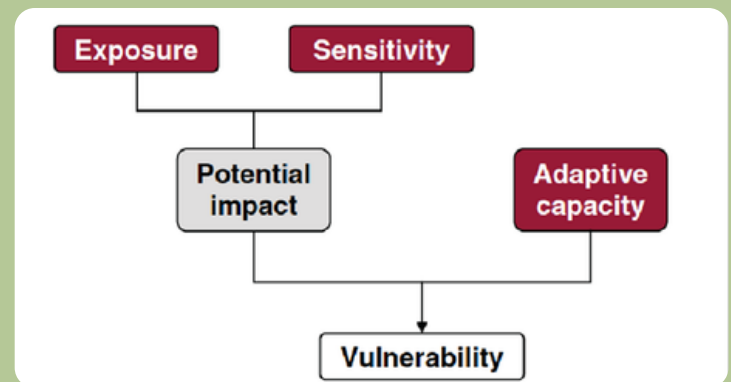
Based on the findings of the Joint Rapid Needs Assessment (December, 2025), more than 1,400,000 people were directly affected across all districts, mainly exposed to sudden floods and delayed downstream inundation, and secondary hazards such as landslides. An estimated 1.5 million people became food insecure, underscoring the profound humanitarian and livelihood impacts of the cyclone. The disaster severely disrupted economic and food systems, causing damage to 15 major economic centers, heavily disturbing market access due to the damage to the road network and bridges as well as value chain operations. Transport of vegetables from Nuwara Eliya to major markets was restricted, leading to price increases ranging from 30% to 200%. At the time of the cyclone, approximately 563,950 hectares of paddy had been cultivated (Department of Agrarian Development).

Large extents of these paddy-growing areas were submerged, resulting in substantial expected yield losses. In addition, around 95,799 hectares of other

field crops (OFCs) suffered extensive damage. The livestock and inland fisheries sectors also experienced significant losses.

Beyond agriculture and food systems, Cyclone Ditwah had far-reaching impacts on transportation, housing, water and sanitation, health, and education sectors, placing additional strain on already vulnerable communities

Together, these cascading impacts highlight the urgent need to move beyond reactive responses and invest in anticipatory adaptation, where early warnings are systematically translated into early action, saving lives, protecting livelihoods, and reducing the escalating costs of disasters.



Disaster Preparedness Planning

Disaster preparedness planning is a proactive and forward-looking process that strengthens the capacity of systems and communities to anticipate hazards and act before impacts occur. Central to this approach is "anticipatory adaptation", which uses climate information, forecasts, and early warning signals to trigger early actions that reduce risk in advance of disasters. Preparedness planning, therefore, goes beyond response readiness and focuses on acting ahead of shocks to protect lives, livelihoods, and infrastructure.

Key components include:

- Capacity building of institutions, stakeholders, and communities to interpret warnings and act early;
- Resource and financing preparedness, including pre-arranged budgets, forecast-based financing, and pre-positioning of essential supplies such as food, water, and medical items;
- Strengthened early warning and risk communication systems that are timely, trusted, and actionable;
- Institutional readiness to rapidly authorize, coordinate, and mobilize budgets/resources for anticipatory and preparedness actions.

Disaster preparedness planning can minimize disaster impacts and damages, enhance the speed and effectiveness of response operations, strengthen the ability of affected populations to cope and recover, and ensure continuity of essential services amid the disaster, and ultimately reduce loss of life and damage.

Cross-cutting Nature of Disaster Preparedness Planning

The responsibility of disaster preparedness planning goes beyond the Disaster Management Center, whereas multi-sectoral coordinated efforts are required to enhance its effectiveness and efficiency. In addition to the Disaster Management Center, a number of agencies including Department of Irrigation, Department of Agrarian Development, Department of Agriculture, District and Divisional Secretariats, and agencies under Provincial Councils hold responsibilities for disaster preparedness planning somehow or other.

For example, Village Irrigation Tank Cascading Systems (i.e. under the purview of Department of Agrarian Development), and major resources (i.e. under the purview of Department of Irrigation) collect excess rainwater and reduce flood damages. Thus, the decision making of these department carry a significant bearing on disaster preparedness planning.

What is Anticipatory Adaptation and Why It is Needed?

Anticipatory adaptation refers to proactive adaptation actions before climate extremes occur or climate change impacts become severe. It is a strategy to preparing for future risks such as floods and droughts through deliberate planning. Building climate resilient infrastructure, and introducing resilient agricultural practices, developing and introducing early warning systems are among common examples for anticipatory adaptation actions.

Although reactive adaptation actions which implemented after climate and disaster impacts occur are common, anticipatory adaptation actions are hampered by many impediments.

Developing countries lack financial and other resources even to ordinary development activities and reactive adaptation activities.

In such a situation, there is a lack of political will to implement anticipatory adaptation actions before climate and disaster impacts become severe.

Weak forecasting and early warning capacities and less accuracy of the weather forecasts sometimes leave anticipatory adaptation a high-cost strategy for disaster preparedness planning.

Lack of political will can leave government officials who make crucial anticipatory adaptation decision personal accountable. Thus, political will is crucial to inculcate anticipatory adaption in the disaster preparedness planning.

In the case of Cyclone Ditwah, the early and gradual release of water stored in major irrigation reservoirs proved critical in reducing flood impacts downstream.

However, decisions based on forecasts inherently involve uncertainty, and anticipatory actions such as early water releases carry different costs and risks under different scenarios.

For instance, in a better-case scenario where the forecasted cyclone does not happen for real, the premature release of irrigation water could impose significant costs. These may include agricultural and hydrological drought, reduced water availability for irrigation and domestic use, and consequent declines in agricultural production and food security.

An equally important consideration is the extent to which the officials responsible for such decisions are protected by policy, legal, and institutional frameworks when anticipatory actions are taken in good faith but the anticipated hazard does not occur.

Conversely, the cost of inaction or delayed action can be far greater. As demonstrated by the impacts of Ditwah, the failure to undertake timely and precautionary water releases contributed to severe flooding, infrastructure damage, livelihood losses, and widespread humanitarian impacts, as outlined earlier in this article. This contrast underscores a central lesson of anticipatory adaptation: the risks of acting early must be weighed against the often far higher social, economic, and humanitarian costs of acting too late.

Conclusion

Political will and institutional accountability are critical foundations of effective anticipatory decision-making in disaster preparedness planning. Cyclone Dithwa serves as a powerful wake-up call for policymakers, demonstrating that the cost of not taking anticipatory adaptation decisions (i.e. the cost of disaster), must be weighed against the cost of taking precautionary action that may later prove unnecessary.

Such comparative risk-based decision-making requires strong political will and clear institutional mandates that empower officials to act early based on forecasts and early warning information. Without political will and accountability frameworks that protect and support anticipatory action, decision-makers are more likely to delay action, often at far greater social, economic, and humanitarian cost.



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Essentials of Early and Long-Term Disaster Recovery for a Resilient Society : Why Recovery Is a Race Against Time, Trust and Irreversible Decisions

Every disaster exposes two realities at once. The first is physical collapsed houses, flooded roads, broken power lines. The second is institutional how fast a state can act, how clearly it can lead, and how effectively citizens can align with that leadership. It is this second reality that ultimately determines whether a disaster remains a temporary shock or evolves into a long-term national setback.

The Dithwa Cyclone was not exceptional in intensity by global standards, yet it was deeply revealing in its aftermath. It demonstrated that disaster recovery is not

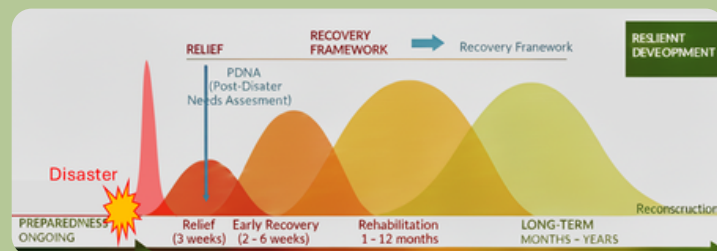
defined by what is done, but by when, by whom, and in what order. Recovery is a time-critical process in which delays are never neutral; they actively generate new forms of damage. When recovery phases slip, overlap chaotically, or are executed without clarity of roles, disasters quietly mutate into economic decline, social fragmentation, and institutional mistrust.

At the core of effective recovery lies a simple truth: societies recover not through heroics, but through sequencing.

In the immediate aftermath of a disaster, the priority is unambiguous saving lives and stabilizing chaos. This phase operates in hours and days, not weeks. When search and rescue, medical response, and shelter management are delayed, mortality rises not because the hazard was extreme, but because systems failed to act within a narrow survival window. This is the phase where government action must be centralized and decisive, and where citizen behavior following evacuation orders, protecting families, and resisting misinformation directly shapes outcomes.

When this phase extends beyond its natural limit, damage compounds rapidly. Injuries turn fatal, confusion escalates into panic, and trust erodes before recovery even begins. A delayed immediate response cannot be corrected later; no amount of reconstruction can undo lives lost to poor timing.

Relief follows, and here the challenge subtly shifts. Relief is no longer just about survival; it is about preventing social breakdown. Food, water, medicine, temporary shelter, and basic services must arrive fast enough to stabilize daily life. If relief is delayed or uneven, frustration spills over into hoarding, conflict, rumor-driven behavior, and disengagement from formal systems.



This phase also marks a critical social transition. Citizens move from passive recipients to active participants.

Neighbors support neighbors, volunteers emerge and information flows horizontally as much as vertically. When relief is timely, this collective energy strengthens recovery. When relief drags on, the same energy turns corrosive.

The most underestimated phase follows: early recovery. This is when societies must reintroduce normalcy, even if imperfect. Schools reopening, hospitals functioning fully, markets operating, and transport running are not symbolic gestures; they are psychological anchors. Without them, people lose more than income they lose orientation, purpose, and hope.

When early recovery stalls, populations drift. Workers migrate, children disengage from education, informal economies displace formal ones, and trauma deepens rather than heals. The damage here is often invisible at first, but it is frequently irreversible. Delayed early recovery does not merely slow progress; it locks in long-term decline.

This is where Dithwa offers a clear warning. Where early recovery moved decisively, communities stabilized. Where it hesitated, temporary arrangements hardened into permanent problems. What was meant to bridge weeks began shaping years.

Rehabilitation follows, and this is where recovery either matures or collapses under its own weight. Infrastructure repair, housing reconstruction, restoration of public services, and governance normalization occur here. This phase demands coordination rather than speed alone. When rehabilitation drags on, a “second disaster” emerges not natural, but institutional. Economies weaken, trust collapses, and state legitimacy erodes.

At this stage, citizens are no longer beneficiaries; they are co-builders. Their labor, local knowledge, and social networks determine whether rehabilitation is inclusive or extractive. Poorly managed rehabilitation alienates communities and turns recovery into something done to people rather than with them.

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Disasters like Dithwa do not test nature. They test execution.

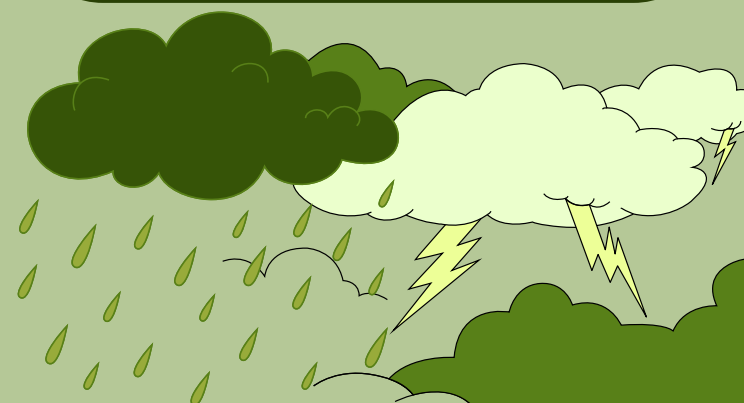
A resilient society is not defined by how quickly it responds, but by how intelligently it transitions from response to relief, from relief to recovery, and from recovery to resilience. Recovery is not a single act; it is a disciplined sequence of decisions made under pressure, where every delay carries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



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Contribution of Cocoa Farming to Sri Lanka's Green Economy

Introduction

Sri Lanka's transition toward a green economy emphasizes sustainable agricultural systems that reconcile economic recovery with climate resilience. Within this framework, cocoa (*Theobroma cacao*) cultivation has emerged as a promising, though underutilized, component. Grown primarily in the wet and intermediate agro-ecological zones, cocoa farming supports rural livelihoods while contributing to environmental sustainability through agroforestry-based production systems and export diversification.

A green economy, as articulated by frameworks such as those of the United Nations Environment Programme, is characterized by low carbon emissions, resource efficiency, and social inclusivity. Sri Lanka's agricultural policies increasingly align with these principles by promoting circular resource use, minimizing agrochemical inputs, and ensuring equitable income distribution among smallholder farmers. Cocoa farming, when managed sustainably, aligns closely with these objectives.

Environmental Contributions

Agroforestry Integration and Biodiversity Enhancement

Cocoa is well suited to agroforestry systems, particularly as an inter-crop within coconut and rubber plantations in districts such as Kandy, Kurunegala, and Badulla. Optimal cocoa cultivation requires approximately 40–50% shade, typically provided by native or economically valuable tree species. This multilayered canopy structure enhances ecological stability by improving soil organic matter and nutrient cycling, with studies indicating increases in soil fertility by approximately 20–30%.

Moreover, cocoa-based agroforestry systems serve as biodiversity reservoirs, particularly when established near forest margins. They function as ecological buffer zones that reduce habitat fragmentation and support avifauna, pollinators, and other beneficial organisms, thereby strengthening ecosystem services.

Climate Change Mitigation

Shaded cocoa systems contribute significantly to carbon sequestration, with estimated rates ranging from 5 to 10 tons of CO₂ per hectare per year.

This positions cocoa cultivation as a viable nature-based solution supporting Sri Lanka's long-term climate commitments, including net-zero emission targets.

Additionally, the use of organic amendments, such as composted cocoa pod husks, manure from animal husbandry and botanical inputs can reduce synthetic agrochemical usage by up to 70%. The adoption of climate-resilient hybrid varieties introduced by Department of Export Agriculture, Sri Lanka (e.g., SCA6 × ICS6) and possible characterized varieties imported from overseas after quarantine practices and adaptivity trials further enhances adaptive capacity under rainfall regimes of 1,250–2,500 mm, which are typical of Sri Lanka's cocoa-growing regions.

Land Restoration and Regenerative Agriculture

Cocoa cultivation has demonstrated potential in rehabilitating underutilized or degraded lands, particularly within smallholder holdings where more than 25% of land may remain unproductive. Initiatives led by the Department of Export Agriculture promote cocoa planting as part of land restoration strategies. These efforts reduce pressure on primary forests while enabling regenerative agricultural practices that improve long-term land productivity.

Economic Contributions

Cocoa represents a high-value export commodity with significant income-generating potential. Fermented and properly processed cocoa beans can fetch premium prices in international markets, typically ranging between USD 10–20 per kilogram, particularly in niche markets such as single-origin and ethically sourced chocolate.

Government support mechanisms, including subsidies covering up to 50% of planting material costs for smallholder plots (e.g., 0.25-acre units), help lower entry barriers and encourage adoption. These initiatives are particularly relevant in the context of recent agricultural export growth, including strong performance in the coconut sector, and position cocoa as a strategic diversification crop for 2026 and beyond.

Social Contributions

Cocoa farming contributes to rural development by enhancing income stability and promoting inclusive growth. Cooperative models in districts such as Matale

and Monaragala facilitate knowledge sharing, collective processing, and improved market access. Targeted interventions; including farmer training programs, capacity building in post-harvest processing, and women-focused value-addition initiatives (e.g., small-scale “bean-to-bar” chocolate production) support social equity and empowerment. These programs align with national goals of reducing rural poverty and improving standards of living in agricultural communities.

Challenges and Constraints

Despite its potential, cocoa cultivation in Sri Lanka remains constrained by several structural and agronomic challenges.

Limited Scale and Low Productivity

The total cultivated extent remains relatively small, estimated at approximately 1,800 hectares, concentrated in a few districts. Average yields range from 100 to 500 kg per hectare, significantly below global benchmarks. Contributing factors include aging plantations, sub-optimal agronomic practices, and insufficient adoption of improved planting materials.

Pests and Diseases

Cocoa production is adversely affected by multiple biotic stressors. The *Helopeltis* bug is a major pest, causing substantial pod damage, while diseases such as *Phytophthora* pod rot, stem canker, and viral infections further reduce yields. Additionally, vertebrate pests; particularly monkeys and squirrels can account for pre-harvest losses exceeding 60% in some areas.

Post-harvest losses, estimated at 30–40%, arise from inadequate storage and pest infestations (e.g., cocoa weevils and moths), highlighting the need for improved handling infrastructure.

Climate Variability

Increasing climate variability poses a significant threat to cocoa production. Erratic monsoon patterns, prolonged droughts, and rising temperatures disrupt flowering cycles and pod development. These impacts are particularly pronounced in intermediate zones, where micro-climatic changes exacerbate water stress.

Market and Supply Chain Limitations

Sri Lanka remains partially dependent on imported cocoa beans, exposing the industry to global price volatility and supply disruptions.

Smallholder farmers often face high input costs, limited access to processing technologies, and competition from lower-cost imports, which collectively constrain profitability and export competitiveness.

Quality and Infrastructure Gaps

Inconsistent fermentation and drying practices result in variable bean quality, limiting access to premium markets. Furthermore, gaps in technical knowledge, certification processes, and traceability systems hinder the development of a robust, export-oriented cocoa sector.

Enhancement Strategies

To unlock the full potential of cocoa within Sri Lanka’s green economy, a multi-dimensional strategy is required:

- Expansion of agroforestry-based cocoa systems guided by best practices from the Department of Export Agriculture.
- Adoption of improved, climate-resilient hybrid varieties.
- Strengthening traceability systems to meet zero-deforestation and ethical sourcing standards.
- Investment in farmer training, extension services, and processing technologies.
- Promotion of cocoa cultivation in home gardens to broaden participation.
- Development of integrated value chains linking farmers, collectors, processors, and manufacturers.
- Empowerment of women through small-scale chocolate production enterprises.
- Public awareness campaigns on the nutritional and health benefits of cocoa-based products.

Conclusion

Cocoa farming represents a compelling model for sustainable agricultural transformation in Sri Lanka. By integrating ecological conservation, economic viability, and social inclusion, cocoa cultivation exemplifies the principles of a green economy. Strategic investments, institutional support, and value chain development can enable the sector to transition from a niche crop to a significant contributor to national sustainability goals.



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"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:
green.psyche.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



Nilusha Induwara
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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