

Beyond Borders

“Advancing Sustainability Beyond Boundaries”



Beyond Borders is the flagship publication of the Institute of Environmental Professionals Sri Lanka (IEPSL), dedicated to celebrating excellence in environmental management, sustainability innovation, and professional leadership. The magazine curates high-impact articles that showcase best practices, transformative solutions, and forward-looking sustainability initiatives shaping industries and communities today.

This Special 20th Anniversary Edition marks a significant milestone in IEPSL's journey, highlighting exemplary practices and impact-driven initiatives across government, private sector, academia, and development partners. It reflects two decades of collective commitment to advancing environmental responsibility and sustainable development in Sri Lanka.

Through expert insights and practical perspectives, Beyond Borders serves as a knowledge platform that informs policy, inspires innovation, and promotes responsible environmental stewardship.

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President's Message

As the Institute of Environmental Professionals Sri Lanka (IEPSL) marks its 20th Anniversary, we take great pride in presenting this special commemorative edition of Beyond Borders. This milestone is not only a celebration of institutional growth but also a reflection of two decades of commitment to advancing environmental professionalism, sustainability leadership, and responsible resource stewardship in Sri Lanka.

Over the past twenty years, IEPSL has evolved into a recognized professional body incorporated by Act of Parliament, providing leadership in environmental management, policy engagement, research dissemination, and professional capacity development. Throughout this journey, our mission has remained steadfast: to promote scientifically sound, ethically grounded, and forward-thinking environmental practices that contribute to national and global sustainability objectives.

This special edition of Beyond Borders has been curated as a knowledge-sharing platform dedicated to showcasing credible corporate environmental best practices, sustainability innovations, and transformative initiatives across sectors. The intention is not promotional visibility, but rather the dissemination of measurable impacts, replicable methodologies, and practical lessons that can inspire responsible decision-making and cross-sectoral learning.

Environmental challenges today transcend geographic, institutional, and sectoral boundaries. Climate change, biodiversity loss, resource depletion, and environmental degradation demand integrated responses built on collaboration, innovation, and accountability. In this context, the contributions featured in this edition demonstrate how industry, academia, government, and development partners are responding proactively through sustainable technologies, climate-resilient strategies, circular economy approaches, and improved governance mechanisms.

The strength of this publication lies in



its emphasis on evidence-based practice. Each contribution reflects a commitment to professional integrity, technical soundness, and ethical responsibility. By documenting successful interventions and lessons learned, we hope to encourage replication, adaptation, and continuous improvement across Sri Lanka's environmental and corporate landscape.

As we look beyond this anniversary milestone, IEPSL remains committed to strengthening professional standards, fostering partnerships, and supporting innovation that balances economic development with environmental protection. The future demands not only compliance with regulations but leadership rooted in sustainability principles and long-term thinking.

On behalf of the Institute, I extend my sincere appreciation to all contributors, reviewers, partners, and stakeholders who have supported this special edition. Your collaboration reinforces the collective responsibility we share in safeguarding our natural heritage while advancing sustainable growth.

May this 20th Anniversary edition of Beyond Borders serve as both a record of achievement and a catalyst for future action inspiring us to move forward together, responsibly and confidently, beyond borders.

Asela Iddawela

President

Institute of Environmental Professionals Sri Lanka (IEPSL)

Founder's Message



I became the chairman of Central Environmental Authority in the year 2006, under the new government of the Mahinda Rajapakse and the Hon Maithripala Sirisena as my minister. Before this appointment I was functioning as the Chairman of Geological Surveys and Mines Bureau and Sri Lanka Bureau of Foreign Employment since year 2000.

By the time I took over CEA I had substantial experience in managing large State Owned Enterprises (SOEs). It is not that easy to work under political masters whose objectives are somewhat different from the prime objectives of the institution. These differences sometimes lead to conflicts and misunderstandings. However, with my long experiences working with different organizations and stakeholders I could manage the all such situations.

After my assumption duties as the Chairman, I studied this organization and found that it is an organization with a lot of scientists, and also they do scientific work to protect and manage the environment. To do that, we have a lot of scientists from different disciplines such as science, technical, legal and administration. They have been working as environmental officers and managers

As an engineer, I have been working for the last 43 years, and I am a member of the Institution of Engineers and now I am an honorary life fellow. Only engineers can become members. It is same with Institute of Architects and Institute of Planners.

When it comes to the environmental authority, there are officers from different disciplines such as science, engineering, legal, administrators, accountants, etc. These professionals are working towards one objective of managing and conservation of environment though they belongs to different disciplines. Unfortunately, they didn't have any institutions for their career development, ethical practice and improving their knowledge and skills. This is the very reason that initiate this innovative Institution with the blessings of my Minister.

Therefore, I thought that it is a good time and appropriate opportunity to form an institution which brings all these people under one organization. That is how the Institution of Environmental Professionals was conceived in my mind and I had discussions with several people from other institutions, senior staff of CEA, as well as other people from other institutions. All these discussions and inputs helped me to launch the beautiful Institution.

Today, I am very happy see the progress made by IEPsL with a very strong membership. Wish you all a very productive future which protect our environment

Eng. Karunasena Hettiarachchi

BSc Hons. Eng.(Peradeniya) MSc Eng. (Leuven).
,C.Eng. C,EnvP,, FIE(Sri Lanka), IEP(Sri Lanka),
FIM(Sri Lanka)

Establishment of a Professional Organization for Qualified Environmentalists

By Senaka Samarasinghe, Founding Treasurer, and Executive Secretary, IEPSL

In Sri Lanka, most professionals are lucky to have their professional organisations to improve their professional careers. The best example is the Engineering Association of Ceylon. It was established in 1906 under British Colonial rulers. The Head of State, the Governor, was the Patron of this Association. In 1956, established as the Institution of Engineers, Ceylon. In 1968, the Institution was incorporated by Act of Parliament No. 17 of 1968 . The Chairman of the Central Environmental Authority (CEA), Eng. Karunasena Hattiarachchi, as an engineer, observed not only as an engineer but also for other professionals, such as Town Planning, Architects, there are professional institutes, but not for environmentalists.

The CEA employed me as a National Consultant on Environmental Management Advocacy Services (NC-EMAS), from August 2004 to November 2006. During this period, eleven tasks were assigned, including establishing a Professional Institute.

In 2005 I was under the direct supervision of Eng. Karunasena Hattiarachchi, the new Chairman, CEA (Chairman/CEA), had to report to the Lawyer Mervyn Gunasena, One day the Chairman/CEA mooted an idea to establish a Professional Institute for environmentalists and explained as follows.

Chairman/CEA descriptively explained how CEA was commenced by the distinguished Civil Servant, Mr. K.H.J. Wijayadasa, who was the first Chairman/

CEA, and he was the Secretary to the Prime Minister Hon. Premadasa. The CEA was established in August 1981 under the provisions of the National Environmental Act No. 47 of 1980. The Ministry of Environment and Natural Resources (ME&NR) was established in December 2001. Furthermore, CEA was granted wider regulatory powers under the National Environment (Amendment) Act No. 56 of 1988 and No. 53 of 2000.

Further, Chairman/CEA explained that the above type of strong and well-enacted Institutional Framework was established with a broad vision, such as "A clean and green environment through service excellence." Therefore, there is a need for an institution to enhance the quality not only of the environmentalists in the CEA but also the environmentalists of the country.

Due to the non-availability of a professional institute for Sri Lankan environmentalists, he stressed the need for an institute, such as the Institute of Engineers Sri Lanka (IESL). Based on these strong facts, Chairman guided me to be in touch with the President, IESL, Prof. (Ms.) I. J. Dayawansa and Secretary Eng. W. A. L. W. A. Perera and try to prepare short and long-term requirements to establish a professional institute for environmentalists. Chairman asked DG to obtain necessary legal clearances from the respective legal authorities.

The Chairman spoke to the President, IESL,

and the Secretary and requested them to provide the necessary documents to plan and establish a professional institute for environmentalists. After several meetings, Secretary IESL lent me a few books from their library, namely (a) the IESL Act, (b) Membership Categories, and (c) Selection Criteria of Members. Based on these three documents, I have done three drafts as discussion documents.

In 2006, when the Chairman of CEA was trying to establish IEPSSL, he tried to select an officer from the Public Service. Finally, he identified Mr. V.K. Nanayakkara as the First President of IEPSSL. As a Sri Lanka Administrative Service (SLAS) officer, he served for 37 years, out of which he served more time in environment-related activities, such as (a) Head, Environment and Policy Analysis Division, Sri Lanka Institute of Development Administration (1976-1984) (b) Director, Central Environmental Authority (1984-1986) (c) Chairman/member, Water Resources Council (1997-2000), Assessed the existing basin-level institutional arrangements and current implementation problems.

Mr. Nanayakkara not only served in the environmental sector but also worked as a Consultant for the Institutional Development of the USAID-funded Natural Resources and Environmental Policy Project (NAREPP: 1996-1997). This background knowledge would have helped Mr. Nanayakkara to introduce the Code of Ethics for IEPSSL on 29-2-2008.

Based on the above preliminary activities, it was possible to arrange the inaugural meeting on April 4th, 2006, at the Main Auditorium of the Central Environmental Authority. This meeting was chaired by Hon. Maithripala Sirisena, Minister of Environment, with more than 100 participants. Mr. Nanayakkara served as the first President of IEPSSL for more than two years.

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There were 17 Council Members elected. The first Council Meeting was held on Nov. 16th, 2006, from 4:00 pm to 6:00 pm in the Conference Room of CEA. The above members were well represented not only by CEA but also by universities, international NGOs, and environmentalists attached to state and private sector agencies.

Chairman CEA observed that my assignment period would be completed with CEA at the end of November 2006. Therefore, he shifted my services from CEA to IEPSSL and obtained approval from the Council of IEPSSL to employ me as the Treasurer of IEPSSL.

Table 1: Structure of the Council

No.	Name	Status
Office Bearers		
1	Mr. V.K. Nanayakkara	President
2	Prof. Sohan Wijesekara	Senior Vice President
3	Ms. Shiranee Yasarathne	Vice President
4	Ms. Ramani Ellepola	Secretary
5	Mr. Senaka Samarasinghe	Treasurer
6	Prof. Hemanthi Ranasinghe	Assist. Secretary
7	Mr. Dr. Wimal Wimaladasa	Assist. Treasurer
Committee Members		
1	Eng. Karunasena Hettiarachchi	
2	Eng. Anton Nanayakkara	
3	Dr. W.L. Sumathipala	
4	Mr. Prasad Senadheera	
5	Mr. Janaka Wijesekara	
6	Dr. Sumith Pilapitiya	
7	Prof. C.M. Madduma Bandara	
8	Mr. G.K. Amarathunga	
9	Mr. Sarath Fernando	
10	Eng. J.A.S.A. Jayasinghe	

Nine immediate basic requirements to initiate the institute were finalized at the first Committee meeting held on Nov. 16th, 2006. Among all the arrangements made to open a bank account with Bank of Ceylon, Battaramulla was the most important. As the President and Treasurer were elected, their signatures were obtained to open the account. At the above Committee meeting, several matters were finalized, namely, preparing a logo, starting an email, connecting a Telephone, introducing an auditor, confirming office space, and a person to run the office. Petty cash was impressed with Rs. 5,000/-. For purchases above Rs. 5,000/-, it was decided to form a committee comprising the President, Secretary, and Treasurer. Purchases of more than Rs. 100,000/- would require sealed quotations.

According to the basic requirement, under long-term planned events, the progress of membership was discussed at the Committee meeting. The Treasurer brought to notice that the total current

membership number was only 20. A draft letter was tabled to obtain approval to send to members to accept membership. The committee proposed that the membership fee be paid on or before December 31st of each year.

Lastly, the first Committee identified six Standing Committees and nominated Committee members for each Committee, and the names of the committees are: (1) Membership, (2) Professional Affairs, (3) Education and Examination, (4) Finance, (5) Ethics, and (6) Publicity and Publication.

On 26-10-2006 at 3.00 pm, the Special General Meeting (SGM) was held at the auditorium of the CEA. 110 members participated. The agenda for the SGM was divided into two parts, namely, Ceremonial and Official. Hon. Minister of Environment, Mr. Maithripala Sirisena, was invited. Due to his unavailable circumstances, he was unable to attend. For the Ceremonial Session, Justice Dr. C.G. Weeramantry, former Vice President, International

Court of Justice, delivered a lecture on “Our Ancient Irrigation Systems Viewed in the Light of International Law”. He cited global case studies and judgments delivered on sustainable development.

During the Official Session, a few important decisions were taken, such as (a) the adoption of the draft constitution, (b) the adoption of the draft criteria of membership, (c) the agreement on the overall objective of IEPSSL, (e) changing the name from SLIEP to IEPSSL (from Sri Lanka Institute of Environmental Professionals to Institute of Environmental Professionals Sri Lanka). From the beginning of this paper, I used IEPSSL for easy reference for the reader.

At the 5th Council meeting, held on February 5, 2008, the President, IEPSSL, Mr. V.K. Nanayakkara, met the newly appointed Minister of Environment and Natural Resources (M/E&NR), Hon. Patali Champika Ranawaka, and introduced the functions of the newly formed IEPSSL. Currently, IEPSSL needs

funds for self-sustaining purposes. The President of IEPSSL proposed to the Hon. Minister to offer suitable projects to IEPSSL to generate a reasonable income.

After the above discussion, Hon. Minister requested P/IEPSSL to continue this discussion with Mr. M.A.R.D. Jayatilake, M/E&NR. During this conversation, P/IEPSSL explained that IEPSSL will appoint a suitable team of consultants to complete the task. After the job is done, the payment will be made by the above Ministry to IEPSSL. The responsibility of the IEPSSL is to make all payments to the consultants and keep the profit to the Institute. This process will be done transparently.

Council Members discussed the possibility of raising income from seed money from the Ministry, membership fees, and private sector organizations, such as Pilisaru Project and Piyakaru Purawara.

Ultimately, Prof. (Ms.) Ranasinghe tabled the draft budget at the 5th Council Meeting held on

Table 2: Election of Office Bearers and Council Members

No.	Name	Status
Office Bearers		
1	Mr. V.K. Nanayakkara	President
2	Prof. Sohan Wijeesekera	Senior Vice President
3	Ms. Siranee Yasaratne	Vice President
4	Ms. Ramani Ellepola	Secretary
5	Mr. Senaka Samarasinghe	Treasurer
6	Prof. (Ms.) Hemanthi Ranasinghe	Assistant Secretary
7	Dr. Wimal Wimalaladasa	Assistant Treasurer
Council Members		
1	Eng. Karunasena Hettiarachchi	
2	Prof. C.M. Madduma Bandara	
3	Eng. Anton Nanayakkara	
4	Mr. G.K. Amarathunga	
5	Mr. Sarath Fernando	
6	Dr. W.L. Sumathipala	
7	Dr. Sumith Pilapitiya	
8	Mr. Tissa Gunasena	
9	Eng. J.A.S.A. Jayasinghe	
10	Mr. Prasad Senadheera	

Table 3: Training Schedule

No	Activity	Venue	Dates
1	Training	HARTI, Colombo	21-22 Feb. 2009 (Saturday & Sunday)
2	Filed Visit	Stay overnight at Provincial, Guest House, Uppuveli, Trincomalee	28-1 Feb. & March 2009 (Saturday & Sunday)

5-2-2008. The four-day training session, two days in Colombo and two days in Trincomalee, is illustrated in Table 4.

Table 3: The training session was designed for 25 participants. On 5-2-2008, participants were registered.

Draft Act and Draft Rules

Although the inaugural meeting was held on 4-4-2006, the first Council Meeting was conducted on 16-10-2006. Therefore, this date (16-10-2006) is treated as the inaugural date of IEPSSL. Although the early 2009 institutionalization process was not finalized because the Draft Parliamentary Act had not been approved. The draft Act was with the Department of the Attorney General. As Deputy Solicitor General of this Department, Ms. Bimba Tilakaratne (Deputy Solicitor General) informed that she will finalize the Draft Act before 13-2-2009. P/ IEPSSL knows her well; therefore, Council requested the President follow up with Ms. Tilakaratne. As the President was busy, he asked me to accompany Mr. Austin Fernando, as he also knows Ms. Tilakaratne. However, the IEPSSL (Incorporation) was enacted by the Parliamentary Act No.1 of 2020. Furthermore, Mr. V.K. Nanayakkara, the first President/IEPSSL, introduced the Rules of IEPSSL. and that was also enacted by Parliamentary Act No.1 of 2020.

Chater

In 2010, Prof. Neranjani Ratnayake prepared a draft of a procedure to offer Chater for qualified environmentalists. This was one of the objectives of establishing IEPSSL. Prof. Ratnayake managed to get the approval from the Council of IEPSSL to provide the Charter for Environmental Professionals as CEnvP. Currently, there are 133 Chartered environmental professionals in Sri Lanka.

At the Council Meeting held on 28-10-2009, it was decided that CEA would implement the Green Guides. This is a set of guidelines that helps marketers avoid making environmental claims that mislead consumers. At that time, the Council members agreed to grant responsibility to Prof. Jayaweera to appoint an expert committee to establish guidelines for construction and other projects based on EIA. Furthermore, it was decided to discuss with Construction Industry Development Authority (then ICTAD). The Council proposed Ms. Ramani Ellepola and Ms. Kanthi De Silva to coordinate the process.

At the above Council Meeting, it was discussed to appoint a school leaver as a trainee to coordinate activities such as updating the website, coordinating the news bulletin, and attending to other duties. Further, Council discussed appointing a Training Manager to coordinate training programs throughout the year and maintain a calendar. He/ She should be responsible for providing all facilities to the training programs and making a profit for the organization.

The Council discussed publishing articles on International and Engineering Management (IEEM). IEEM is the leading international forum that disseminates the most recent research and practices. Furthermore, it was decided to publish the same article on the IEPSSL website.

Conclusion

From December 2006 to September 2012, I served as an employee of IEPSSL. This shows that within a short period, IEPSSL became an income-generating Institute. On 30-8-2012, I handed over 51 files (from 1-9-2007 to 30-8-2012) to my predecessor, IEPSSL, with other materials such as cheque books and stationery. I am delighted to note from the beginning that IEPSSL was a self-sustaining institute.

Reference

1. Obtained information from

- (a) Mr. V.K. Nanayakkara, President/IEPSL
- (b) Eng. Karunasena Hettiarachchi, President/IEPSL
- (c) Prof. Neranjani Ratnayake, President/IEPSL
- (d) Ms. Ramani Ellepola, First Generation Officer in CEA
- (c) Dr. Ajith Gunawardena, Director, Environment, Education and Awareness, CEA

(d) Ms. Sewwandi Wijiratna, Secretary, IEPSL

2. Minutes of Committee Meetings

- (a) Committee Meeting - 16-11-2006
- (b) Committee Meeting - 12-12-2006
- (c) SGM - 26-10-2006
- (d) Committee Meeting - 09-04-2007
- (e) Council Meeting - 05-02-2008
- (f) Council Meeting - 28-10-2009
- (c) SGM - 3-12-2010



I attended the Council Meeting on 18-3-2018

IEPSL Structure

The Institute of Environmental Professionals Sri Lanka (IEPSL) stands as the premier professional body dedicated to upholding the highest standards in environmental practice and sustainability. Established in 2006 through a Cabinet Paper and later incorporated by Act No. 01 of 2020, IEPSL has played a pivotal role in shaping environmental governance in Sri Lanka. The institute was formed to bridge the gap in professional representation for environmentalists, ensuring the dignity and reputation of the field while extending services for the benefit of the public.

IEPSL operates with a well-structured institutional framework that fosters professional excellence, environmental advocacy, and industry collaboration. The institute is chaired by its 17th President, Mr. Asela Iddawela, and is supported by a dynamic leadership team comprising the President-elect, Immediate Past President, Senior Vice President, Vice President, Honorary Secretary, Treasurer, and Editor, along with its governing council which consists of 23 members.

Vision and Mission

Vision: *A vibrant body of outstanding environmental professionals contributing effectively to the advancement of the field of environment and resolving contemporary environmental challenges.*

Mission: *To protect the dignity and recognition of the profession through education, research, and the application of scientific knowledge while maintaining high standards in environmental management practices.*

IEPSL strives to maintain high professional standards among its members to enhance environmental protection, conservation, and sustainable management practices across Sri Lanka.

Environmental professionals affiliated with IEPSL are expected to uphold ethical integrity, honesty, and a commitment to natural resource conservation. They are held to the highest professional standards, ensuring that their actions align with global sustainability principles.

To effectively implement its objectives, IEPSL operates through several standing committees:

- Finance Committee – Oversees financial management and resource allocation.
- Academic and Examination Committee – Ensures continuous professional development through certifications.
- Membership Committee – Facilitates new memberships and enhances engagement.
- Industrial Relations Committee – Strengthens industry partnerships for sustainable environmental practices.
- Marketing and Communication Committee – Manages outreach and public relations.
- Research and Publication Committee – Promotes research and knowledge dissemination through IEPSL journals, Beyond Borders magazine, IEPSL blog and newsletter, and technical reports.

IEPSL offers membership to environmental professionals, researchers, students, and industry experts and Membership categories include Fellow Members, Members, Associate Members, and Student Members, ensuring a platform for professionals at different career stages.

A key distinction offered by IEPSL is the Chartered Environmental Professional (CEnvP) qualification, recognizing practitioners at the forefront of environmental protection, management, and sustainability. Chartered members instill confidence in government bodies, regulatory agencies, and the public by demonstrating legal credibility and expert competence.



INSTITUTE OF ENVIRONMENTAL PROFESSIONALS SRI LANKA COUNCIL 2024/2025



Standing Front: Dr. Sampath Wahala (Editor), Mr. Ajith U K Eihugala (Vice President), Mrs. Kanthi De Silva (Senior Vice President), Prof. Nirranjanie Ratnayake (Immediate Past President), Mrs. Shiranee Yasaratne (President), Mr. Asela Iddawela (President Elect), Mr. Trishan Perera (Hony. Secretary), Mr. Randeewa Malalasooriya (Treasurer)

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INSTITUTE OF ENVIRONMENTAL PROFESSIONALS SRI LANKA COUNCIL 2018/2019



Council Members of Institute of Environmental Professionals, Sri Lanka 2012-2013



Front row seated left to right

Mr. Anula Soderqvist - Treasurer, Mr. Karunasena Hemarasekera - Immediate past president, Prof. Uditha K. Jayasinghe-Mudalige - Editor, Ms. D. Lakmini K. Simalathero - Secretary

Prof. (Mrs.) Hemarathi Ranaasinghe - President, Mr. Barmani Ullappala - President Elect, Prof. (Mrs.) Niranjanee Rathnayake - Assistant secretary external affairs.

Mr. H.S. Premachandra - Vice President, Prof. W.J. Sumathipala - Senior vice President

Standing from left to right

Dr. U.A.D. Prasanathi Gunarasekera - Council member, Mr. Ranjitha Mahipala - Council member, Ms. Kamali de Silva - Council member, Dr. W.M.P.S.B. Wickrama - Assistant editor

Mr. Janaka Wijesekera - Council member, Major (Mrs.) Ranjani Karapinarachchi - Council member, Mr. Pallitha Mathakoda - Council member, Mr. W.D.L. Stanley - Council member

Mr. Chuluka Fernando - Assistant Secretary

Absent

Mr. Jayaviral Fernando - Assistant treasurer, Mr. Chamal Nivarantha - Council member, Ms. Chathurika Gunasirasinge - Council member, Aneetha Ranjani Nadeerajilal - Council member

IEPSL 20 Years of Excellence

Advancing Environmental Responsibility and Professional Leadership in Sri Lanka

For two decades, the Institute of Environmental Professionals Sri Lanka (IEPSL) has stood at the forefront of strengthening environmental stewardship, professional standards, and sustainability leadership in Sri Lanka. Since its establishment in 2006 through a Cabinet decision of the Government of Sri Lanka and its formal incorporation by Act of Parliament No. 01 of 2020, IEPSL has evolved into the country's premier professional body dedicated to environmental professionals.

As IEPSL marks its 20th anniversary, it celebrates a legacy defined by institutional growth, professional empowerment, scientific contribution, and national impact.

Building a Recognized and Chartered Environmental Profession

From its inception, IEPSL was founded with a clear vision: "A vibrant body of outstanding environmental professionals contributing effectively to the advancement of the field of environment and for resolution of environmental problems confronting the modern society". Today, the Institute has grown significantly, comprising a distinguished community of Chartered Environmental Professionals alongside an expanding membership base representing expertise across academia, industry, government, and civil society.

Over the years, IEPSL has consistently strengthened its professional platform through the successful organization of 18 Annual General Meetings followed by Annual Technical Sessions by the year 2026.

Strengthening National Capacity Through Professional Training and Partnerships

A cornerstone of IEPSL's impact has been its commitment to capacity building across both public and private sectors. Recognizing that environmental sustainability requires skilled leadership at all levels, the Institute has conducted a wide range of national-level training and professional development programs.

Some recent national level initiatives include:

- Environmental and Social Safeguard training programs for local government officials
- Environmental Impact Assessment (EIA) training programs
- Environmental auditing training conducted in collaboration with the National Audit Office
- Workshops on Environmental Protection Licensing (EPL) and Solid Waste Management Licensing (SWML) for industry sector
- Environmental risk and sustainability training programs for banking sector
- Program for Corporate sector leaders on ESG

Through these programs, IEPSL has played a critical role in enhancing institutional capacity, strengthening regulatory compliance, and embedding sustainability principles into governance and decision-making processes.

Advancing Scientific Knowledge and Research

IEPSL has made significant contributions to environmental science and research dissemination through its prestigious Journal of Environmental

Professionals. Since its launch in 2012, the journal has published 12 issues, providing a respected platform for both members and the wider scientific community to share research findings, innovations, and practical environmental solutions.

Expanding Environmental Leadership

Demonstrating leadership beyond traditional professional functions, where IEP SL conducted comprehensive biodiversity and recreational value assessment of the Ambuluwawa Biodiversity Complex, conducted in collaboration with the Ambuluwawa Religious Centre and Biodiversity Complex Trust Fund.

This assessment which is IEP SL's first institutional environmental evaluation report which provided critical insights into biodiversity conservation and sustainable tourism management, highlighting the Institute's growing role as a trusted national authority in environmental assessment and advisory services.

A Legacy of Excellence, A Future of Impact

As IEP SL enters its third decade, its vision remains firmly focused on empowering environmental professionals and advancing sustainable development.

Over the past 20 years, IEP SL has transformed from a visionary initiative into a nationally respected professional institution. Its contributions have strengthened environmental governance, enhanced professional capacity, advanced scientific knowledge, and supported sustainable development across Sri Lanka.

As the Institute commemorates this important milestone, IEP SL stands poised to play an even greater role in shaping the country's environmental future while empowering professionals, influencing policy, and leading the nation toward a more sustainable and resilient future.

Alumex PLC: Setting the Benchmark for Responsible Aluminium in Sri Lanka

Aluminium defines modern infrastructure from architectural façades to industrial applications. Yet behind its strength and versatility lies one of the most energy-intensive manufacturing processes in the global industrial landscape. As sustainability expectations evolve, aluminium producers face increasing responsibility to address climate impact, resource efficiency, and social governance across the entire value chain.

As Sri Lanka's leading manufacturer and exporter of aluminium extrusions and a subsidiary of Hayleys PLC, Alumex PLC operates at the forefront of this transformation. Serving commercial, residential, architectural, and industrial sectors, the company combines advanced manufacturing capability with strong research and development expertise. Today, that technical strength is matched by an equally structured commitment to sustainability. This commitment reached a defining milestone when Alumex became the first aluminium manufacturing facility in Sri Lanka to achieve the Aluminium Stewardship Initiative (ASI) Performance Standard Certification.

ASI Certification: From Commitment to Verified Performance

The Aluminium Stewardship Initiative (ASI) is a globally recognized, multi-stakeholder framework designed to promote responsible production, sourcing, and lifecycle management of aluminium. Certification under the ASI Performance Standard requires independent third-party auditing and verified performance across environmental management, climate governance, occupational health and safety, labour rights, ethical conduct, and supply chain responsibility. For Alumex, achieving ASI certification required more than policy

declarations. It demanded systematic integration of environmental stewardship, social responsibility, and governance controls into core business operations. The achievement confirms that internationally recognized sustainability standards can be implemented effectively within a local industrial context through structured systems, leadership commitment, and continuous improvement. In doing so, Alumex has established a clear benchmark for the aluminium sector in Sri Lanka.

Structured Environmental Management and Climate Governance

Operating in an energy-intensive industry, Alumex recognizes its elevated responsibility in contributing to greenhouse gas reduction. Alumex PLC operates under an ISO 14001:2015 certified Environmental Management System (EMS), which provides a systematic framework for identifying environmental aspects, assessing impacts, ensuring legal compliance, and continual improvement. Through the EMS, energy consumption, emissions, water use, and waste generation are monitored, controlled, and reviewed through data-driven processes.

Complementing this framework, the company has initiated 1.5°C scenario-based climate assessments aligned with International Aluminium Institute (IAI) pathways. This approach enables the organization to evaluate physical and transition climate risks, anticipate regulatory developments, and integrate climate considerations into long-term strategic planning. As global markets transition toward low-carbon materials, the future of aluminium will be shaped by the choices manufacturers make today. Alumex's climate-aligned planning demonstrates proactive adaptation rather than reactive adjustment.

Circularity and Low-Carbon Aluminium Production

A central pillar of Alumex's sustainability strategy is the integration of circular economy principles. Aluminium is inherently recyclable without loss of material properties, making recycling one of the most effective pathways for emissions reduction in the sector. Alumex operates an in-house aluminium recycling facility that produces low-carbon OZON billets by converting aluminium scrap into high-quality extrusion inputs. Recycled billet production requires only a fraction of the energy associated with primary aluminium production, significantly lowering greenhouse gas emissions and reducing dependence on virgin raw materials. Increasing recycled aluminium content remains a key measure in Alumex's long-term greenhouse gas reduction strategy extending toward 2050. To strengthen material recovery, Alumex supports Used Beverage Can (UBC) collection initiatives in collaboration with institutions and urban partners, including the installation of collection bins in the Gampaha District and Colombo Port City. These initiatives strengthen local recycling ecosystems while promoting public participation in circular material flows. Circularity, therefore, becomes both an environmental strategy and an industrial efficiency advantage.

Occupational Health, Safety, and Social Governance

Sustainability performance is inseparable from workforce well-being and ethical governance. Alumex PLC maintains an ISO 45001:2018-certified Occupational Health and Safety Management System, which ensures systematic identification of workplace hazards, risk assessment, and implementation of preventive and protective measures. Structured safety governance reinforces operational discipline while safeguarding employees and stakeholders. Under ASI requirements, the company also demonstrates adherence to fair employment practices, non-discrimination, labor rights, and ethical conduct. Effective grievance mechanisms and whistleblower processes strengthen transparency and accountability across the organization. In parallel, Alumex

invests in skills development initiatives targeting fabricators, engineers, dealers, and students, strengthening industry-wide technical competence and sustainability awareness within Sri Lanka's aluminium value chain.

Environmental Stewardship Beyond Operations

Beyond its manufacturing footprint, Alumex contributes to ecosystem protection through reforestation campaigns in collaboration with the Road Development Authority in the Mirigama highway area, as well as freshwater ecosystem restoration initiatives in Aththanagalla. Coastal clean-up programs in Uswetakeiyawa and Wellawatta further demonstrate the company's commitment to responsible environmental stewardship. While nature-based initiatives do not replace the need for emissions reduction at source, they complement operational climate actions and reinforce a broader commitment to environmental resilience.

A Decisive Shift Toward Responsible Aluminium

Alumex PLC's ASI Performance Standard certification, coupled with its commitment to circularity, energy efficiency, and 1.5 °C-aligned climate action, signals a decisive shift toward responsible aluminium production in Sri Lanka. This journey underscores that meaningful climate action in industry is not achieved through isolated initiatives. It is built through integrated systems, transparency, strong governance, and continuous improvement. As global markets increasingly prioritize low-carbon materials, manufacturers must align industrial performance with environmental responsibility. Alumex demonstrates that this alignment is achievable within Sri Lanka's industrial landscape. In doing so, the company sets a clear benchmark for the aluminium sector's role in building a sustainable and climate-resilient future within the country.

By Alumex PLC

Pioneering Environmental Stewardship at Ansell Lanka: From Ideas to Impact

Ansell Lanka (Pvt) Ltd offers a strong example of how industrial operations can align productivity with environmental responsibility. Through practical innovation, disciplined systems, and participatory leadership, the company demonstrates how environmental stewardship can be embedded into everyday operations while generating measurable outcomes.

Biodiversity in Action

One of the most visible initiatives is the Ansell Lanka Mini Forest, developed within the Biyagama manufacturing facility. Rather than limiting green spaces to decorative landscaping, the organization established a functioning ecosystem that supports biodiversity, carbon sequestration, and environmental awareness.

The mini forest includes 373 trees representing 22 plant families, including native and endemic species. It supports birdlife and aquatic biodiversity while storing an estimated 95 metric tons of carbon. Beyond carbon storage, the forest: Improves stormwater absorption, enhances air quality and microclimate regulation & serves as a learning hub. This initiative demonstrates that biodiversity restoration can coexist with industrial productivity.



Water Stewardship

Water governance is one of our key sustainability priorities. Ansell Lanka operates a multi-stage Effluent Treatment Plant (ETP) to ensure that all wastewater is treated to required standards before discharge, safeguarding surrounding ecosystems and shared water resources. In addition, we maintain a rainwater harvesting system to enhance water conservation and strengthen ecological resilience. We are also in the process of implementing Reverse Osmosis (RO) technology to further improve water efficiency & sustainability.

Our disciplined approach to water stewardship has earned external recognition, including the Water Stewardship Champions Award 2025 from the Lanka Responsible Care Council (LRCC). This acknowledgment reflects our continued commitment to responsible water management and the protection of vital natural resources for present and future generations.

Moving towards Sustainable Energy





Ansell Lanka advances sustainable energy with a 7 MW rooftop solar installation, reducing reliance on conventional power and lowering carbon emissions. The company uses sustainably sourced woodchips for biomass energy, drives energy management and greenhouse gas accountability through ISO 50001:2018 and ISO 14064:2018, and fosters an energy-saving culture across the plant.

Driving Environmental Sustainability through Shop floor Kaizen

At Ansell Lanka, we believe that environmental stewardship is not only driven by strategy and leadership but also by the creativity and commitment of our shopfloor employees. Through our continuous improvement culture rooted in Kaizen principles, we empower every team member to contribute ideas that reduce waste, conserve resources, and improve environmental performance at the operational level.

Employee-led Kaizen projects have resulted in numerous small-scale innovations with significant cumulative impact. These include optimizing



machine settings to reduce energy consumption, minimizing raw material waste during production changeovers, and improving segregation practices at waste generation points.

These grassroots initiatives are recognized and celebrated through our internal Kaizen award programs, reinforcing that every employee has a role to play in our sustainability journey.

Packaging Sustainability

Sustainable packaging is a key focus of Ansell Lanka's environmental strategy, driven by circular economy principles. Paper band solutions for bulk and vend packs reduce plastic use, lower emissions, and improve recyclability. Chemical artwork print reduction minimizes ink and material consumption, while QR enabled digital IFUs decrease paper waste. The Smart Pack innovation replaces non-recyclable Nylon blends with recyclable alternatives. Together, these initiatives demonstrate how thoughtful design, and technological innovation can transform packaging into a driver of sustainability.

Pen Bin Love Initiative

In collaboration with Zero Plastic Movement Sri Lanka, the Pen Bin Love project collects used ballpoint pens from our employees for recycling and repurposing. By installing visible collection points, the company promotes circular thinking and raises awareness about small but high-volume plastic waste streams. We have initiated this circular economy principle with schools, where we provide refilled pens & collect back used pens for refilling.





Community Engagement and Climate Co-Benefits

Environmental stewardship extends beyond factory gates. In partnership with the Marine Environment Protection Authority (MEPA) under the Clean Sri Lanka initiative, Ansell Lanka mobilized over 70+ employees for a coastal cleanup at Uswetakeiyawa Beach.

Approximately five tons of mixed waste, primarily plastics were removed. Beyond immediate environmental restoration, such actions contribute to carbon avoidance by preventing plastic degradation emissions and reducing marine ecosystem damage.

These initiatives also serve as powerful awareness tools. Direct exposure to environmental degradation strengthens employee commitment to waste prevention and responsible consumption within the workplace.

Systems, Certifications, and Long-Term Governance

Sustained environmental excellence depends on structured management systems. Ansell Lanka maintains Zero waste to landfill certificate & ISO 14001:2015, ISO 45001:2018, ISO 50001:2018, ISO 14064:2018 certifications complying for environmental sustainability. Further we are a member of Lanka Responsible Care Council (LRCC) to strengthen our environmental management practices.

At Ansell Lanka, sustainability performance is embedded into daily operational dashboards, ensuring environmental indicators receive attention comparable to production metrics.



Education and Ecosystem Building

Environmental leadership extends beyond internal operations to active knowledge sharing. In addition to training our own employees, the company has educated over 500+ undergraduates and industry professionals on environmental compliance and sustainability practices in operations during last 2 years. We have also conducted programs on chemical safety and hazard management in collaboration with regulatory authorities such as CEA, demonstrating a commitment to advancing environmental awareness and best practices beyond compliance requirements.

Through best practice sharing, Ansell Lanka helps strengthen national capacity for environmental stewardship and pollution prevention.

Circular Economy Leadership

At Ansell Lanka, circular economy principles are not an afterthought, they are embedded into our core business strategy and represent the next frontier of our environmental journey. We advance this commitment through innovative product redesign and transformative workplace practices that systematically eliminate waste, improve resource efficiency, and promote responsible consumption across the entire value chain.

The environmental journey of Ansell Lanka illustrates that sustainability is not an abstract ambition, but a disciplined, measurable, and participatory practice, where environmental stewardship isn't just a policy, it's part of every decision we make.

By Ansell Lanka (Pvt) Ltd.

Decarbonizing Ceramic Manufacturing: An Integrated Model for a Sustainable Future

This case study details the design, implementation, and outcomes of the “Conscious Kiln” integrated energy and resource efficiency project at Art Decoration International (Pvt) Ltd, a Sri Lankan ceramic manufacturer. Facing the sector-specific challenges of high thermal energy consumption, freshwater use, and process waste, the initiative targeted a 40% reduction in greenhouse gas (GHG) emissions and a 60% reduction in freshwater intake. The strategy employed a synergistic, three-pillar approach: (1) transitioning to a high-efficiency tunnel kiln with recuperator technology, (2) installing a 250 kW rooftop solar photovoltaic (PV) system to displace grid electricity, and (3) implementing a closed-loop



water treatment plant alongside a comprehensive waste valorization protocol. Results demonstrate a 35% reduction in specific energy consumption, a 52% reduction in Scope 2 emissions, a 65% reduction in freshwater withdrawal, and over 90% waste diversion from landfill. The project validates a technically and economically viable pathway for enterprises in heat-intensive industries to decouple production from resource depletion, highlighting the critical success factors of management commitment, phased investment, and a systems-thinking methodology. This model offers a replicable blueprint for industrial decarbonization and circular economy practices in developing economies.

Organizational Background

Art Decoration International (Pvt) Ltd is a leading manufacturer and exporter of decorative and functional ceramic products based in Bandaragama, Sri Lanka. Operating for over three decades and exporting to over 50 countries around the world, the company supplies to global markets in Europe, North America, and Asia. As a participant in a traditional, energy-intensive sector, the organization recognized early the inherent environmental challenges of ceramic production such as primarily high thermal energy consumption, water use, and process waste. Our commitment to sustainability is operationalized through certified Environmental Management Systems (ISO 14001:2015), SLS certification from Sri Lanka Standards Institute, SEDEX, Certificate of Conformity - Principles of Ethical Trade from National Chamber of Exports Sri Lanka, BSCI certification (Business Social Compliance Initiative), driving continuous improvement in resource efficiency and minimizing our ecological footprint while maintaining cultural craftsmanship.

Context and Environmental Challenge Addressed

The ceramic industry is a significant consumer of thermal energy, with kiln firing accounting for significant portion of a plant's total energy use, typically derived from fossil fuels. This results in substantial greenhouse gas (GHG) emissions. Additional sector-wide challenges include high freshwater consumption for clay processing and glaze preparation, and the generation of solid waste from mold making, defective pieces, and packaging.

For Art Decoration International, addressing these issues was critical for:

- **Environmental Compliance & Risk Mitigation:** Adhering to increasingly stringent global buyer requirements and preparing for potential carbon pricing mechanisms.



- **Operational Resilience:** Reducing exposure to volatile fossil fuel prices and securing water resources in a climate-variable context.
- **Sustainable Market Positioning:** Differentiating our products in markets where environmental, social, and governance (ESG) criteria influence procurement. The core challenge was to identify and implement a technically feasible and economically viable pathway to decarbonize the firing process and establish circular resource flows without compromising product quality or artisan techniques.

The “Conscious Kiln” Project was launched to systematically reduce the environmental footprint of our ceramic manufacturing. Its clear goals were to cut greenhouse gas emissions by 40% and reduce freshwater use by 60% within three years. This initiative integrates targeted upgrades in energy, water, and waste management to address the core sustainability challenges of our industry.

Strategy & Implementation:

The initiative was structured around three interconnected pillars:

1. **Energy Transition & Efficiency:** The project’s cornerstone was the replacement of two conventional periodic kilns with a single, high-capacity, modular tunnel kiln featuring advanced recuperator technology. This significantly improved heat recovery and uniform firing. Concurrently, a 250 kWp grid-tied rooftop solar photovoltaic (PV) system was installed. The system was sized to match daytime operational load, directly powering kiln motors, exhaust fans, and lighting, thereby displacing grid electricity (primarily fossil-based in Sri Lanka).

2. **Water Circularity:** A closed-loop water treatment and recycling plant was commissioned. Process wastewater from clay washing and equipment cleaning is channeled through a flocculation and sedimentation system, followed by sand filtration. Treated water is stored and reused for non-product-contact applications, primarily in the plaster mold workshop and for facility sanitation.
3. **Waste Valorization:** A systematic protocol was implemented to segregate and repurpose all major waste streams. Expired plaster molds are processed into aggregate for local construction materials. Ceramic production waste is crushed and reintroduced into new clay batches as “grog,” reducing material use and improving product integrity. Organic waste from staff facilities is composted on-site for landscape use.
4. **Stakeholder Involvement:** Implementation required collaboration with international kiln manufacturers, local solar EPC contractors, environmental engineering consultants for water treatment, and active engagement with the internal “Green Team” comprising staff from production, maintenance, and management for training and procedural updates.

The project was executed through a systematic, phased methodology aligned with the ISO 14001 framework. It commenced with a comprehensive baseline assessment (2021) to quantify existing consumption of natural gas, electricity, water, and waste generation. Technical feasibility studies followed, including lifecycle cost analysis for kiln technologies, solar irradiation analysis for photovoltaic system sizing, and water quality testing to scale-up the treatment plant. Implementation was then sequenced to manage investment and operational

continuity: first upgrading the kiln, then installing the solar PV system, and finally commissioning the water treatment plant. To ensure accountability and continuous improvement, dedicated sub-meters were installed, and Key Performance Indicators (KPIs) are now tracked monthly and reviewed quarterly by management.

The initiative, fully operational since 2023, has yielded significant, quantifiable outcomes:

- **GHG Emissions Reduction:** Combined kiln efficiency gains and solar generation have reduced specific energy consumption per unit of output by 35%. Scope 2 emissions from electricity have dropped by an estimated 52% compared to the 2021 baseline.
- **Renewable Energy Generation:** The solar PV system generates approximately 325 MWh annually, meeting ~30% of the site's total electricity demand and exporting surplus to the grid.
- **Water Conservation:** The recycling system has reduced freshwater withdrawal from public supply sources by 65%, saving an estimated 5 million liters annually.
- **Waste Diversion:** Over 90% of operational solid waste is now diverted from landfill through reuse and recycling channels. Packaging materials have been shifted to 100% recycled cardboard, eliminating polystyrene.
- **Financial:** While the capital investment was substantial, operational savings from reduced energy, water, and waste disposal costs have resulted in a projected payback period of 5-6 years. The initiative has also mitigated regulatory and supply chain risks.

Lessons Learned and Key Insights

Our success was anchored in clear leadership support, which secured the necessary investment, and the practical insights of a cross-functional team that ensured solutions worked on the shop floor. Phased implementation made the project manageable, allowing us to adapt and manage finances responsibly. The primary challenge was the significant upfront capital cost, which we addressed by building a robust business case that emphasized long-term operational savings, supply chain



resilience, and market positioning but not just a corporate responsibility. Integrating new technology with established artisan methods also required dedicated training and patience.

The key insight from this journey is the power of a systems-thinking approach. Isolated upgrades would have delivered limited results, but the synergy between the high-efficiency kiln (which reduced energy demand) and the solar array (which cleaned the energy supply) created our greatest impact. Furthermore, engaging our wider value chain such as partnering with local construction to repurpose waste plaster that transformed a traditional cost center into a new, minor revenue stream, closing the loop on our circular economy goals.

This integrated model is highly replicable for small and medium enterprises (SMEs) in energy intensive, heat-dependent sectors worldwide, especially in regions with strong solar potential. It demonstrates that deep decarbonization is achievable through sequential, targeted investments. Looking ahead, Art Decoration International will expand its solar capacity to target 50% renewable energy penetration, pilot the use of certified biomass as a complementary clean kiln fuel, and continue to champion cultural diversity by elevating Sri Lanka's inherited artisan crafts as a national flagship. We remain committed to sharing our technical learnings with industry peers to support the sector's collective transition toward low-carbon, circular production.

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Certified Sustainable Fuelwood Production in Sri Lanka: Biochar Fertz's Biomass Supply Chain Management

Biomass is a major source of industrial thermal energy in Sri Lanka, particularly in the food processing, manufacturing, and hospitality sectors. However, unsustainable fuelwood extraction can cause deforestation, ecosystem degradation, and long-term supply instability. Sri Lanka Standard (SLS) 1551:2016 was introduced to promote sustainably produced fuelwood through legal compliance, environmental protection, social responsibility, and traceability. This paper presents about Biochar Fertz Pvt Ltd, a company operating in the sustainable biomass and renewable energy sector and certified under SLS 1551. Biochar Fertz focuses on responsibly sourced fuelwood, primarily rubber wood from end-of-life plantations and *Gliricidia sepium*, a fast-growing nitrogen-fixing species. Sustainability is strengthened through corporate social responsibility (CSR) initiatives that promote *Gliricidia sepium* cultivation among farmers in regions such as Monaragala and Anuradhapura. At its Malwana processing facility, fuelwood is converted into standardized wood chips for industrial boilers across Sri Lanka, emphasizing quality control, operational efficiency, and waste minimization. The case demonstrates that environmental responsibility and commercial viability can progress together through strong farmer partnerships, certification compliance, and continuous improvement.

Sri Lanka relies heavily on biomass to meet industrial thermal energy demand, with several hundred industrial boilers consuming large volumes of fuelwood daily. Biomass use improves energy security and reduces dependence on imported fossil fuels, but poorly managed supply chains can



place pressure on natural forests and rural ecosystems. To address these



risks, Sri Lanka Standard SLS 1551:2016 provides a nationally recognized framework for sustainably produced fuelwood. Biochar Fertz Pvt Ltd, based in Malwana, operates within this framework as an SLS 1551 certified supplier of biomass fuel for industrial applications.

Regulatory Framework: Sri Lanka Standard SLS 1551

SLS 1551:2016, developed by the Sri Lanka Standards Institution (SLSI), is a management system standard that guides organizations involved in fuelwood production and supply. The standard emphasizes four key requirements: legal compliance with forestry, land-use, labor, and environmental regulations; environmental protection through sourcing from plantations, woodlots, and agroforestry systems; social responsibility toward workers and local communities; and traceability of fuelwood throughout the supply chain. Certification under SLS 1551 involves documentation review, audits, and ongoing compliance monitoring and supports national objectives related to low-carbon development and sustainable rural livelihoods.

Raw Material Sourcing and Environmental Rationale

Biochar Fertz sources fuelwood primarily from rubber wood obtained from end-of-life plantations and from *Gliricidia sepium*. Rubber trees are harvested after latex production has ceased and are replanted, making this source environmentally preferable to harvesting natural forests. *Gliricidia sepium* is widely promoted in Sri Lanka as an energy crop due to its rapid growth, ability to fix atmospheric nitrogen, and suitability for short-rotation coppicing.



In addition to providing fuelwood, *Gliricidia sepium* improves soil fertility, supports erosion control, and integrates well into agroforestry systems. The use of these feedstocks reduces pressure on natural forests while ensuring a reliable and sustainable biomass supply.

Farmer Engagement and Supply Chain Sustainability

Sustainability is embedded in Biochar Fertz's supply chain through CSR initiatives that encourage *Gliricidia sepium* cultivation among farmers, particularly in Monaragala and Anuradhapura. Farmers cultivate *Gliricidia sepium* along field boundaries, in small woodlots, and within mixed-cropping systems. These practices provide additional income to rural households, improve land productivity, and enhance climate resilience, especially in dry and marginal areas. Sourcing fuelwood through farmer-linked supply networks improves traceability and supply stability while aligning with the social and environmental objectives of SLS 1551.

Processing Operations and Quality Control

Biochar Fertz operates a processing facility in Malwana where purchased fuelwood is converted into standardized wood chips for industrial boilers across Sri Lanka. Processing operations focus on sorting raw material, producing uniform chip sizes, and controlling moisture content to ensure efficient combustion and stable heat output. Waste minimization is achieved by reintegrating usable residues into the fuel stream or managing by-products according to environmental requirements. These practices improve boiler performance, reduce emissions per unit of energy generated, and enhance customer confidence in biomass-based energy systems.

Governance, Certification, and Continuous Improvement

As an SLS 1551 certified organization, Biochar Fertz maintains documented sourcing policies, supplier screening procedures, internal process controls, and record-keeping systems to support traceability and compliance. Performance is monitored using indicators such as sourcing volumes, fuel quality, and operational efficiency. Continuous improvement is pursued through expanded farmer engagement, refinements in sourcing strategies, and upgrades to processing and quality-control methods.

Group-Level Sustainability Integration

Biochar Fertz operates as part of a sustainability-driven group of companies that includes Austral Solar, which provides renewable energy solutions, and Dishanvalley Tea Factory and Estates, which follow responsible agricultural and community-focused practices. This group-level integration reinforces shared commitments to environmental stewardship, rural development, and low-carbon economic growth across multiple sectors.

Lessons and Broader Implications

The Biochar Fertz case demonstrates that environmental responsibility and commercial viability must advance together. Strong farmer partnerships, adherence to nationally recognized certification standards through training programs, and continuous process improvement have enabled the development of a resilient and scalable sustainable biomass business model. Plantation- and agroforestry-based fuelwood systems, combined with quality-controlled processing and sound governance, offer a practical pathway for expanding sustainable biomass energy in Sri Lanka.



Conclusion

Well-governed fuelwood supply chains can meet Sri Lanka's industrial energy needs while supporting environmental protection and rural livelihoods. Biochar Fertz illustrates how SLS 1551 certified sourcing, farmer-based supply systems, and efficient processing operations can deliver sustainable biomass at scale. As Sri

Lanka moves toward low-carbon and climate-resilient development, such models provide valuable guidance for industry, policymakers, and sustainability practitioners.

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Integrating Environmental Stewardship into Industrial Operations: A Corporate Best Practice Approach from Bogala Graphite Lanka PLC

Organizational Background

Bogala Graphite Lanka PLC is a long-established industrial organization operating within Sri Lanka's mineral extraction and value-added manufacturing sector. With a heritage spanning several decades, the company is recognized for producing high-purity natural graphite for international markets. Its operations include underground mining, mineral processing, and export-oriented manufacturing, serving advanced industries such as graphite dispersion/Lubricants, processing graphite for carbon brushes/ friction industries, fire retardant materials and powder materlogies.

Operating in an environmentally sensitive area, the organization acknowledges its responsibility to balance economic performance with environmental stewardship and community well-being. As regulatory expectations, global supply-chain requirements, and stakeholder awareness continue to rise, environmental sustainability has become a strategic priority rather than a compliance-driven obligation.

Bogala Graphite Lanka PLC has progressively integrated environmental management principles into its operational framework, aligning its practices with national environmental regulations, international standards, and corporate sustainability goals. Through structured environmental initiatives, continuous monitoring, and stakeholder engagement, the organization seeks to minimize ecological impacts while ensuring long-term business resilience and responsible resource utilization.

Context and Environmental Challenge Addressed

Industrial and mining operations naturally face complex environmental challenges, especially regarding land use, water management, energy consumption, and waste generation. In Sri Lanka, an island with rich biodiversity and close-knit communities near industrial zones, these challenges are magnified by local ecological sensitivities and growing social expectations.

One major environmental concern in mineral extraction is the physical disturbance of both surface and underground ecosystems. If excavation is not carefully managed, it can cause soil erosion, permanent landscape changes, and long-term difficulties in rehabilitating the land. Furthermore,

processing minerals requires large amounts of water. This heavy usage raises concerns about depleting local groundwater levels, lowering the quality of wastewater, and negatively impacting downstream ecosystems.

High energy usage is another major challenge in this sector. Industrial processing, operating heavy machinery, and running essential underground ventilation systems require significant power. This high demand increases greenhouse gas emissions and raises operational costs. The historical reliance on traditional, non-renewable energy sources also makes operations more vulnerable to climate-related risks and increasing pressure to meet global carbon reduction goals.

At the same time, waste management presents a complex daily hurdle. The mining process produces large volumes of waste rock, processing leftovers, and general industrial waste. All of these materials require strict management protocols to prevent local soil and water contamination.

These combined environmental challenges are constantly driven by several larger factors. These include rising global demands for production, the creation of stricter environmental laws, closer observation from local communities, and the strict sustainability requirements demanded by international buyers. Companies must adapt rapidly to maintain their social license to operate. Therefore, successfully managing these connected issues requires a proactive, systematic approach. It is no longer enough to treat environmental protection as a side task just to meet legal compliance; it must be deeply built into the core decision-making processes of the business to ensure lasting, sustainable, and responsible operations.

Description of the Best Practice / Initiative

To directly address these environmental challenges, Bogala Graphite Lanka PLC designed and launched a comprehensive Environmental Best Practice Framework. This initiative was created to embed sustainability into every stage of our operations. The program focused on three main goals: significantly reducing our environmental impact, improving how efficiently we use resources, and strengthening regulatory compliance and stakeholder trust.

The program started with a detailed baseline assessment of our environment. We carefully measured our land use, water needs, energy use, emissions, and

waste types. This data allowed the organization to identify the highest-impact areas and prioritize our actions based on risk and practical feasibility.

A major part of this initiative was responsible water management. We installed advanced process water treatment systems, using multi-stage settling and filtration, to greatly improve the quality of our wastewater before releasing it. Alongside this, we set up strict water-quality monitoring to track our performance, quickly catch any issues, and ensure we met all legal standards. For domestic wastewater, we built a specialized treatment plant that uses biological and chemical methods to ensure safe and responsible discharge.

Saving energy and reducing emissions formed another key pillar. By optimizing heavy equipment, strictly following maintenance schedules, and upgrading our underground ventilation systems, we noticeably reduced our overall energy use. Wherever possible, we added energy-saving technologies and better operational controls to cut down on wasted power.

To protect both worker health and the environment, Bogala Graphite Lanka PLC upgraded its systems for controlling dust, noise pollution, and lighting across all sites. We created routine monitoring systems to quickly spot environmental issues, allowing for fast corrections. These improvements protected the surrounding ecology while making the workplace much safer and more comfortable for our team.

In addition, we reorganized our waste management by strictly separating waste at the source, storing it securely, and disposing of it legally. By identifying more materials that could be reused or recycled, we drastically cut the amount of waste sent to outside landfills. Importantly, we safely repurposed waste rock from our underground mining to improve site stability and help rehabilitate the land.

To ensure these changes lasted, the company launched an Annual Environmental Training and Awareness Plan. This ongoing education ensures our workforce stays informed, skilled, and actively involved in using best practices every day. Regular training and workshops help clarify new rules and build a strong culture of environmental responsibility. To keep leadership accountable, Key Performance Indicators (KPIs) were added to management reviews. These KPIs track resource use, energy, emissions, waste, and compliance, giving leaders the data needed to make smart, corrective decisions.

A highly visible success of this framework was the Afforestation Programme started in 2020/2021. We planted over 1,500 native and useful trees around our site and nearby lands. This effort expanded local green cover, reduced soil erosion, improved air quality, and supported local wildlife. Today, these trees provide

important habitats and help build climate resilience. Overall, we rolled out this framework in careful phases, ensuring our business kept running smoothly while we made these vital sustainable upgrades.

Methodology and Approach

The initiative used a highly organized environmental management method closely aligned with the ISO 14001 standard. This step-by-step approach included identifying environmental impacts, assessing risks, setting clear goals, planning phased rollouts, continuously monitoring performance, and conducting formal management reviews. Additionally, we relied on data-driven decision-making, regular site inspections, and internal audits to maintain strong operational control and encourage a culture of continuous environmental improvement.

Results and Measurable Outcomes

The strict rollout of this environmental best practice initiative produced clear and highly positive improvements across many critical areas of our operations. A major success was the significant improvement in our internal water management processes. By closely monitoring and optimizing our daily water usage, we greatly improved our overall water efficiency. This responsible water management reduced the strain on local water sources and made our operations more stable, which is especially important during dry seasons when water is scarce. These results clearly proved that our water conservation strategies were working effectively.

At the same time, our continuous monitoring of wastewater quality showed lasting improvements. By using advanced treatment systems and strict procedures, the organization consistently met and often exceeded the legal standards for safe water discharge. This not only lowered the risk of environmental harm but also built stronger trust with environmental regulators.

Alongside the water improvements, our targeted energy-saving efforts—which included upgrading machinery and improving workflows—resulted in a major reduction in electricity use compared to our production volume. This better energy efficiency provided two main benefits: it helped the environment by cutting greenhouse gas emissions, and it helped the business financially by lowering operational costs.

Furthermore, we completely transformed our internal waste management systems. Strict rules for separating and handling waste reduced the amount of unmanaged trash, while greatly increasing how much material we recovered and recycled. Better daily cleaning routines and organized waste transport created a safer work environment and made our processing more efficient.

Beyond the numbers, the initiative created

important cultural changes. Environmental awareness among employees increased dramatically, as seen by higher participation in sustainability programs and more staff suggesting new improvements. This shift turned environmental responsibility into a shared team goal rather than just a management directive. Finally, the organization built stronger, more transparent relationships with legal regulators and local community members, solidifying our social license to operate. Together, these outcomes show that building environmental responsibility into daily tasks directly improves long-term business efficiency and overall success.

Lessons Learned and Key Insights

A major lesson from this initiative is that real environmental improvement happens only when responsibility is shared across the entire organization, rather than being handled by just one department. Our experience showed that strong commitment from leadership, combined with active employee involvement, creates the best foundation for lasting success. When staff at all levels understand their specific role in protecting the environment, the company can successfully blend sustainable habits into daily work.

Another critical insight was the absolute need for accurate data and constant monitoring. Regularly collecting precise environmental data allowed us to make smart decisions, spot potential problems early, and prove our success to regulators with solid facts. Additionally, we learned that making small, consistent improvements over time adds up to massive ecological and operational benefits. This proved that building a culture of continuous, steady improvement is often more effective than relying on occasional, massive overhauls.

Implementing these changes did come with challenges. The hardest part was balancing our heavy production demands with the new environmental rules. To solve this, we used careful scheduling, step-by-step rollouts, and clear communication to prevent work slowdowns. Getting a diverse workforce to understand technical changes also required effort. We overcame this by hosting targeted training workshops and keeping communication simple and open, which helped everyone transition smoothly and secured strong support from our team.

Replicability and Future Outlook

The environmental framework built by Bogala Graphite Lanka PLC can easily be scaled and copied by other industrial companies. Because it is designed to be flexible, its core ideas—like resource efficiency, pollution prevention, and continuous monitoring—can be adjusted to fit different business sizes, geographical locations, and legal requirements. This makes our approach highly useful for other mining and manufacturing industries looking to reduce their environmental footprint.

Looking to the future, the company plans to upgrade its environmental management by introducing advanced digital monitoring and automated reporting tools. These new systems will allow us to track water use, energy, emissions, and waste in real-time. Having clearer, faster data will help management react quicker and use resources even more efficiently. Furthermore, we are committed to expanding our resource-saving programs by improving water recycling, cutting energy use further, and focusing on a circular economy where more waste is recovered and reused.

A major part of our future strategy is our commitment to achieving ISO 50001 (Energy Management System) certification by 2026. Earning this international standard will lock in efficient energy practices, set strict performance goals, and ensure we continuously reduce our energy costs and carbon footprint. By constantly evolving our framework, Bogala Graphite Lanka PLC is positioning itself as a leader in sustainable mining, ready to meet the highest global environmental standards.

Conclusion

The environmental initiative at Bogala Graphite Lanka PLC highlights a strong dedication to responsible resource management. By using a data-driven approach, the organization successfully tackled major ecological challenges related to land, water, energy, and waste. The program's success comes from combining technical upgrades—like modern wastewater treatment—with strong teamwork, staff training, and performance tracking. Furthermore, efforts like our Afforestation Programme show a real commitment to protecting local biodiversity. Guided by future goals, including digital tracking and achieving ISO 50001 certification by 2026, the company is well-prepared to keep raising its sustainability standards. Ultimately, this initiative proves that taking strong environmental responsibility and achieving top operational excellence go hand-in-hand.

References

- ISO 14001: Environmental Management Systems – Requirements with Guidance for Use
- Central Environmental Authority (Sri Lanka) – Environmental Regulations and Guidelines

By Saliya Gunasekara,
General Manager,
Bogala Graphite Lanka PLC

Green Innovations Through Inclusive Business Strategy



At CBL Group, sustainability is embedded within our business strategy, with Planet Positive Actions serving as our key pillar supported by strong commitment. Guided by our inclusive strategy, environmental responsibility is not treated as a parallel initiative, but as an operational priority integrated into product design, manufacturing, distribution, and stakeholder engagement. Guided by our core value of innovation, we continuously seek practical, scalable solutions that reduce material intensity, improve resource efficiency, and strengthen circular practices across our value chain.

The following case studies showcase practical innovations developed through collaboration and technical validation, translating environmental goals into measurable results across packaging, circularity, and consumer communication.

Innovative Paper-Based Wrapper for Chocolate Slab Packaging

As part of our ongoing material efficiency and circular packaging initiatives, CBL Foods initiated a structured transition from conventional Aluminum foil, paper sleeve and paper band wrapping configurations to a redesigned paper-based flow wrap for chocolate slabs.

Beyond barrier properties and food safety considerations, the local retail structure presents additional challenges for chocolate slabs. Our distribution network spans the entire island, supplying a wide range of retail formats from small village boutiques to modern supermarkets. However, not all retail outlets maintain storage conditions suitable for chocolate products. High ambient temperatures often result in product melting, while handling- and storage-related breakages, as well as pest exposure at store level, remain operational risks.

As manufacturers, we are responsible for ensuring product quality, safety, and availability until it reaches the end consumer. Previously, this required a multi-layer packaging configuration, including aluminium foil, paper inner sleeves, paper bands, and in some cases individual carton boxes. These layers provided the necessary rigidity, stiffness, thermal resistance, and protection against pests and physical damage.

The introduction of the redesigned paper-based wrapper has enabled improved protection while rationalising packaging layers, addressing both product integrity requirements and material efficiency objectives.

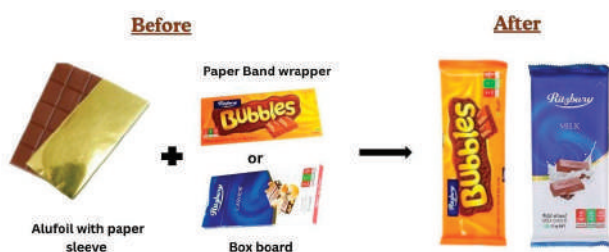
CBL Foods, in collaboration with packaging suppliers, engaged cross-functional teams—including R&D, engineering, quality assurance, and operations—in structured design evaluations, material trials, pilot runs, and necessary production line modifications to enable mechanised wrapping. This transition resulted in a 50% reduction in non-recyclable packaging components and a 45% reduction in paper usage compared to previous packaging configurations. While not the ultimate circular solution, it serves as an interim measure—guided by life-cycle thinking—until cost-effective alternatives achieve equivalent or better performance suitable for the local context.

Master Carton Reuse Project – Advancing Circular Logistics

In high-volume FMCG operations, tertiary packaging such as corrugated master cartons can create a considerable environmental footprint. At CBL's confectionery operations, thousands of these cartons are used each month to distribute products island-wide. While many cartons traditionally entered recycling streams, their reuse potential within the supply chain had not been systematically explored.

To address this, CBL and CBL Foods initiated the Master Carton Reuse Project as a practical circular economy intervention. The project focuses on recovering high-quality cartons from distributors and reusing them before final recycling.

The initiative required more than simply collecting used cartons. Implementation required clear quality, food safety and compliance standards.





and not all cartons qualify for reuse, continuous improvements have increased recovery rates. The project demonstrates that well-managed tertiary packaging reuse can reduce material intensity while strengthening circular practices within FMCG logistics. This project was recognised as a Best Sustainability Project at the Best Corporate Citizen Sustainability Awards 2023, organised by the Ceylon Chamber of Commerce.

Paving Blocks from Packaging Waste: A Practical Upcycling Approach

As part of its “Zero Waste to Landfill” commitment, CBL Group initiated a structured upcycling project to manage non-recyclable multi-layer packaging waste. The initiative focuses on converting wrapper waste into durable paving blocks through collaboration with a third-party MSME partner. CBL provides technical guidance and a consistent supply of segregated factory waste, while the MSME manages processing and production.

The concept was developed after reviewing similar applications, followed by multiple local trials to determine suitable material blends and mold designs.

Early phases utilized pre-consumer factory waste to ensure feedstock consistency. With improved cleaning and segregation mechanisms, the model has potential to incorporate selected post-consumer packaging waste streams. The finished paving blocks were tested for load bearing, compressive strength, UV durability, and outdoor performance, and demonstrated reliable performance for non-structural applications.

Implementation presented several challenges, including variability in waste feedstock composition, maintaining uniform product quality, managing thermal expansion under high ambient temperatures, achieving cost competitiveness, and finding a market for the product. The MSME partner has secured patent recognition for the product, and further developments are ongoing with the support of University of Moratuwa.

While upcycling does not eliminate packaging waste at source, it offers a practical diversion pathway for materials that currently lack viable recycling options. It further demonstrates how technical innovation and collaboration can provide workable solutions for complex packaging waste streams, supported by ongoing validation and continuous improvement.



Reusable cartons are carefully inspected, and safe opening methods were introduced to prevent product damage. Modified industrial cutters replaced unsafe manual practices, and handling guidelines were provided to distributors to maintain carton strength. Reverse logistics were designed to collect cartons without disrupting normal deliveries and adding additional transport costs. A structured pricing approach was introduced to encourage distributors to return cartons in reusable condition despite fluctuations in waste cardboard market prices. A third-party MSME partner manages reprocessing, ensuring quality and compliance standards while creating employment opportunities for unskilled women. Continuous training and monitoring framework supported consistent quality management throughout the process.

By extending carton life, the project reduces demand for virgin corrugated board, helping conserve trees and lower emissions associated with paper production. It also keeps material value within the supply chain longer before recycling. Although reuse is operationally more complex than recycling



Ritzbury Chocolate Fingers Biodiversity Message

The Ritzbury Biodiversity Awareness Initiative is a communication approach designed to integrate environmental conservation messages into everyday consumer interactions. As a company that values Sri Lanka's rich biodiversity, we believe that awareness is a fundamental step in inspiring environmental responsibility—particularly among the younger generation. Through this initiative, everyday product packaging becomes a medium for conservation education.

For many years, the Ritzbury brand has actively led environmental awareness efforts, including conducting over 250 “Ritzbury Journey Day” programmes broadcast on national television, along with supporting numerous environmental education sessions. Building on this engagement, the back panel of Ritzbury Choco Fingers packaging has been utilized to feature high-quality images and informative content highlighting Sri Lanka's native and endangered flora and fauna.

The primary objective of this project is to foster a deep sense of biodiversity awareness and inspire the next generation to protect the nation's unique species. The initiative is specifically designed as a collectible series, which encourages school children to collect the full set of labels as a hobby. This approach ensures long-term engagement with environmental topics, moving beyond simple product consumption to active learning. Over the past decade, more than 80 million Ritzbury packs have carried biodiversity awareness messages across Sri Lanka, promoting appreciation of the country's natural heritage, particularly among young consumers.

To keep Choco Fingers relevant for the next generation, we have transformed this educational back panel into a future-ready edutainment platform



powered by AR technology with the recent relaunch of the packaging. By scanning the given QR code using a smart phone, a vibrant 3D image of the species appears, moving and interacting within their environment. Children can rotate, zoom, and explore the 3D content, fostering an engaging and interactive learning experience. Scan the QR code of the image given above and enjoy the experience. (You may experience difficulties due to print quality.)



Collectively, these initiatives represent only a part of our broader commitment to integrating environmental and social responsibility throughout the product lifecycle. The achievement of the Eco Label Sri Lanka for Ritzbury, Revello, and Tiara portfolios by CBL Foods—becoming the first confectionery portfolio in the country to receive this recognition—provides independent assurance of our environmental stewardship practices. Building on this foundation, we recognise that addressing evolving environmental challenges cannot rely on isolated efforts. We remain committed to advancing through sustained innovation, strengthened partnerships, and collective responsibility across industries and communities.

By Kaushalya Bandunath,
Group Sustainability Manager, CBL Group



A Five-Step Sustainable Fertiliser Revolution: How Dual Chelate Fertilizer Is Redefining Environmental Responsibility in Agriculture”



At a time when agriculture is under growing pressure to feed the world without damaging the planet, Dual Chelate Fertilizer has emerged as a pioneer—demonstrating that high-performance fertilisers and environmental protection can go hand in hand.

Built on a five-step sustainable business approach, Dual Chelate Fertilizer integrates innovation, renewable energy, and circular-economy principles to create fertilizers that are not only highly efficient, but also deeply respectful of the environment.

1. Sustainable Raw Materials at the Source

Sustainability begins with responsible inputs. Dual Chelate Fertilizer uses sustainably grown soybean and corn as its primary organic raw materials. These renewable crops form the foundation of the company's advanced nutrient solutions, ensuring reduced reliance on environmentally harmful synthetic inputs.

Through proprietary technology, essential amino acids are extracted from these natural materials and chelated with CPPA, trace minerals, and micronutrients. The result is a fertiliser with superior nutrient stability, enhanced uptake efficiency, and significantly reduced nutrient loss to soil and waterways.

2. Innovative, Environment-First Production Process

The production process is designed for maximum efficiency with minimal environmental impact. Advanced chelation technology allows nutrients to remain bioavailable to plants while minimizing leaching, volatilization, and runoff—one of the major causes of soil degradation and water pollution in conventional fertiliser use.

This precision-driven manufacturing approach ensures farmers achieve higher productivity using less fertiliser, directly supporting sustainable agriculture.

3. Waste-Free Outcomes and Responsible Product Delivery

Dual Chelate Fertilizer operates as a waste-free manufacturing facility. All production by-products are carefully collected, analysed, and reintroduced into the fertiliser system—eliminating disposal waste entirely.

Equally innovative is the company's delivery model. Fertilisers are supplied in bulk liquid form using tanker systems and reusable 1,000-litre Intermediate Bulk Containers (IBCs). These containers are recovered, cleaned, and reused repeatedly, effectively eliminating single-use packaging and drastically reducing plastic waste.

4. Replacing Coal Power with Renewable Energy

In a decisive move away from fossil fuels, Dual Chelate Fertilizer has replaced coal-based power with solar energy. The company operates both dedicated solar farms and rooftop solar systems, generating multiple times more energy than its operational requirements.

This transition places Dual Chelate Fertilizer among a rare group of agricultural manufacturers producing more renewable energy than they consume—setting a new benchmark for clean industrial operations.

5. Offsetting Carbon Through Permanent Tree Crops

To neutralize its remaining carbon footprint, the company maintains over 1,600 acres of permanent tree crop plantations. These long-term tree systems actively absorb carbon dioxide while releasing oxygen, providing a natural and measurable carbon offset.

This biological carbon capture strategy not only balances emissions but also contributes to biodiversity, soil stability, and long-term environmental resilience.

A Model for the Future of Agriculture

Dual Chelate Fertilizer's five-step sustainable approach demonstrates that environmental stewardship and commercial success are not competing goals—they are complementary forces.

By integrating renewable raw materials, waste-free manufacturing, clean energy, reusable logistics, and biological carbon offsetting, the company is redefining what responsible fertiliser production looks like in the modern era.

In doing so, Dual Chelate Fertilizer is not just manufacturing fertilisers—it is cultivating a future where agriculture thrives in harmony with nature.

Dual Chelate Fertilizer Pty Ltd: Advancing Sustainable Agriculture through Innovation in Plant Nutrition

The global agricultural sector is under increasing pressure to improve productivity while reducing environmental impacts, protecting soil health, and supporting climate resilience. In this context, fertiliser innovation plays a critical role in enabling sustainable food systems. Dual Chelate Fertilizer Pty Ltd, based in Victoria, Australia, represents a forward-thinking agribusiness that integrates scientific innovation, environmental responsibility, and precision agriculture to support more sustainable crop production.

Dual Chelate Fertilizer has positioned itself not merely as a fertiliser supplier, but as a solution provider for efficient nutrient management, helping farmers reduce input waste, minimise environmental losses, and enhance long-term soil productivity.

An important and inspiring aspect of Dual Chelate Fertilizer Pty Ltd is its leadership and ownership. The company is founded and successfully led by two Sri Lankan professionals (Mrs Subashini Munasinghe and her husband Mr U D Manjula Nishantha) who have brought their technical expertise, international exposure, and sustainability-oriented mindset to the global agribusiness sector. Through innovation, scientific rigour, and ethical business practices, they have established Dual Chelate as a globally competitive enterprise

operating from Australia while serving international agricultural markets. Their entrepreneurial journey highlights the growing contribution of Sri Lankan professionals to global sustainability-driven industries, particularly in the fields of agronomy, environmental stewardship, and advanced plant nutrition.

Sustainability-Driven Vision and Business Philosophy

Dual Chelate's mission to become a respected and attractive supplier in the plant nutrition industry is closely aligned with sustainability principles. The company emphasises value creation across the agricultural value chain, focusing on farmer profitability, environmental protection, and resource efficiency. Its approach reflects key sustainability concepts such as input optimisation, pollution prevention, and life-cycle thinking.

Rather than promoting high-volume fertiliser use, Dual Chelate advocates right nutrient, right place, right time strategies, reinforcing sustainable intensification rather than expansion-driven agriculture.

Dual Chelation Technology and Environmental Performance

At the heart of the company's sustainability contribution is its patented Dual Chelation Technology (DCT). Conventional fertilisers often suffer from low nutrient use efficiency, leading to nutrient losses through leaching, volatilisation, and runoff. Dual Chelate's technology enhances nutrient stability, improves plant uptake, and reduces losses to the environment.

A key sustainability differentiator is the use of IDHA as a biodegradable chelating agent, which does not persist in soils or water bodies, reducing ecological risks and supporting environmentally sound nutrient management.

Resource Efficiency and Reduced Environmental Impact Dual Chelate fertiliser formulations deliver higher nutrient use efficiency, allowing reduced application rates and lower resource consumption. This contributes to reduced greenhouse gas



emissions, lower production energy intensity, and improved environmental outcomes.

Supporting Soil Health and Climate Resilience

Healthy soils are essential for sustainable agriculture. Dual Chelate products enriched with organic compounds and amino acids support root development, microbial activity, and tolerance to climate-related stresses such as drought and heat.

Precision Agriculture and Sustainable Decision-Making

The company provides agronomic advisory services, soil and tissue testing, and technical recommendations to avoid over-application, identify site-specific deficiencies, and optimise fertiliser strategies. This precision-based approach reduces environmental risks while improving productivity.

Governance, Standards, and Environmental Management

Dual Chelate holds ISO 9001 and ISO 14001 certifications, demonstrating commitment to quality assurance and environmental management. Industry engagement with FERTCARE, AFSA, and ASPAC further strengthens governance and best-practice compliance.

Dual Chelate Fertilizer Pty Ltd demonstrates how innovation in fertiliser technology can support sustainable agriculture. Through biodegradable chemistry, precision agronomy, and environmental stewardship, the company enables farmers to produce more with fewer resources, contributing to resilient and responsible food systems.

By Dr Arosha Hemali

Advancing Sustainable Energy Through Dual-Phase Biogas Innovation

Sisili Hanaro Encare (Pvt) Ltd. is driving sustainable waste management and renewable energy generation in Sri Lanka through innovative biogas technology solutions. Operating from its facility in the Waste Management Zone in Kerawalapitiya, the company is contributing to the national transition toward a circular economy by converting organic waste into clean, renewable energy while reducing environmental pollution and greenhouse gas emissions.

With Sri Lanka facing increasing energy security challenges and growing volumes of organic municipal waste, Sisili Hanaro Encare has taken a leadership role in implementing advanced anaerobic digestion technologies that support both sustainable waste treatment and renewable energy production. Through continuous innovation and applied research, the company is strengthening the country's capacity to transform waste into valuable energy resources while supporting national sustainability goals.

Strengthening Renewable Energy Generation Through Technology Innovation

Biogas production through anaerobic digestion is a proven renewable energy solution that enables the conversion of organic waste into methane-rich fuel. Traditionally, single-phase biogas reactors have been widely used due to their simple design and operational feasibility. However, recognizing the need to enhance efficiency, stability, and productivity, Sisili Hanaro Encare has pioneered the implementation and evaluation of dual-phase reactor systems to optimize biogas production.

The company established both single-phase and dual-phase biogas reactors using high-density polyethylene tanks, with the dual-phase system

designed to separate the hydrolysis–acidogenesis stage from the acetogenesis–methanogenesis stage. This innovative configuration enables more controlled microbial activity, improving digestion efficiency and overall process stability.

Both reactor systems were operated under controlled conditions and fed daily with 25 kg of organic kitchen waste, ensuring consistent performance monitoring and reliable comparison. The systems were equipped with modern operational features including stainless-steel agitators, submersible transfer pumps, and dedicated gas collection systems to maximize efficiency and ensure operational reliability.

Delivering Enhanced Biogas Yield and Process Efficiency

The dual-phase reactor system demonstrated significantly enhanced performance compared to the conventional single-phase system. The dual-phase reactor achieved an average biogas production of 2.20 m³ per day, representing a substantial improvement over the single-phase reactor, which produced 1.58 m³ per day. This increase in production reflects the improved efficiency of separating biological digestion stages, allowing optimal environmental conditions for each microbial phase.

In addition to higher gas production, the dual-phase system produced higher-quality biogas with an average methane concentration of 63.38%, compared to 56.55% in the single-phase system. This improvement in methane concentration enhances the energy value of the produced biogas, increasing its effectiveness as a renewable fuel source.

The system also achieved superior organic waste stabilization, with volatile solids removal

efficiency reaching 79.52%, compared to 74.05% in the single-phase reactor. This demonstrates the dual-phase system's enhanced capability to break down organic material more effectively, resulting in improved waste treatment performance and reduced environmental impact.

Enhancing Operational Productivity and Economic Viability

Beyond environmental performance, the dual-phase reactor system demonstrated improved operational productivity and economic feasibility. Despite slightly higher electricity and labor requirements, the increased biogas yield resulted in higher overall productivity, achieving a productivity ratio of 1.45 compared to 1.28 in the single-phase system.

This improvement confirms that advanced biogastechnologies not only enhance environmental sustainability but also provide economically viable solutions for long-term renewable energy generation. By maximizing energy recovery from organic waste, Sisili Hanaro Encare is contributing to both environmental protection and sustainable economic development.

Supporting Climate Action and Circular Economy Goals

Through its advanced biogas technology initiatives, Sisili Hanaro Encare is supporting national and global sustainability priorities, including climate change mitigation, renewable energy expansion, and sustainable waste management. By capturing methane that would otherwise be released into the atmosphere, the company is directly contributing to greenhouse gas emission reduction while producing

clean, renewable energy.

The company's integrated waste-to-energy approach supports circular economy principles by transforming organic waste into valuable energy resources, reducing landfill dependency, and promoting responsible resource management.

Driving Innovation for a Sustainable Future

Sisili Hanaro Encare continues to strengthen its commitment to sustainability through ongoing research and technological innovation. Future initiatives include the development of automated reactor control systems based on volatile fatty acid monitoring to further optimize process efficiency and enable scalable commercial applications.

Through its leadership in sustainable waste management and renewable energy innovation, Sisili Hanaro Encare is playing a vital role in advancing Sri Lanka's transition toward a low-carbon, resource-efficient future. The successful implementation of dual-phase biogas reactor technology demonstrates the company's commitment to environmental stewardship, operational excellence, and sustainable development.

By transforming organic waste into clean energy, Sisili Hanaro Encare is not only addressing critical environmental challenges but also contributing to a greener, more sustainable energy future for Sri Lanka.

By Yasanta Gunarathna, A.N.N.P Guruge, U. Kumarasinghe and T.N.J. Munasinghe, Sisili Hanaro Encare (Pvt) Ltd.

Firgun Lanka: Advancing Sri Lanka's Circular Economy Through Innovative Sustainable Solutions

Sustainability as Strategic Leadership

As Sri Lanka navigates a critical period of economic recalibration, the industrial sector's ability to decouple growth from resource depletion has become the ultimate litmus test for corporate leadership. Leading this charge is Firgun Lanka (PVT) LTD, a company that has moved beyond the reactive "compliance" mindset to frame Environmental, Social, and Governance (ESG) performance as a primary driver of industrial resilience.

As highlighted in the analysis, Firgun Lanka is not merely managing waste; it is engineering a new industrial paradigm. Under the entrepreneurial vision of Venura Fernando, the company has operationalized the conviction that environmental responsibility is a high-value business strategy. By embedding sustainability into the bedrock of its technological infrastructure, Firgun Lanka is proving that the circular economy is the most viable path toward long-term profitability and national industrial sovereignty.

The Pyrolysis Innovation: From Waste to Resource

At the heart of Firgun Lanka's operational success is its sophisticated pyrolysis facility. Technically, pyrolysis is the thermochemical breakdown of organic matter—specifically rubber polymers—conducted at high temperatures in the absolute absence of oxygen. This precise process allows the company to dismantle the chemical structure of end-of-life tires, which are notorious for their environmental persistence, and transform them into high-demand industrial commodities.

The thermochemical reaction yields four distinct outputs:

- **Pyrolysis Oil:** A high-energy alternative fuel.
- **Recovered Carbon Black:** A versatile reinforcing agent and pigment.
- **Recycled Steel:** High-grade metal returned to metallurgical value chains.
- **Process Gas:** Non-condensable hydrocarbon gases.

A hallmark of the facility's design is its internal **circularity**. The non-condensable process gas is captured and immediately rerouted to fuel the pyrolysis reactors. This represents a strategic **efficiency gain**, drastically reducing external energy requirements and lowering the carbon footprint of the entire production cycle. By diverting non-biodegradable tires from landfills and halting the hazardous practice of open burning, Firgun Lanka effectively eliminates a major source of soil contamination and toxic atmospheric emissions.

Commercial Applications of Green Carbon Black and Pyrolysis Oil

GREEN CARBON BLACK APPLICATIONS

Recycled carbon black produced in tire pyrolysis becomes increasingly popular, an environmentally friendly alternative to carbon black obtained from oil-based processes.

1. A filler for the rubber industry.
2. Paints and coatings.
3. Ink production.
4. Many other industrial applications.

CARBON BLACK

FirGun

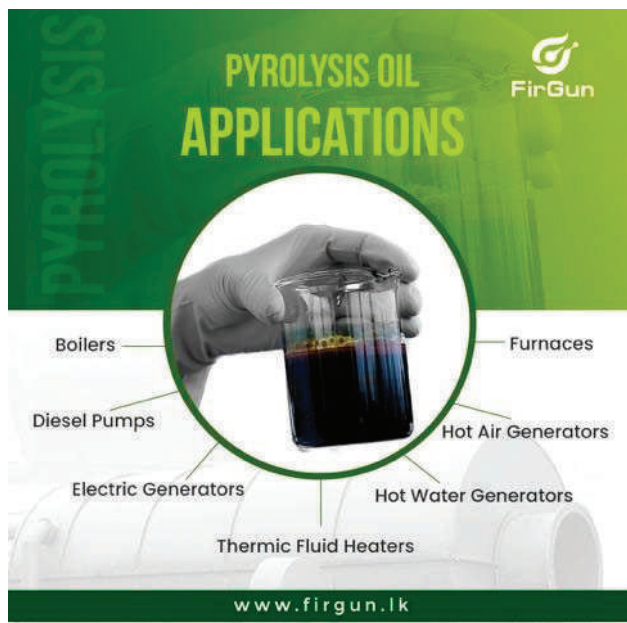
www.firgun.lk

Green Carbon Black

Recycled carbon black produced through tire pyrolysis is rapidly becoming a preferred, eco-friendly alternative to traditional carbon black, which is typically derived from carbon-intensive, oil-based manufacturing.

Pyrolysis Oil

Firgun Lanka's pyrolysis oil serves as a versatile substitute for conventional fossil fuels, supporting national energy diversification and reducing industrial reliance on imported furnace oils.



Environmental Stewardship and Industrial Ecology

Firgun Lanka's commitment to environmental protection is anchored at its facilities within the Puttalam Industrial Zone. The company does not operate in a vacuum; its Common Waste Treatment, Composting, and Recycling systems are designed as part of a larger ecosystem of "industrial ecology."

By integrating rigorous waste segregation and material recovery, the company ensures that every byproduct is treated as a potential resource. This disciplined approach minimizes landfill dependence and safeguards local air, soil, and water quality. These operations are strictly aligned with Sri Lanka's national priorities for climate-conscious

development, demonstrating that industrial productivity and ecological preservation can—and must—coexist.

Governance-Driven Excellence

Governance at Firgun Lanka is the engine that ensures sustainability goals are met with transparency and precision. Rather than treating ESG as a marketing veneer, the company integrates environmental metrics directly into its strategic planning, risk management, and performance evaluations.

The effectiveness of this governance-led model was validated by two prestigious accolades in 2025:

- **The Bronze Award** at the Presidential Environment Awards.
- **The Silver Award** at the National Management Excellence Awards, presented by the Institute of Management of Sri Lanka (IMSL).

These awards are not just trophies; they are evidence of a disciplined alignment between corporate governance and measurable environmental impact, marking Firgun Lanka as a benchmark for management excellence in the region.

Social Responsibility and Community Impact

The social pillar of Firgun Lanka's ESG strategy delivers immediate benefits to public health and community safety. By formalizing the collection and processing of tire waste, the company mitigates the significant risks associated with illegal dumping and tire fires. Crucially, by eliminating discarded tire piles, the company removes the primary breeding grounds for disease vectors. This provides a vital public health service by reducing the incidence of mosquito-borne illnesses such as Dengue, which is a persistent threat in Sri Lankan communities.

Furthermore, Firgun Lanka is a catalyst for economic empowerment. The company generates "green employment" and fosters specialized technical skill development. These roles provide

a pathway for sustainable livelihoods in the environmental services sector, contributing to the professionalization of the local workforce.

Conclusion: ESG Value Creation and the Future Outlook

Firgun Lanka (PVT) LTD provides a compelling blueprint for the future of Sri Lankan industry. By converting environmental liabilities—waste tires—into valuable economic assets like oil and carbon black, the company has mastered the art of value creation within a circular framework.

This ESG-centric model does more than protect the environment; it strengthens institutional credibility and positions the company as a leader in the transition to a low-carbon, resource-efficient economy. Through the synthesis of visionary leadership, technical innovation, and disciplined governance, Firgun Lanka is ensuring that the industrial growth of today does not come at the expense of the environment of tomorrow.

By Dr Arosha Hemali

The Hidden Environmental Cost of Modern Healthcare in Sri Lanka

Sri Lanka's healthcare system is widely recognized as one of the strongest publicly funded models in South Asia. With hundreds of government hospitals and a growing private sector, the country has achieved impressive public health outcomes despite economic constraints. Yet behind this success lies a largely unexamined reality: modern healthcare is environmentally intensive. Hospitals operate around the clock. They rely on energy-hungry equipment, sterile environments, pharmaceutical supply chains, diagnostic technology, air conditioning systems, and complex waste management processes. While healthcare protects human life, its operational footprint can inadvertently place pressure on ecosystems that sustain long-term public health. Globally, healthcare systems are estimated to account for roughly 4–5% of greenhouse gas emissions. For a climate-vulnerable nation like Sri Lanka, understanding and addressing this footprint is no longer optional.

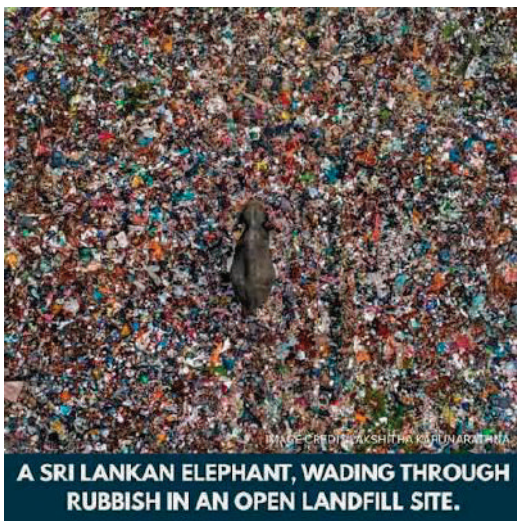


Figure 1. *Elephas maximus maximus* (Sri Lankan elephant) foraging at an open waste disposal site in Ampara, Eastern Province, Sri Lanka. This aerial image, titled “Toxic Tip,” documents the intersection of solid waste management failure and wildlife mortality. Over an eight-year period at a single site in Ampara, approximately 20 elephant deaths were attributed to the ingestion of indigestible food

wrappers and other plastic waste. The photograph was selected among 100 award-winning entries from a record 60,636 submissions in the 61st Wildlife Photographer of the Year competition.

Source: Karunarathna, L. (2025). Toxic tip [Photograph]. Wildlife Photographer of the Year 61, Natural History Museum, London. <https://www.nhm.ac.uk/wpy/gallery/2025-toxic-tip>

A Growing Waste Challenge

Healthcare waste represents one of the most visible environmental impacts of the sector. Sri Lanka's public hospitals generate thousands of metric tonnes of healthcare waste annually, with larger tertiary institutions producing significantly higher volumes per bed than rural facilities. Not all healthcare waste is equal. While a portion is general, non-hazardous waste, approximately 15-30% consists of high-risk categories such as infectious materials, pathological waste, sharps, chemical residues, and cytotoxic agents. When segregation at source is inadequate, the proportion classified as hazardous increases, intensifying environmental risk and straining treatment systems. Private healthcare facilities contribute additional waste, though comprehensive national data remain limited. The absence of consolidated reporting mechanisms makes it difficult to quantify the full scale of the issue. The challenge is not merely volume - it is management.



Figure 2. Plastic waste generation and informal recovery in Sri Lanka. With a population of 21.76 million, the country generates over 250,000 tonnes of plastic waste annually. Approximately 36% of this volume is recovered through informal recycling sector activities, while the majority enters unmanaged waste streams, contributing to terrestrial and marine ecosystem degradation. This infographic presents baseline data supporting Sri Lanka's National Plastic Waste Management Action Plan (2021-2030), developed in collaboration with international partners to address plastic pollution.

Source: Practical Action & United Nations Environment Programme (UNEP). (2023). Sri Lanka waste management outlook: Plastic waste statistics [Infographic]. In *Marine litter and microplastics: Promoting the environmentally sound management of plastic waste (BRS-Norad-1 Project)*. <https://practicalaction.org>

Treatment Infrastructure and Its Limitations

Sri Lanka employs multiple methods to manage healthcare waste. Autoclaving is widely used to disinfect infectious waste prior to disposal. Centralized incineration facilities operate in certain provinces, and alternative thermal treatment technologies are available for specific waste streams. However, capacity and access remain uneven. Many provincial hospitals rely on transporting waste over long distances for treatment, increasing logistical complexity and handling risks. Limited availability of high-temperature incineration is particularly concerned for cytotoxic waste, which requires extremely high combustion temperatures to prevent the formation of toxic by-products. Despite regulatory prohibitions, isolated instances of open burning have been reported in some regions, contributing to localized air pollution and potential release of hazardous compounds. Pharmaceutical waste presents an additional concern. While hospital-based disposal mechanisms exist, Sri Lanka does not currently operate a nationwide take-back program for expired household medicines. As a result, pharmaceutical residues may enter municipal waste streams or wastewater systems, posing risks to soil and aquatic ecosystems.



Figure 3. Healthcare waste categorization protocol for segregation at source in Sri Lankan medical facilities. The poster specifies four distinct waste streams requiring separate containment: (1) non-infectious waste (paper, packaging, food); (2) infectious waste (dressing, gauze, gloves, IV fluid lines); (3) sharps waste (needles, syringes, scalpels, blades, broken glass); and (4) highly infectious waste (blood bags, extracted teeth, used test tubes, anatomical waste including placenta). Proper segregation at point of generation is the primary intervention for protecting healthcare workers from needle-stick injuries and preventing environmental contamination from hazardous medical waste.

Source: United States Agency for International Development (USAID). (2020). *Segregation of medical waste [Poster]*. Health Care Waste Management Program, Sri Lanka.

Cytotoxic Waste: A Silent Risk

Oncology services generate cytotoxic waste - materials contaminated with anti-cancer drugs and active metabolites. These substances are known to carry carcinogenic and mutagenic risks. Major institutions operate controlled incineration systems for safe disposal. However, regional facilities may lack equivalent treatment infrastructure or emissions monitoring capacity. Without adequate safeguards, improper handling exposes waste workers to occupational hazards and increases the risk of environmental contamination. Equally concerning is the limited public availability of data on cytotoxic waste volumes and treatment efficiency, restricting transparency and evidence-based oversight.

Energy Use and Carbon Implications

Beyond waste, energy consumption represents another significant environmental

impact of modern healthcare. Hospitals require uninterrupted electricity for life-support systems, operating theatres, diagnostic imaging, sterilization units, refrigeration, and intensive care facilities. In Sri Lanka's tropical climate, air conditioning is essential for infection control and equipment stability. Given that national electricity generation still relies substantially on thermal and coal-based sources, hospital energy use indirectly contributes to greenhouse gas emissions. Yet Sri Lanka currently lacks a healthcare-specific carbon inventory. Facilities are not mandated to measure or report emissions, limiting the integration of healthcare into national climate mitigation strategies. Without baseline data, meaningful decarbonization planning remains constrained.

Policy Frameworks: Strong on Paper, Uneven in Practice

Sri Lanka possesses a relatively comprehensive policy architecture governing healthcare-related environmental management. The National Environmental Act mandates environmental licensing for hazardous waste generators. Gazette regulations specify waste segregation and treatment standards. The National Waste Management Policy promotes reduction, reuse, and recycling, while prohibiting open dumping and burning. The National Climate Change Policy encourages sector-specific mitigation planning. Oversight responsibilities are shared between the Ministry of Health and the Central Environmental Authority. However, implementation challenges persist. Infrastructure disparities across provinces, limited financial allocations, uneven training among healthcare personnel, and fragmented data systems weaken enforcement consistency. Environmental monitoring data are not routinely disclosed to the public, reducing institutional transparency. During public health emergencies, waste generation surges, revealing structural vulnerabilities in treatment capacity and logistics. The issue is therefore not a lack of policy, but a gap between regulation and operational reality.

Rethinking Sustainable Healthcare Governance

Strengthening environmental performance within Sri Lanka's healthcare sector requires systemic reform. Key priorities include expanding high-temperature incineration capacity in underserved provinces, introducing dedicated budgetary allocations for healthcare waste management, embedding environmental performance indicators into hospital accreditation systems, developing a national healthcare carbon inventory, and

enhancing data transparency and public disclosure. Environmental compliance must evolve from a peripheral responsibility to a core performance metric within healthcare governance.

The Role of IEPSL

The Institution of Environmental Professionals Sri Lanka (IEPSL) is uniquely positioned to support this transition. By developing standardized environmental audit frameworks tailored to healthcare facilities, certifying healthcare waste management professionals, and promoting structured carbon accounting practices, IEPSL can strengthen institutional accountability. Collaboration between environmental professionals and healthcare administrators can bridge technical gaps and foster integrated governance models. Emerging technologies, including artificial intelligence-based waste tracking and emissions monitoring-offer opportunities to modernize environmental oversight within hospitals. Public engagement is equally critical. Awareness programs targeting healthcare workers can improve segregation practices, while broader campaigns linking environmental protection with public health outcomes can foster societal accountability. Healthcare sustainability must be understood not as a regulatory burden, but as an essential component of national health security.

Health, Environment, and the Future

Sri Lanka's healthcare system stands as a national achievement. Yet in a climate-vulnerable country facing intensifying floods, extreme rainfall, and vector-borne disease risks, environmental resilience must become central to health planning. Healthcare delivery cannot compromise the ecosystems that ultimately sustain human well-being. The path forward lies in aligning infrastructure development, financial planning, regulatory enforcement, professional leadership, and public participation. By integrating environmental governance into healthcare systems, Sri Lanka can ensure that the sector continues to protect lives, without unintentionally harming the environment on which those lives depend. In the end, sustainable healthcare is not simply about managing waste or reducing emissions. It is about safeguarding the long-term health security of the nation.

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N S Green Links Lanka: Transforming Sri Lanka's E-Waste into a Sustainable Future

In an era where electronic waste (e-waste) poses significant environmental challenges, N S Green Links Lanka emerged as a pioneering force in Sri Lanka's waste management sector about two decades ago. Specializing in the responsible disposal and recycling of electronic devices, N S Green Links Lanka was committed to reducing the environmental footprint of e-waste while fostering a culture of sustainability across the nation where the people were not much aware of e waste in the Sri Lankan context.

A Comprehensive Approach to E-Waste Management

Presently, N S Green Links Lanka offers end-to-end solutions for managing e-waste, encompassing the collection, dismantling, and processing of obsolete electronics. Their services cater to a wide array of electronic items, including computers, mobile phones, home appliances, and all associated accessories. By adhering to internationally accepted standards, N S Green Links Lanka ensures that hazardous substances are safely extracted, and valuable materials such as metals and plastics are recovered for reuse in the manufacturing process as raw material. This approach not only mitigates environmental harm but also promotes the circular economy by reducing the need for virgin resources from the earth.

Collaborative Efforts and Community Engagement

Understanding the importance of collective action, N S Green Links Lanka collaborates with both governmental and private entities to enhance e-waste management practices. In partnership with the Central Environmental Authority (CEA), N S Green Links Lanka has participated in national e-waste collection campaigns, encouraging the public

to dispose of electronic waste responsibly. These initiatives have led to the collection of substantial amounts of e-waste, highlighting the effectiveness of collaborative efforts in addressing environmental challenges nowadays.

N S Green Links Lanka also places a strong emphasis on community education. Through awareness programs, the company educates the public on the environmental and health hazards associated with improper e-waste disposal. By informing communities about safe disposal methods, N S Green Links Lanka fosters a culture of environmental responsibility and empowers individuals to contribute to a sustainable future.

Addressing the E-Waste Challenge in Sri Lanka

Sri Lanka faces a growing e-waste problem, with estimates suggesting over 40,000 tons of electronic waste in the country. The lack of proper disposal mechanisms has led to hazardous practices such as open-air burning and indiscriminate dumping, resulting in soil and water contamination and air pollution. N S Green Links Lanka addresses this issue by providing structured collection and recycling services, ensuring that e-waste is managed in an environmentally friendly manner.

Economic and Environmental Impact

By offering customized e-waste management solutions to over 300 corporate entities, including major companies, banks and government institutions, N S Green Links Lanka not only aids businesses in achieving environmental compliance but also enhances their corporate social responsibility profiles as green stakeholders. Proper e-waste management helps companies to avoid potential fines and aligns them with global

sustainability standards, which are increasingly important in today's business landscape to move forward competitively.

Furthermore, N S Green Links Lanka 's operations contribute to the local economy by creating job opportunities in the waste management sector. By training individuals in environmentally responsible waste handling, the company supports economic empowerment while ensuring that e-waste is managed by skilled professionals in the right manner.

Leading the Way in Sustainability

N S Green Links Lanka is committed to continuous improvement and innovation in waste management practices. The company is exploring advanced recycling technologies and sustainable methods to enhance its operations further. By staying at the forefront of industry developments, N S Green

Links Lanka aims to provide world-class e-waste management solutions that align with global environmental goals.

As electronic devices become increasingly integral to daily life, the challenge of e-waste disposal grows. N S Green Links Lanka exemplifies how dedicated efforts in e-waste management can lead to significant environmental and economic benefits. By partnering with N S Green Links Lanka, businesses and individuals alike can play a crucial role in transforming Sri Lanka's e-waste challenge into an opportunity for sustainable development.

For more information on N S Green Links Lanka 's services and initiatives, visit their official website at www.greenlink.lk.

By Dr. Chalaka Fernando

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ESG Commitment and Innovation Towards a Greener Future

Established in 1993, Hayleys Fabric PLC has emerged as the leading fabric manufacturer in Sri Lanka, supplying innovative weft knitted fabrics to top global brands like Nike, Victoria's Secret, Calzedonia, Decathlon, PVH, and Gymshark. With a comprehensive production capacity of producing 72 million meters of fabric annually, securing a substantial market share around 44% in Sri Lanka and contributing an annual group turnover of 155 million dollars. The Company leads the industry in sustainability, innovation and ethical standards and offers comprehensive solutions that cover the whole fabric production spectrum from design to delivery adopting the latest technologies. Being the largest textile manufacturer in Sri Lanka after the acquisition of South Asia Textiles Limited in 2021, the company contributes to the wellbeing of People, Planet and Profit.

Hayleys Fabric PLC owns a unique ESG framework to address the three pillars of sustainability which are Environment, Social, and Governance while aligning with the United Nations Sustainable Development Goals (SDGs). The ESG initiatives on reducing environmental impact through energy efficiency, waste management, and sustainable

innovations. The Company operates in complying of all applicable local and global regulations, directives, ISO certifications for environmental, energy, and occupational health and safety management, further affirming its ethical commitment. Hayleys Fabric Group implemented a multi-year, investment-driven environmental management framework aimed at reducing absolute environmental impact while improving operational efficiency under the **“The GreenCatalyst - Hayleys Fabric’s ESG Roadmap 2030”**

When considering the Environment pillar, the focus goes to Energy and Emission Management, Water Management and Biodiversity conservation. Under Energy and Emissions management, Hayleys Fabric has obtained the target approval for near-term and net zero by Science-Based Targets initiative (SBTi). The Company has pledged to achieve net-zero emissions by 2050, with reductions of 95% in Scope 1 and 2 emissions and 90% in Scope 3 emissions. These long-term commitments reflect the Group’s focus on systematically reducing emissions as much as possible and offsetting remaining emissions through credible carbon removal strategies. As we continue this journey, Hayleys Fabric Group remains steadfast in its mission to redefine textile manufacturing for a better and greener tomorrow. We have established a robust framework to systematically reduce greenhouse gas (GHG) emissions across Scope 1, Scope 2, and Scope 3 categories underscoring the Hayleys Fabric Group’s unwavering commitment to climate leadership. With FY 2021/22 as our baseline, we have implemented a year-on-year reduction plan that steadily moves us toward our near-term and net-zero targets.

Then, renewable energy applications by 2030 with a current portion of 73% of renewable energy consumption in the Fabric group. These ambitious





targets are supported by single rooftop solar providing 4.6 MW of electricity to the Hayleys Fabric premises in Narthupana and recently established 3.6 MW rooftop solar facility in South Asia Textiles Limited. Pioneering 35kW floating solar system in Hayleys Fabric PLC we have proved our commitment towards sustainability. Complementing electrical decarbonization, the program consists of systematic transition to biomass and low emission fuels from heavy fuels. Procurement of certified sustainable biomass (SLS 1551 certified) for thermal energy requirements is also underway as another step forward.

Since 2020, Hayleys Fabric has been committed to the UN CEO Water Mandate and practices excellent water management practices in the production process. Both facilities operate in-house water treatment facilities and align with both local and global regulations to ensure responsible water usage. Recognizing the inherent water intensity of textile manufacturing and increasing physical and regulatory water risks, the program focuses on sustainable water sourcing, recycling, reuse, and recovery, while safeguarding operational continuity and compliance with global buyer expectations. Initiatives of filter backwash water recycling, cooling water recovery and reuse, steam condensate water recovery and blowdown water recovery are implemented.

Biodiversity conservation is integral to Hayleys Fabric's mission. The Company maintains a 1:1 green-to-building ratio, manages the "Diyathuru Uyana" biodiversity wetland park, conduct in- house organic harvesting and regularly plant trees. "Diyathuru

Park," is a 9-acre wetland area plays a key role in the Group's carbon sequestration efforts. Surrounded by rubber plantations, paddy fields, and wetlands near the Kalu River, the park has been assessed to estimate its carbon stock in both vegetation and soils. This baseline assessment, conducted by a team of forestry experts through literature review and on-site evaluations, lays the

groundwork for advancing toward formal carbon claims, reinforcing Hayleys Fabric's commitment to climate action and natural carbon capture. In South Asia Textiles Limited, "Thuruwara Uyana" is maintained as another biodiversity park complementary to the initiative.

"Breath – A Better Environment for All" is a long-term project initiative launched by the Hayleys Fabric Group in September 2024 which aims to showcase the environmental preservation and community empowerment commitment of the group. Under that, the Company's "Life to Our Mangroves" program is focused on restoring degraded mangrove ecosystems in multiple areas to enhance biodiversity, improve carbon sequestration and build climate resilience in partnership with conservation groups and academic institutions. Beach cleanup initiatives and awareness programs for students and professionals continued in hand to hand under the "Breath" initiative. Environmental initiatives are also conducted with the collaboration of one of the top Sri Lankan Universities including research projects which provide impactful results in



both industrial and community aspects. “Screening and Quantification of Antibiotic Residues, Antibiotic-resistant Bacteria, and Antibiotic Resistance genes in the surface waters of the Kelani River Basin” and continued research on “Development of Water Quality Indices (WQIs) for the Kelani and Kalu Rivers Impacted by Industrial Effluents: An Integrated Assessment of Physicochemical and Microbiological Parameters” are key researches with measurable outcomes.

These strong environmental commitments demonstrated by Hayleys Fabric PLC have made it one of the leading companies with a strong environment pillar solidified by the vast number



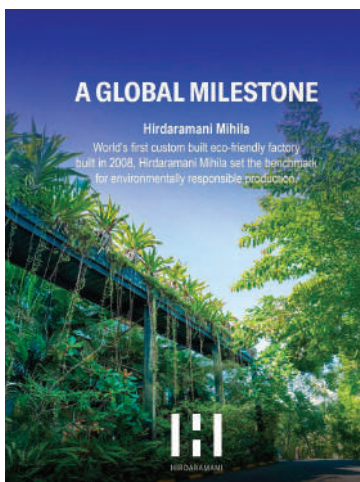
of awards and recognitions were awarded as a textile manufacturing company. These recognitions validate its responsible manufacturing practices, adherence to global and local standards, ESG commitment and continuous innovation towards a greener future.

By Hayleys Fabric PLC

Future First: Hirdaramani's Blueprint for Scaling Decarbonization and Ecosystem Restoration in the Global Apparel Value Chain

Organizational Background

Hirdaramani Apparel is one of the leading apparel manufacturers in Sri Lanka with a century-long legacy. Hirdaramani Apparel's operation is expanding not only in Sri Lanka but also in Bangladesh, Vietnam, Ethiopia, and Egypt, employing over 55,000 associates. Hirdaramani delivers end-to-end apparel solutions, from design and product development to a fully integrated supply chain that produces finished garments for the world's most prestigious fashion brands.



Hirdaramani **“Future First”** long-term sustainability strategy exemplifies the commitment to incorporating fundamental sustainability concepts across the organization's operations. Hirdaramani passion to environmental sustainability has been shown by the establishment of **“Mihila,”** the world's first custom-built green apparel factory, and being recognized as the first company in Sri Lanka to attain SBTi-approved net-zero targets. The Group's strategy has built on four pillars Conserve the Environment, Empower our People, Support our Communities, and Trust in Good Choices ensuring that industrial operations align SBTi with the 1.5°C climate pathway while actively enhancing the environmental well-

being via preventing and Reducing Environmental pollution, ensuring environmental protection, and implementing ecosystem enhancement of the regions in which they operate.

Context, Challenges and Initiatives taken

The environmental impact of the global apparel industry, particularly regarding resource depletion and greenhouse gas (GHG) emissions, presents an existential challenge. The main obstacle for a major manufacturer like Hirdaramani was separating industrial expansion from carbon emissions over a wide geographic area. The sector mainly depends on thermal energy and grid electricity, consume a lot of water & Chemicals from operations. Additionally, there was a systemic inefficiency due to the “linear” nature of the apparel production process, having made a significant contribution to Environmental pollution.

The “Future First” strategy identified these challenges and followed the systematic approach to overcome these challenges step by step. Also, previously A common perception of industrial land was that it was only a production asset. By moving away from the “production-only” mindset, the Hirdaramani is justifying its investment in “greener infrastructure” to protect and restore the land they occupy, rather than just exploiting it for industrial output. Hirdaramani Decarbonization strategy is sophisticated Energy and GHG Management framework designed to achieve Net-Zero emissions from energy across all operations by 2050, aligned with a 1.5°C science-based pathway. The implementation follows a phased technical rollout, beginning with investment grade energy audits that identify & implement Energy optimization measures and Renewable Energy (RE) transition. This has resulted in a massive investment in solar

and biomass sources on consumption, significantly reducing the Group's reliance on fossil fuels.

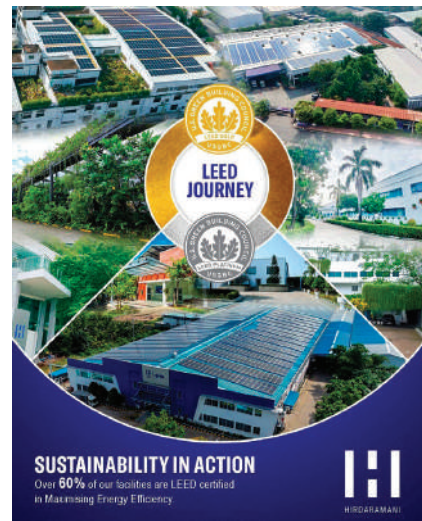
The Group's Water and Chemical Management strategies utilize process innovation to minimize resource intensity on Water intensive Production processes measures that results to drastically reduced water, chemical consumption. These processes are strictly governed by ZDHC "Supplier to Zero" protocols, ensuring that every input and output meets the chemical compliance. Water recycling and implementing sustainable water sources utilization strengthen the Group targets on reduction freshwater and groundwater dependency on domestic and production purposes.

To achieve Waste management and Circularity, the Group has invested on innovation and "Waste-to-Value" initiatives, ensuring that achieve 100% of waste is diverted from landfills. Also, several projects industrial academic partners, ensuring that the industrial academic collaboration is vital to layering scientific foundation on industrial sustainable innovation.

The Biodiversity and Ecosystem Enhancement pillar, particularly through the "Eco Breath" project, focuses on restoring 22,000 m² (5.5 acres) of native habitats across key locations such as Mihila, Kahathuduwa, Mullaitivu, and Sithro Ja-Ela. In addition, external reforestation and restoration initiatives are carried out in collaboration with multiple partner organizations. Through these efforts, Hirdaramani demonstrates that industrial efficiency and ecological restoration are not opposing goals, but rather complementary drivers of a resilient and future-ready business model.

Approaches toward Environmental Sustainability

Hirdaramani integrates management systems, material traceability, and chemical safety regulations in a data-driven, multi-layered approach to guarantee that environmental claims are scientifically verified and in line with international standards.



The Science Based Targets initiative (SBTi) Framework provides a systematic approach for establishing and monitoring carbon reduction objectives, the implementation of Leadership in Energy and Environmental Design (LEED) Certification as established by the U.S. Green Building Council (USGBC) as the benchmark for all infrastructure to enhance sustainable site development. The operational performance is systematically regulated via the Higg Index Facility Environmental Module (FEM). ISO 14001 for environmental management and the prioritization of risks through PDCA cycles, in combination with ISO 50001 to drive the decarbonization strategy by outlining Energy Performance Indicators (EnPIs) and executing technical audits within facilities. In order to uphold the integrity of sustainable raw materials, the Group complies with rigorous Chain of Custody standards, such as Global Organic Textile Standard (GOTS) and the Organic Content Standard (OCS), Global Recycled Standard (GRS) and the Recycled Claim Standard (RCS), Regenagri certification. Chemical management adheres to a stringent "Input-Process-Output" framework wherein facilities are evaluated against the ZDHC "Supplier to Zero" roadmap, utilizing the ZDHC platform ensure the inputs, process and output comply with the chemical compliance concurrently, each component of the garment undergoes testing to confirm the absence of hazardous substances. Systematic and biodiversity assessments undertaken in designated manufacturing environments, to guarantee a comprehensive evaluation of environmental ramifications throughout the manufacturing landscapes.



Results and Measurable Outcomes

According to the 2025 performance data, the Sri Lankan operation has achieved significant milestones. Hirdaramani successfully achieved 16% of scope 01 and 02 GHG emissions reduction in 2025 across its entire Sri Lankan manufacturing footprint compared with 2024. Also, over 70% of Sri Lanka's total energy consumption will be met through renewable sources in 2025. Also recorded over 200 flora and 220 fauna species in the internal conservation areas. Specifically, this includes a 50% increase in native species richness and a 30% rise in bird diversity since the baseline in Mihila. This effort was recognized by the Biodiversity Category at the World Sustainability Awards 2025 in Amsterdam. 17 facilities across the globe are LEED green building certified. Nationally, Hirdaramani's effort was recognized with recent national awards, including Hirdaramani Mihila in 2024 & Hirdaramani Kahathuduwa in 2025, with the Gold Award in the Apparel Category in the Presidential Environmental Awards.

Lessons Learned, Replicability and Future Outlook

Hirdaramani sustainability journey emphasizes the importance of environmental performance data collection and renewable energy investment, crucial during energy crises. Continuous "Environmental Literacy" programs engage the workforce to enhance operational efficiency. Nature-based initiatives improve the factory's ecosystem, while academic partnerships lend credibility and enhance sustainable innovation. Hirdaramani's replicable model supports sustainable manufacturing in emerging economies, focusing on lowering Scope 3 emissions with suppliers. By aligning with SBTi standards, the company shows that environmental responsibility fosters industrial excellence, enhancing the Sri Lankan apparel industry's global competitiveness and contributing to UN Sustainable Development Goals.

Acknowledgements

The Hirdaramani Group wishes to acknowledge the IEP5L for providing this platform to share knowledge. We also recognize the commitment of our 55,000+ associates our stakeholders and our global brand partners who continue to support our journey toward a "Future First."

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INSEE Cement: Pioneering Sustainable Environmental Stewardship in Sri Lanka's Construction Sector



Sri Lanka's construction industry plays a pivotal role in national development. However, it also carries significant environmental responsibility due to resource intensity and carbon footprint. INSEE Cement (Siam City Cement (Lanka) Limited) is the country's only fully integrated cement manufacturer and market leader operating at the intersection of industrial growth and environmental accountability. As a key member of Siam City Cement Public Company Limited (SCCC) in Thailand, the company leverages over five decades of regional and local expertise to drive innovation and sustainable practices within Sri Lanka's construction sector. Through the years, INSEE Cement has progressively embedded sustainability into its operational model, demonstrating how heavy industry can transition toward measurable environmental performance improvements, maintaining competitiveness and resilience.

A Strategic Roadmap to Sustainability

At the heart of INSEE's sustainability journey is the strategic 'Sustainability Ambition 2030', a structured framework designed to integrate environmental stewardship into core business strategy. The roadmap is built around five fundamental pillars: Climate and Energy, Biodiversity and Water Conservation, Circular Economy, Community and Stakeholder Engagement, and Health and Safety.

Aligning operations with robust environmental, social, and governance (ESG) standards, INSEE

seeks to reduce carbon emissions, optimize energy consumption, preserve biodiversity and enhance resource efficiency throughout production processes. Importantly, this approach shifts sustainability from a compliance-based obligation to a performance-driven operational priority.

Climate and Energy: Reducing Carbon Intensity

Cement production is inherently energy-intensive and carbon-emitting. Recognizing this, INSEE Cement has focused on lowering its carbon intensity through both product innovation and operational efficiency. The transition from traditional high-clinker Ordinary Portland Cement (OPC) to lower-carbon blended cement significantly reduces embodied carbon in construction materials.

In parallel, the company has implemented energy efficiency measures aimed at reducing specific electricity consumption by at least 10% and increasing renewable energy sourcing within the operations. These initiatives contribute to lowering overall greenhouse gas emissions while maintaining product performance standards.

A critical component of climate mitigation is the adoption of alternative and waste-derived fuels in cement production through INSEE Ecocycle, the company's waste management arm. By increasing the Thermal Substitution Rate (TSR), approximately 40% of coal usage in cement kilns has been replaced with waste-derived fuel. The integrated approach simultaneously reduces fossil fuel dependency and addresses industrial waste challenges demonstrating the practical application of circular climate solutions in construction industry.

Ecosystem Restoration and Biodiversity Conservation

Since 1999, INSEE Cement has undertaken comprehensive restoration initiatives beginning with large-scale reforestation of former quarry lands. Under the technical guidance of the International Union for Conservation of Nature (IUCN), the Limestone Quarry Restoration Programme at Aruwakkalu has rehabilitated approximately 165 hectares of mined land.

The restoration model incorporates refilling spent quarries, enriching the area with topsoil and replanting with native species to re-establish ecological balance. Beyond vegetation, the programme includes wildlife rescue, rehabilitation, and release efforts to protect less mobile and endemic species during operational activities. The integrated approach ensures biodiversity considerations are embedded within the lifecycle of quarry operations.

Complementing quarry rehabilitation, INSEE Cement has also implemented mangrove restoration initiatives islandwide. Over the past six years, more than 10,000 mangrove saplings have been planted in over 10 hectares in collaboration with the Department of Wildlife, Department of Forests, Coastal Conservation Department, Central Environmental Authority, and academic institutions under Ministry of Environment guidance. Mangroves play a vital role in carbon sequestration, shoreline protection, and ecosystem resilience, reinforcing the

company's contribution to climate adaptation and biodiversity enhancement.

Water Stewardship and Community Impact

Water resource management is a growing concern. Part of Sustainability Ambition 2030, INSEE Cement has tripled rainwater harvesting capacity at the Puttalam plant. Surface water usage has increased from 15% to 45%, thereby reducing dependence on groundwater resources. A 3,750 cubic meter rainwater harvesting tank supports operational water needs, improving resilience against seasonal variability.

Beyond operational measures, water stewardship extends to community engagement. INSEE has supported the establishment of water treatment facilities in schools within the Puttalam district, providing safe drinking water access to over 6,000 school children.

Product Transparency and Lifecycle Accountability

Product innovation and transparency are critical components of sustainable construction. INSEE Cement has progressively shifted the portfolio towards lower-carbon blended cement products, aligning with global sustainability benchmarks.

In 2021, the company introduced Portland Composite Cement (PCC) under the INSEE SANSTHA brand in collaboration with the Sri Lanka Standards Institution (SLSI) technical committee. The product's improved environmental profile reflects advancements in clinker substitution and resource efficiency.

In 2024, INSEE Sanstha PCC received a 5-star Green Label rating from the Green Building Council of Sri Lanka, reinforcing third-party validation of environmental performance. Additionally, INSEE Cement became the first cement manufacturer in Sri Lanka to obtain Environmental Product Declarations (EPDs) for its cement portfolio. EPDs provide internationally recognized, standardized,



and independently verified lifecycle data covering raw material extraction, manufacturing, distribution, and use.

Further strengthening environmental credibility, INSEE became the first cement company in Sri Lanka to achieve EcoLabel certification from the National Cleaner Production Centre (NCPC) in 2025, marking an important milestone in environmentally responsible product manufacturing.

Eng.Thusith Gunawarnasuriya, Chief Executive Officer of INSEE Lanka, stated, “Sustainable industrial development is not an option, it is a responsibility. At INSEE Cement, we recognise the future of Sri Lanka’s construction sector depends on how effectively we reduce carbon intensity, restore ecosystems, conserve water, and embrace circular economy practices. Our Sustainability Ambition 2030 reflects a structured, measurable approach to environmental stewardship — integrating climate action, biodiversity conservation, resource efficiency, and product transparency into core operations. Aligning innovation with accountability, we aim to demonstrate industrial growth and environmental

resilience can advance together.

A robust management framework supports these environmental initiatives. INSEE’s ISO certifications including ISO 14001 (Environmental Management), ISO 50001 (Energy Management), ISO 45001 (Occupational Health and Safety), ISO 9001 (Quality Management), ISO 39001 (Road Traffic Safety), ISO 17025 (Laboratory Competence), and ISO 10004 (Customer Satisfaction) reinforce systematic performance monitoring and continual improvement.

As Sri Lanka advances toward a more sustainable construction landscape, integrated environmental practices provide a practical blueprint for balancing economic growth with long-term environmental resilience. INSEE Cement demonstrates how the construction sector can align industrial development with ecological responsibility.

**By INSEE Cement
(Siam City Cement (Lanka) Limited)**

INSEE Ecocycle's vision for innovation to sustainability leads Sri Lanka's environmental transformation

According to the World Bank's Sri Lanka Country Climate and Development Report (2025), Sri Lanka generates over 9 million metric tons of municipal solid waste per day.¹ Most of it ends up in landfills, creating environmental hazards and wasting resources that could be repurposed.

INSEE Ecocycle is Sri Lanka's leading sustainable waste management service provider, offering viable, scalable solutions that divert waste from landfills and repurpose it into energy and materials. Combining technical expertise and environmental responsibility, the company continues to reshape how industries, municipalities, and communities approach resource recovery and the circular economy.

As a fully owned subsidiary of Siam City Cement (Lanka) Limited (INSEE Cement), equipped with the country's only fully integrated cement kilns, the company has the required infrastructure and technical capabilities to manage a wide range of waste on a scalable basis and convert it into useful alternative energy sources.

INSEE Ecocycle operates as Sri Lanka's only entity offering co-processing capabilities. Since 2003, the company has pioneered industrial and post-consumer waste management in Sri Lanka, setting benchmarks for excellence and positioning the country as a regional leader in sustainable waste solutions. INSEE Ecocycle is the only company to have conducted an independent third-party-verified Destruction Removal Efficiency (DRE) test in the country, proving environmentally friendly waste disposal in accordance with international guidelines.

To date, it has successfully managed over



1.3 million metric tons of waste, serving over 1,000 customers, including multinational companies, large conglomerates, small and medium businesses, government bodies, and non-governmental institutions. The scale of impact demonstrates the company's ability to combine technical expertise with strategic partnerships, guaranteeing waste management is more than a service and a real driver of national progress.

INSEE Ecocycle manages non-recyclable and non-biodegradable waste for over 100 local councils, handling more than 15,000 metric tons of sorted, non-biodegradable municipal solid waste annually. The contribution directly addresses



¹ World Bank Document

Sri Lanka - Country Climate and Development Report



one of the most pressing challenges facing urban Sri Lanka, of managing waste that cannot be processed through traditional recycling methods.

Innovation drives INSEE Ecocycle's technical leadership. The company pioneered the use of advanced technologies to transform waste into alternative fuels and raw materials, reducing reliance on landfill sites, minimising environmental impact, and advancing the shift toward a resource-efficient economy.

The company's capabilities extend to specialised waste streams that require advanced technical expertise, such as the disposal of PCB-contaminated transformer oil and the management of expired chemicals from multiple public institutions and confiscated illegal drugs. These national-level projects demand technical proficiency and the ability to navigate complex challenges, often in collaboration with government authorities and international organisations.

The company's infrastructure includes strategically located pre-processing and waste recovery centres in Katunayake, Sapugaskanda, and Malwana, supported by accredited analytical laboratories providing comprehensive waste characterisation and processing. An integrated co-processing facility at Puttalam is equipped with high-tech pre-processing systems and the most environmentally sound disposal mechanism, which recovers energy. Further, INSEE Ecocycle invests heavily in research and development, continuously adapting to evolving waste streams and developing new infrastructure to maintain the country's waste management industry in line with international



standards.

INSEE Ecocycle's role surpasses operations; it serves as a national and regional benchmark for sustainability. The company's practices align with the Waste Management Hierarchy, ensuring every decision, from collection through to final disposal, maximises resource recovery and gives the best output for securing the environment for future generations.

INSEE Ecocycle's commitment to quality and environmental responsibility is backed by multiple ISO certifications, ISO 9001, ISO 14001, ISO 45001, ISO 39001, and ISO 17025 covering quality management, environmental compliance, occupational health and safety, road safety, and analytical testing. These certifications offer clients confidence, as every process undergoes rigorous review and verification by the accreditation bodies on a regular basis.

Recognition through awards, including the Global Green Awards, the Presidential Green Chemistry Award, the IDB Award, the National Green World Awards, the National Green Award, and Best Management Practice Company Awards by many





reputable awarding bodies, reflects the company's consistent leadership in advancing practices that benefit industry, communities, and ecosystems alike.

Moving forward, INSEE Ecocycle is expanding resource recovery capabilities in the fast-growing industry sector, investing in new technologies and processes to stay ahead of rising waste volumes. The goal is a cleaner Sri Lanka, built on safe, sustainable solutions with real impact.

With two decades of experience and an unwavering commitment to sustainability, INSEE Ecocycle is positioned to lead Sri Lanka's waste management sector into a more resource-efficient future. With each ton of waste diverted, each resource recovered, and each process refined, the company moves closer to the vision in practice.

For businesses, municipalities, and organisations seeking to align with environmental, social, and governance principles and to be responsible for reducing their environmental footprint, INSEE Ecocycle offers proven expertise, comprehensive capabilities, and solutions that are exceptionally compliant according to international standards.

References:

World Bank Document

Sri Lanka - Country Climate and Development Report

By INSEE Ecocycle

KWO Printing Needs: Elevating Sustainable Printing Solutions in Sri Lanka

Organizational Background

Established in 2014, KWO Printing Needs (Pvt) Ltd has emerged as a trusted supplier in Sri Lanka's printing and packaging industry. Over the past decade, the company has built a strong reputation for supplying high-quality printing consumables, advanced machinery, and comprehensive technical solutions to printers across the country. KWO serves leading corporate establishments and operates through a global supplier network spanning over 30 suppliers in 16 countries. As an active member of the Sri Lanka Association of Printers and a consistent Platinum Sponsor of the Sri Lanka Printing and Packaging Exhibition, KWO contributes to strengthening the national printing sector. With the relocation to its modern headquarters in Gangodawila, Nugegoda, the company has reinforced its "all under one roof" model, enhancing service efficiency while aligning growth with innovation and sustainability.



Context and Environmental Challenge Addressed

The printing and packaging sector is resource-intensive, relying heavily on metals, inks, chemicals, plastics, and packaging materials. These inputs generate significant material waste and energy



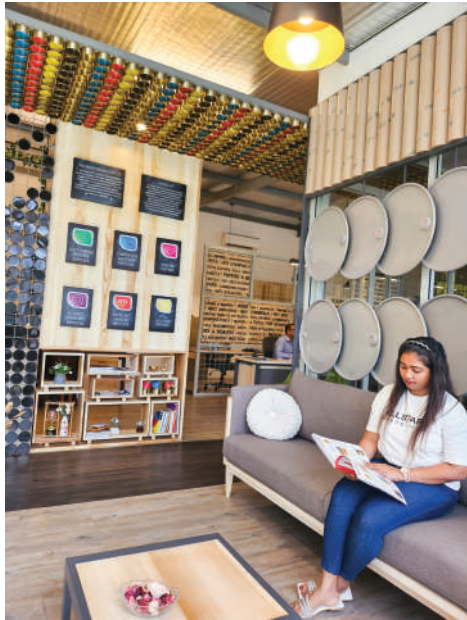
consumption, while increasing environmental scrutiny and regulatory expectations demand improved sustainability performance. In Sri Lanka, supply chain fragmentation presents an additional challenge. Printers often source materials from multiple vendors, leading to logistical inefficiencies, excess transport emissions, inconsistent quality, and inventory mismanagement. Printing-related waste such as plates, tins, and barrels also requires responsible disposal or recovery. As global markets shift toward circular economy principles and eco-friendly production standards, local printers must adapt to remain competitive. Recognizing this transition, KWO repositioned itself as more than a supplier. The company adopted an integrated model that combines operational efficiency, technological modernization, and sustainable product promotion to support the industry's environmental transformation.

Description of the Best Practice / Initiative

KWO's sustainability best practice is built on an integrated model that combines operational consolidation, circular design, and innovation support for Sri Lanka's printing and packaging sector. A core element is the "all under one roof" concept at its modern office and showroom in Gangodawila, Nugegoda. By bringing a broad range of printing

and packaging requirements into a single service hub, KWO helps reduce fragmented sourcing, saving customer time and improving procurement efficiency through more coordinated purchasing. KWO also demonstrates circular economy principles through its “sustainable theme” in facility design. Common printing-industry waste streams, such

The centralized facility enhances operational coordination and reduces fragmentation within the supply chain. ERP-based management ensures real-time inventory monitoring, improved financial transparency, and optimized resource utilization. Circular economy principles are visibly applied through material reuse in corporate infrastructure,



r e i n f o r c i n g sustainability awareness among stakeholders. Strong regulatory compliance, structured accounting systems, and professional management practices underpin responsible business operations. This blended approach of technical innovation and disciplined governance enables sustainable growth while maintaining service excellence.

as used plates, ink tins, barrels, lids, and pallets are repurposed into architectural and interior features, transforming disposal materials into long-life assets while making sustainability visible to customers and staff. To support greener production expectations, KWO promotes standards-aligned and eco-friendly material options by sourcing appropriate-grade products internationally and guiding customers toward solutions that meet required specifications. This focus helps reduce defects and rework, linking quality improvement with lower material wastage. Finally, KWO supports industry modernization by introducing innovations such as digital finishing and digitally controlled production solutions, complemented by ongoing knowledge transfer from international exposure and technical guidance to local printers.

Methodology and Approach

KWO’s approach integrates infrastructure modernization, supply chain consolidation, digital management systems, and governance discipline.

Results and Measurable Outcomes

The implementation of modernization and sustainability initiatives has strengthened KWO’s operational performance and industry standing. The centralized facility has improved service accessibility, storage efficiency, and customer experience. Consolidation of supply channels has reduced inefficiencies and enhanced consistency in product quality. Digital transformation through ERP integration has improved internal controls, reduced risks of overstocking, and enhanced decision-making through data-driven management. Systematic record-keeping and responsive after-sales service have contributed to high levels of client trust and loyalty. The promotion of sustainable printing materials has encouraged gradual adoption of environmentally responsible products within the industry. The visible integration of recycled materials into the corporate environment has also raised awareness of circular economy principles among clients and stakeholders. The company’s international operations into Abu Dhabi,

More than just a Brew: How Lion Brewery continues to build towards a sustainable future

Industrial sustainability is no longer an optional corporate initiative - it is a national necessity. In Sri Lanka's manufacturing landscape, the beverage sector carries a particularly complex responsibility: balancing resource-intensive production with environmental stewardship, social responsibility, and regulatory accountability. Lion Brewery (Ceylon) PLC demonstrates how a legacy manufacturing organization has progressed into a modern day enterprise within a rapidly evolving ESG landscape.

This article explores how Lion Brewery integrates sustainability into day to day operations, as a strategy enabler, opposed to a stand alone aspect, of the Breweries forward trajectory.

From Manufacturing to Stewardship: A Shift in Corporate Purpose

Brewing, has always been closely linked with nature, be it through inputs of water and other raw materials, resources of energy or outputs of emissions. But modern industry has reached a point where "linkage with" must evolve into "responsibility for", where the needs of the present do not take away from the needs of the future. For Lion Brewery, sustainability is no longer a program attached to direct operations within the confines of its production facility but one which is also outward facing. The brewery's journey reflects a broader transformation in Sri Lanka's corporate sector: moving from producing efficiently to producing responsibly - without compromising growth. From that philosophy emerges a structured Environmental, Social, and Governance (ESG) framework that guides decision-making across the organization.

Environmental Responsibility-Designing operations to reduce and reuse:

Energy Management

Industrial energy use traditionally follows a linear model - fuel is burned, energy is used, emissions are released. Lion Brewery has redesigned that model through some of its initiatives. The anaerobic wastewater treatment process naturally generates methane gas. Instead of allowing this greenhouse gas to be released or simply flared, the company captures it and uses it as a renewable fuel for its boiler - its first internally generated renewable energy source. Once fully operational, the system is expected to reduce furnace fuel consumption, thereby shifting the facility's energy profile toward renewable sources. This mechanism converts aspects of risk and compliance into opportunities in cost reduction as well as cleaner production. The Brewery has further strengthened its sustainability agenda by implementing heat recovery and energy reuse initiatives within the brewhouse, delivering fuel savings and improving overall thermal efficiency, while also optimizing its refrigeration processes towards reduction in electrical consumption. Together, these initiatives reinforce the transition toward a more energy-efficient and lower-carbon operating model.

Water Stewardship

Water is the foundation of brewing and at Lion Brewery, it is treated with utmost care. Through the implementation of the "Brewnomic" tool kit, the company conducted a comprehensive sustainability assessment to minimize water consumption. The approach integrates technology, monitoring, and process optimization, ensuring that this resource is used with care. At the same time, wastewater generated at the facility is treated on-site in accordance with environmental licensing requirements. This dual approach ensures optimal resource utilisation and responsible disposal.

Circular Manufacturing

Carbon Dioxide, generated during fermentation, is a valuable resource and is recovered, purified and reused within the brewery while the surplus is supplied to the industrial market. As well as helping to reduce production costs, Carbon Dioxide recovered from fermentation, means a greener process overall, when compared with its fossil fuel generated equivalent.

At Lion Brewery, input materials are not always treated as single use – opportunity to design for reusability is always a consideration. Glass bottles and plastic crates return through a nationwide logistics network, where they are washed, inspected and reintroduced into production under stringent quality control measures. Recycled material now makes up a significant portion of new bottles and crates, reducing dependence on virgin resources, while strengthening a culture of reuse. Inside the brewery, even process residues find purpose. Material used to filter beer, replaces to some proportion, quarry dust in manufacturing interlocking bricks, transforming industrial by-products into construction material, an initiative which received recognition as the “Waste Reduction Achievement of the year” at Global Drinks Intel ESG awards 2025. Partnerships with research institutions and manufacturers continue to explore new value-added applications for driving waste to value. The Brewery supports initiatives such as “Melting Point” where Aluminum cans are upcycled into souvenirs and awards, which supports local artisans derive greater value, through their cottage industry. Waste, therefore, is not the end of a process it becomes the beginning of another resource cycle.

Beyond the boundary of the brewery

Ecosystem Protection and Restoration

Sustainability at Lion Brewery, extends beyond production systems to the ecosystems that sustain them. The Brewery, through Lion Nation Foundation (Guarantee) Limited (LNF), a collective of likeminded organisations supports environmental projects associated with Water, Waste and Knowledge. LNF supports the Sri Lanka Navy’s efforts in providing clean drinking water through the installation of

Reverse Osmosis (RO) plants in areas with poor ground water quality towards mitigating the effects of CKD of communities in these areas. LNF also supports nature conservation entities such as PLANT in their forest corridor restoration initiatives along the Maskeli Oya watershed, strengthening water catchments while supporting wildlife movement. In the vicinity of Eastern Sinha Raja Forest, initiatives with Wildlife Conservation Society Galle, focus on a multifactor model towards conservation. This involves aspects of knowledge sharing on Agri practices, facilitation of responsible disposal and aspects of reforestation, all linked to habitat restoration for point endemic species, who call the waterways flowing out of the forest their home.

Creating a Conscious Consumer

Lion Brewery embeds responsibility, directly into the consumer experience in the backdrop of a heavily regulated market. Product labels carry voluntary reminders on legal consumption, drink-driving prevention, responsible disposal, and recycling. This is further reinforced through hospitality and retail point of sales material, which remind the consumer of their role to consume responsibly.

People and Workplace Well-being

Sustainability begins within the organization. Structured talent development, learning systems, wellness programs, and diversity initiatives create a supportive workplace where employees are valued, empowered to grow and recognised through structured reward and recognition methodologies. The efficacy of which is validated with GPTW surveys and SEDEX Audits.

Responsible Supply Chains

The Brewery endeavors to source raw and packaging materials from suppliers aligned with recognized quality and manufacturing standards, which is driven through ESG-based evaluations towards driving accountability across the value chain.

Community Engagement and Knowledge Sharing

Coastal cleanup partnerships in Negombo and Batticaloa, tree planting and waste segregation projects across the country, improve local environments while providing staff as well as communities to come together towards fulfilling a greater purpose. Internship opportunities and structured technical site visits, support knowledge sharing as well as fulfilment of Higher Education and Apprenticeship requirements of the emerging manufacturing workforce.

Safety and Operational Responsibility

Comprehensive safety inductions and continuous training, ensure disciplined operations while also providing practical and best practice training, to both staff and numerous service provider personnel, as the Breweries contribution towards supporting a “Safety First” culture.

Governance-Turning sustainability from intention into accountability

Sustainability is supported by structured governance towards moving from intent to follow through. The company has commenced ESG reporting, has established stakeholder engagement mechanisms, and oversight processes aligned with recognized standards. Risk and opportunity management, is being strengthened, as a means

of long term sustainability and business continuity. This transforms sustainability from a departmental activity, into a leadership responsibility embedded in the corporate decision-making process.

Conclusion: Beyond Compliance

The next era of industry will not be defined by how much companies produce, but by how intelligently and responsibly they produce it, which will be driven not only by legislation but also by consumer sentiment and need. Those who have embarked on this journey know only too well, that to meet these requirements, there needs to be intent, investment and then follow through, while remaining economically viable. Lion Brewery has understood this and continues to demonstrate its focus and commitment to continuously improve, so that its growth remains sustainable across its ESG framework.

Sustainability therefore, has to become more than just an initiative – it needs to be the operating logic or the way of doing day to day business. As Sri Lanka advances toward responsible development, it is essential that corporate leadership needs to extend beyond profitability – to embrace preservation and better resource utilisation, as part of building resilience and ensuring business continuity in the years to come.

By Lion Brewery (Ceylon) PLC

Environmental Best Practices at Melwire Rolling (Pvt) Ltd

Melwire Rolling (Pvt) Ltd is one of Sri Lanka's leading steel rolling mills, operating in a sector that is both essential to national development and demanding in terms of energy and resources. Over the years, the company has steadily moved beyond basic regulatory compliance and invested in practical, on-ground environmental improvements. This article describes the key environmental best practices adopted at Melwire Rolling, focusing on how energy, water, and materials are managed responsibly in day-to-day operations. Particular attention is given to the company's waste heat recovery system, Zero Liquid Discharge (ZLD) water management approach, and recognized environmental certifications.

Introduction

The steel manufacturing industry plays a critical role in infrastructure development while simultaneously bringing environmental challenges such as high energy consumption, significant water use, and the generation of emissions and waste. For a steel rolling mill operating in Sri Lanka, these challenges are closely linked to rising energy costs, increasing environmental regulations, and growing expectations from customers and the wider community.

At Melwire Rolling (Pvt) Ltd, environmental management is viewed as a practical necessity rather than a separate or theoretical exercise. The company has gradually integrated environmental considerations into operational decisions, maintenance practices, and technology upgrades. The focus has been on making improvements that are technically sound, economically sensible, and sustainable over the long term.

Approach to Environmental Management

Environmental management at Melwire Rolling is driven by a simple but consistent approach: use resources efficiently, avoid unnecessary losses, and prevent pollution wherever possible. Instead of relying only on end-of-pipe solutions, the company emphasizes improvements at the process level.

This approach includes careful monitoring of energy and water use, regular maintenance of equipment, clear operating procedures, and continual improvement through monitoring, audits, and employee engagement. Environmental performance is reviewed periodically, and improvements are introduced as part of normal operational planning rather than as one-off projects.

Energy Efficiency and Waste Heat Recovery

Energy consumption, particularly in reheating furnaces, is a major environmental aspect of steel rolling operations. To enhance thermal efficiency and reduce fuel use, Melwire Rolling has implemented a three-stage waste heat recovery system.

First, high-temperature flue gases (approximately 1100°C) are used to preheat incoming steel ingots, reducing the fuel required to reach rolling temperatures. Second, a recuperator captures heat from flue gases at around 800°C to preheat combustion air to approximately 300°C, improving combustion efficiency and lowering emissions. Third, remaining heat is used through a heat exchanger to preheat fuel oil before combustion, enhancing atomization and combustion quality. Collectively, these measures significantly reduce fuel consumption, operating costs, and carbon emissions.

Water Management and Zero Liquid Discharge

Water is essential for cooling and auxiliary processes. The company's Zero Liquid Discharge (ZLD) system ensures that no industrial wastewater leaves the facility. Water streams are segregated, treated using physical and chemical methods, and recycled for internal reuse. This closed-loop system reduces freshwater dependency and prevents potential contamination of surrounding water bodies, reflecting strong environmental stewardship.

Material Efficiency and Waste Management

Melwire Rolling consistently achieves a production yield exceeding 95%, minimizing raw material losses. Mill scale generated during production is recovered and exported as a by-product, while steel scrap is recycled through re-melting. Non-recyclable waste is disposed of through licensed providers. These practices support circular economy principles and reduce overall waste generation.

The company also maintains ISO 14001, ISO 45001,

and ISO 9001 certifications, reinforcing its structured environmental, safety, and quality management systems. Additionally, it has achieved Eco-Label certification, becoming the first steel manufacturer in Sri Lanka to receive this recognition.

Conclusion

Melwire Rolling (Pvt) Ltd demonstrates that sustainable industrial performance is achievable through practical engineering, disciplined operations, and strategic management commitment. Through energy recovery, water recycling, material optimization, pollution prevention, and certified management systems, the company has significantly enhanced its environmental performance. Its ongoing decarbonization strategy and commitment to continuous improvement position it as a responsible leader in Sri Lanka's steel industry, balancing industrial productivity with environmental sustainability.

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Bringing Back the Colors of Tomorrow with Responsible Action

Organizational Background

Nippon Paint Lanka (Pvt) Ltd, a member of the 145-year-old NIPSEA Group, is a leading coatings manufacturer in Sri Lanka, specializing in high-performance, eco-friendly, and sustainable solutions for architectural, industrial, and marine applications. Today, Nippon Paint stands as the largest paint manufacturer in the Asia-Pacific region. Its parent company, the NIPSEA Group, manufactures and distributes Nippon Paint products across 28 countries in the Asia-Pacific market. In terms of production volume, the Group manufactures over one billion liters of paints and coatings annually, positioning NIPSEA as the preferred coating supplier in Asia and among the top paint manufacturers globally. The Group currently comprises 121 manufacturing facilities and a workforce of over 31,196 employees dedicated to delivering trusted, professional service to valued customers.

Context and Environmental Challenge Addressed

Our sustainability approach is centered on restoring environmental balance by reducing impact, improving efficiency, and fostering a vibrant and resilient future for generations to come. This journey is driven by a strong, group-wide Environmental, Social, and Governance (ESG) commitment that shapes both global strategy and local action. Sustainability governance is led at the global level by a dedicated team of experts who establish the sustainability strategy and set clear, measurable targets that are systematically cascaded to each regional entity where its local sustainability champions execute.

Guided by the Group's sustainability playbook, Nippon Paint Lanka implements initiatives that align with local capabilities and market realities while

contributing to broader global goals. These initiatives include reducing plastic packaging, expanding the range of products formulated with near-zero volatile organic compounds (VOC), and planning the gradual introduction of electric delivery fleets. In parallel, the company continues to work toward defined carbon-reduction targets through operational efficiencies, exploring renewable deployment opportunities, responsible sourcing, and innovation in product development.

This structured and disciplined approach reflects the Group CEO's long-term vision of achieving sustainable growth that balances economic performance with environmental stewardship and social responsibility. Rather than treating sustainability as a standalone function, the organization integrates it into core business decision-making, research and development, supply chain management, and customer engagement.

Description of the Best Practice / Initiative

Sustainability has become a central pillar of our product formulation and manufacturing strategy, particularly in reducing Volatile Organic Compounds (VOCs) and improving indoor air quality. We are currently the only company in Sri Lanka offering near-zero VOC, odorless coating solutions with VOC levels below 5 grams per liter. A significant portion of our portfolio including our complete water-based range carries Eco-Label Sri Lanka certification, a member of the UN-recognized Global Eco-Labeling Network. These recognitions validate the safety, environmental compatibility, and performance of our formulations.

Our approach integrates global best practices with Sri Lanka's regulatory framework. Group-level requirements are applied as a baseline while ensuring full compliance with local environmental

and quality standards such as SLS and ISO. This alignment is strengthened through regular global audits, enhanced compliance monitoring, and continuous process reviews. We are also signatories to Responsible Care Sri Lanka, demonstrating our commitment to safe chemical management and responsible manufacturing practices. Our production facility is certified under ISO 14001 for Environmental Management and ISO 9001 for Quality Management. We are actively progressing toward ISO 45001 (Occupational Health and Safety) and ISO 26000 (Social Responsibility) certifications, along with enhanced energy and VOC emission standards, with completion targeted by 2027.

Results and Measurable Outcomes

On a global scale, sustainability credentials significantly enhance our competitiveness. Major automobile manufacturers such as Toyota, Mazda, Honda, and Nissan are increasingly transitioning to water-based coating systems to meet environmental and regulatory expectations. With 28 Original Equipment Manufacturer (OEM) certifications, we are strategically positioned to support this global transition and expand our market presence.

In the Sri Lankan context, adoption of sustainable coatings is comparatively slower due to cost perceptions, infrastructure limitations, and technical misconceptions. However, progressive sectors particularly hospitality are increasingly adopting near-zero VOC, odorless paints due to benefits such as faster room turnaround times, improved indoor air quality, and superior durability. As environmental awareness grows and technical education improves, we anticipate stronger local demand. Our early-mover advantage in sustainable coatings places us in a favorable position to lead this shift.

Sustainability is expected to be a key driver of both innovation and business growth, enabling us to stay ahead of slower-moving competitors. We are gradually transitioning our vehicle fleet toward electric mobility, beginning with forklifts and internal logistics equipment. In parallel, we are exploring renewable energy solutions such



as solar power and other green technologies as they become economically viable. All initiatives are aligned with the triple bottom line; People, Planet, and Profit ensuring balanced progress across social, environmental, and economic dimensions. We are also piloting biodegradable plastic alternatives, increasing the use of recyclable tin cans and cartons, and embedding circular-economy principles into packaging and supply chain operations. The consistent application of the three Rs across production and distribution strengthens both environmental performance and brand credibility.

Conclusion

Sustainability is not treated as a standalone initiative but as an integrated business philosophy guiding innovation, compliance, and long-term value creation. Through near-zero VOC products, internationally recognized certifications, measurable environmental targets, and responsible waste and energy management, we have established a robust framework for sustainable growth.

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From Landfills to Circular Governance: Lessons from Canada for Strengthening Sri Lanka's Waste Management Systems

This article provides a comparative overview of waste governance systems in Canada and Sri Lanka, highlighting how institutional design influences circular economy performance. While Canada demonstrates structured producer responsibility, regulatory oversight, and diversified diversion systems, landfill pressure persists under high material consumption. Sri Lanka faces landfill dependency and infrastructure constraints but retains a strategic opportunity to strengthen governance architecture before long-term disposal lock-in occurs. The analysis emphasizes that circular transition is fundamentally a governance challenge requiring structured accountability and coordinated national planning.

Waste Governance in a Circular Era

Waste management has evolved beyond its traditional municipal sanitation role and now sits at the center of circular economy transition, climate mitigation strategy, and sustainable resource governance. Yet global progress remains limited. The Circularity Gap Report 2025 estimates that only 6.9% of materials entering the global economy are circular, indicating that the majority of materials continue to follow linear extraction–use–disposal pathways. This demonstrates that recycling alone is insufficient; systemic governance reform and upstream accountability are essential.

Canada represents a governance-mature reference system. It is a federal country comprising 10 provinces and 3 territories, covering approximately 9.98 million km², with a population of around 40 million. Environmental protection is guided federally by the Canadian Environmental Protection Act (CEPA), while waste regulation is primarily provincial, including legislation such as Ontario's Resource Recovery and Circular Economy Act (2016). Canada

manages over 35 million tons of municipal solid waste annually, with per capita disposal exceeding 600 kg per year, reflecting high material consumption.

Producer responsibility is operationalized through structured agencies such as Recycle BC, Recyc-Québec, and compliance authorities like Ontario's Resource Productivity and Recovery Authority (RPRA). Large vertically integrated companies including WM Canada, GFL Environmental, and Waste Connections of Canada operate engineered landfills, recycling facilities, organics processing systems, and digitalized collection networks. National collaboration platforms such as Circular Economy Leadership Canada (CELC) further support cross-sector circular initiatives.

Sri Lanka operates within a different structural context. As a unitary state covering approximately 65,610 km² with a population of around 22 million, environmental governance is centralized under the National Environmental Act (NEA), No. 47 of 1980 (as amended), administered by the Central Environmental Authority (CEA). Regulations include Environmental Protection Licensing (EPL) and the Scheduled Waste Management Regulations (2008). Municipal solid waste generation is estimated at approximately 10,000–11,000 metric tons per day, with only a portion formally collected. While per capita generation remains lower than Canada's, landfill dependency, limited diversion capacity, and enforcement constraints present systemic challenges.

The contrast in governance architecture and institutional maturity provides the foundation for comparative insight. The objective is not replication, but adaptation of governance principles suited to Sri Lanka's context.

Canada's Waste Footprint: System Maturity Under Structural Pressure

Canada generates over 35 million tons of municipal solid waste annually, placing it among the highest per capita waste generators in the OECD. Despite structured recycling programs and expanding extended producer responsibility frameworks, diversion performance remains uneven across provinces and material streams. A major structural pressure point is Construction and Demolition (C&D) waste, which represents a substantial share of total waste disposed by weight in several provinces. Ongoing urban expansion, infrastructure renewal, and building turnover significantly contribute to landfill volumes. Although material recovery initiatives exist, including concrete crushing, wood recycling, and gypsum diversion -performance remains market-dependent and inconsistent across jurisdictions.

Ontario, Canada's most populous province, faces landfill capacity constraints, with continued reliance on cross-border disposal of residual waste to facilities in the United States. Approved landfill capacity is projected to decline over the coming decade if current disposal patterns persist, raising long-term policy concerns regarding disposal security and infrastructure planning. Other provinces reflect similar structural dynamics. British Columbia has implemented organics diversion requirements and landfill restrictions in several regions, while Québec operates centralized recycling oversight and producer-funded systems. However, methane emissions from landfill sites and high material throughput, particularly plastics, packaging, and C&D materials, continue to exert systemic pressure. Canada's waste system therefore reflects institutional maturity operating under consumption intensity. Governance frameworks, stewardship agencies, and digital oversight mechanisms provide accountability and transparency. Yet high material throughput and landfill dependency illustrate that even advanced regulatory systems must continually evolve to align with circular economy ambitions.

Sri Lanka's Waste System: Structural Constraints and Strategic Opportunity

Sri Lanka's waste management system operates within a centralized governance framework but faces structural capacity limitations. Municipal solid waste generation is estimated at approximately 10,000–11,000 metric tons per day, driven by urbanization, tourism, commercial growth, and evolving consumption patterns. However, formal collection systems capture only a portion of generated waste, with significant volumes entering unmanaged disposal pathways. Waste governance is anchored in the National Environmental Act (NEA) and administered by the Central Environmental Authority (CEA), with operational implementation largely carried out by provincial and local authorities. While regulatory provisions exist for hazardous and scheduled waste management, municipal solid waste systems remain predominantly local authority-driven. This decentralized operational model has often resulted in cost-intensive collection and transport structures without corresponding investment in structured diversion, material recovery, or long-term disposal planning.

Final disposal infrastructure remains limited. Engineered sanitary landfill capacity is insufficient relative to total waste generation, and landfill dependency remains high. Organic waste a dominant component of the municipal stream is often disposed without systematic segregation, resulting in methane emissions and loss of recoverable resource value. Diversion infrastructure is emerging but constrained. Cement kiln co-processing facilities exist but operate at limited scale relative to national waste volumes. Waste-to-energy capacity is currently limited to a single large-scale facility addressing only a fraction of residual waste. Small-scale recycling facilities operate across the country, many functioning near maximum capacity and highly dependent on market demand. Sustainable, long-term waste outlets therefore remain a key structural consideration.

Despite these constraints, Sri Lanka presents significant strategic opportunity. Per capita waste generation remains substantially lower than in

Dimension	Canada	Sri Lanka
Governance Structure	Federal–provincial shared jurisdiction	Centralized governance under NEA
Primary Legislation	CEPA; Provincial Environmental Acts; Circular Economy legislation	National Environmental Act and regulations
Extended Producer Responsibility	Mandatory, sector-specific EPR	Limited structured EPR
Regulatory Oversight	Independent compliance authorities (e.g., RPRA)	CEA oversight; limited performance benchmarking
Data & Transparency	Digital reporting and centralized monitoring	Fragmented reporting
Financial Model	Producer-funded diversion systems	Public-sector funded collection systems
Waste Profile	High per capita generation; significant C&D waste	Lower per capita; high organic fraction
Diversion Infrastructure	Established recycling, organics, diversified recovery	Limited co-processing; one WtE facility; small recyclers
Landfill Context	Engineered landfills; capacity pressure	High landfill dependency
Climate Integration	Methane management integrated into climate policy	Climate linkages emerging

high-consumption economies, and large-scale legacy infrastructure lock-in has not yet occurred. This creates space for deliberate institutional reform integrating producer responsibility frameworks, digital tracking systems, organics diversion strategies, and structured public– private collaboration before disposal dependency becomes entrenched.

Comparative Analysis: System Maturity vs. System Opportunity

Canada’s challenge lies in managing consumption within a mature regulatory system. Sri Lanka’s opportunity lies in strengthening governance before structural disposal lock-in occurs.

Strategic Pathways for Strengthening Sri Lanka’s Waste Governance

The comparative analysis shows that circular transition is primarily a governance challenge before it becomes an infrastructure challenge. For Sri Lanka, the priority is to move from a cost-heavy, collection-centric system toward a regulated, performance-driven resource governance model. Five strategic priorities are proposed.

Priority 1: Eliminate open dumping through adequate disposal planning

A credible waste system requires adequate and safe final disposal capacity as diversion systems expand. Sri Lanka should phase out open dumping through engineered facilities, clear environmental standards, and a national transition roadmap aligned with diversion targets. Ending open dumping is essential for environmental protection, public trust, and regulatory credibility.

Priority 2: Legislate Extended Producer Responsibility and build PRO capability

Sri Lanka should implement legally enforceable EPR in phases, starting with high-impact streams such as packaging/plastics, electronics, and tires shifting financial responsibility upstream to producers and reducing the burden on local authorities. Canadian practice demonstrates how EPR is delivered through Producer Responsibility Organizations (PROs): for packaging and paper, provinces increasingly use PRO- led systems such as Circular Materials for EPR program delivery.

Priority 3: Create stewardship agencies that combine service delivery with compliance

Sri Lanka can adapt proven program models. Recycle BC and Québec's EPR framework demonstrate producer-funded responsibility for packaging and regulated products. Product Care shows structured collection of paint and household hazardous waste, while deposit-return systems such as British Columbia's Return-It illustrate high beverage container recovery performance.

Priority 4: Strengthen regulatory oversight and governance of waste management companies

A sustainable waste market requires consistent standards for private operators and transparent performance monitoring. Sri Lanka should strengthen licensing, audit requirements, service standards, and enforcement for waste management companies covering collection, transfer, recycling, treatment, and disposal so that private participation supports national outcomes rather than fragmented local arrangements. Ontario's RPRA provides a reference model for an enforcement-oriented oversight body mandated to enforce circular economy laws and producer obligations.

Priority 5: Expand sustainable diversion outlets beyond landfill

Sri Lanka needs scalable waste outlets aligned with its waste profile and industrial capacity. Priorities include: (i) expanding organics diversion, (ii) environmentally compliant cement co-processing, (iii) strengthening recycling market access and quality, and (iv) proportionate, environmentally sound waste-to-energy for residual waste. These pathways should be planned within a coordinated national system rather than isolated local projects.

Conclusion: Governance Determines Circular Outcomes

The comparison between Canada and Sri Lanka demonstrates that circular economy performance

is shaped less by infrastructure scale and more by governance design. Canada's experience illustrates how legislated producer responsibility, structured oversight bodies, financial accountability mechanisms, and digital transparency systems create measurable performance frameworks. At the same time, persistent landfill pressures and high material throughput reveal that regulatory maturity must continually adapt to evolving consumption patterns. Sri Lanka's challenge is different but equally strategic. The country faces landfill dependency, limited diversion outlets, and fragmented operational systems. Yet it also retains a structural advantage: institutional reform can precede infrastructure lock-in. By embedding extended producer responsibility, strengthening regulatory oversight, eliminating open dumping, improving data transparency, and diversifying sustainable recovery pathways, Sri Lanka can design a governance-led circular transition suited to its economic and environmental context. The pathway forward is therefore not one of replication, but of adaptation. A structured, enforceable, and performance-driven waste governance framework supported by industry accountability and coordinated national planning will determine whether Sri Lanka's waste system evolves from disposal dependency toward circular resource stewardship. For environmental professionals and policy leaders, the priority is clear: sustainable waste management is not merely a technical service; it is a governance responsibility that shapes long-term environmental resilience and economic stability.

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Combining Engineering Excellence with Environmental Responsibility: The Legacy of Sierra Cables PLC

Sierra Cables PLC is not just powering homes and industries; it's lighting the way toward a more sustainable future. With a footprint that spans continents, the company is blending innovation with environmental consciousness in everything it does. As the world shifts toward sustainability, Sierra Cables is leading the charge, showing that growth and responsibility can go hand in hand.

Powering Progress with Sustainability

From its origins in Sri Lanka, Sierra Cables has expanded into a global leader, supplying essential cable solutions that power infrastructure and renewable energy systems across Asia, Africa, the Middle East, Europe, Oceania, and North America. By blending engineering excellence with a strong commitment to sustainability, the company is shaping a future where growth and environmental responsibility go hand in hand. At the forefront of innovation, Sierra Cables understands that success is defined by the positive impact it has on the planet, not just profits. With a focus on resource efficiency, renewable energy, and responsible manufacturing, the company drives climate resilience. Each cable produced powers progress while lighting the path to a more sustainable, eco-conscious future.

Staying Competitive in an Eco-Conscious Market

To stay competitive in an eco-conscious market, Sierra Cables PLC is committed to reducing its carbon footprint, managing resources wisely, and minimizing the environmental impact of production. As global demand for energy-efficient products rises and regulations tighten, the company faces the challenge of balancing growth with sustainability. By investing in renewable energy, energy-efficient technologies, and recycling programs, Sierra Cables

not only supports global sustainability goals but also strengthens its position in international markets, meeting the growing demand for environmentally responsible solutions.

Leading the Charge: Sustainable Manufacturing and Green Technologies

Leveraging Solar Power for Operational Efficiency

Sierra Cables PLC has made significant strides in integrating sustainability into its operations, with a strong emphasis on reducing its carbon footprint. One of the company's key initiatives is the implementation of 1 MW solar power projects at its manufacturing facilities. This renewable energy solution plays a crucial role in reducing greenhouse gas emissions, lowering dependency on fossil fuels, and improving energy efficiency. The solar installations offer long-term environmental and economic benefits, supporting the company's commitment to sustainability. By investing in solar energy, Sierra Cables not only minimizes its environmental impact but also contributes to Sri Lanka's national renewable energy goals.

Recycling Initiatives: Supporting the Circular Economy

Committed to sustainability, the company drives impactful recycling initiatives like recovering copper scrap, reusing wooden pallets, and minimizing waste. By embracing water recycling and efficient cooling processes, it conserves vital natural resources. Copper recycling, a cornerstone of the circular economy, reduces energy use and carbon emissions, ensuring a greener, more efficient future while strengthening environmental responsibility.

Compliance with International Standards

To meet the growing demands of global markets, Sierra Cables manufactures products that comply with internationally recognized standards. These include UL Standards (United States), IEC Standards (International), British Standards (BS and BS EN), Sri Lanka Standards (SLS), ICEA, and other international utility specifications (USDA). By adhering to these standards, Sierra Cables ensures product safety, reliability, and environmental performance, enabling the company to compete effectively in international markets while supporting sustainable infrastructure development worldwide.

Greening the Factory Floor: Sustainable Manufacturing in Action

The company is dedicated to fostering environmental responsibility, by integrating energy-efficient extrusion systems, process optimization, and lean manufacturing techniques to reduce energy consumption and waste. It also uses environmentally safer materials like Low Smoke Halogen Free (LSHF) compounds for insulation and sheathing. These efforts minimize environmental impact, ensure high product quality, and position the company to meet the rising global demand for sustainable products.

Innovative Cable Solutions for Safety and Sustainability

Sierra Cables develops environmentally responsible cable solutions that enhance safety and minimize environmental risks. Innovations include flame-retardant and fire-resistant cables, high-efficiency conductors, and durable systems with extended service lives to reduce waste. The use of LSHF cables further minimizes toxic emissions, ensuring safer infrastructure and reducing environmental impact throughout the product lifecycle.

Supporting Sustainable Infrastructure and Renewable Energy

Beyond manufacturing, Sierra Cables plays a key role in infrastructure development and renewable energy expansion. The company supplies cables for power transmission, industrial infrastructure, and electrification projects, ensuring reliable energy transmission crucial for economic growth and sustainable solutions. This strategic involvement underscores Sierra Cables' commitment to environmental responsibility and aligns with global efforts toward a more sustainable future.

Award-Winning Excellence: From Green Labels to Global Recognition

A major milestone in Sierra Cables PLC's sustainability journey came in 2025 with its advancement from a 3-Star to a 4-Star Green Label Certification, reflecting significant improvements in energy efficiency, resource optimization, and sustainable manufacturing practices. This achievement reinforces the company's dedication to reducing its environmental impact and enhancing operational responsibility. Additionally, Sierra Cables was honoured with the Bronze Award at the 2025 Presidential Environment Awards in the Metal, Non-Ferrous, Machinery, and Electrical Goods category, recognizing its outstanding contributions to environmental protection. These accolades highlight Sierra Cables' commitment to sustainable growth and continuous improvement.

Further reinforcing its position as a leading export-driven manufacturer, Sierra Cables was honoured at the prestigious National Chamber of Exporters of **Sri Lanka Export Awards 2025 with the titles of Best Sri Lankan Brand Exporter 2025 and Gold Award - Large Category (Electronic & Electrical Products Sector)**. These accolades stand as strong recognition of the company's export excellence, manufacturing capability, global competitiveness, and commitment to delivering world-class cable solutions to international markets.

Looking Ahead: Pioneering Sustainability at Sierra Cables

Committed to driving sustainability forward, the company invests in renewable energy, enhances energy efficiency, and optimizes material management. Advanced, energy-efficient manufacturing technologies will continue to be adopted, with a strong focus on environmental compliance through certification programs. These future-focused initiatives position the company to lead in aligning with global sustainability goals and solidify its role as an industry pioneer.

Closing Remarks: Shaping Tomorrow with Sustainable Solutions

Sierra Cables is a shining example of how innovation and sustainability can go hand in hand, driving both environmental responsibility and business success. As the company continues to integrate renewable energy, efficient manufacturing practices, and recycling initiatives, it reinforces its commitment to creating a greener, more sustainable future for industries worldwide.

By Sierra Cables PLC

From Megawatts to Meaning: What Sri Lanka's First Floating Solar Projects Reveal About Sustainable Infrastructure

Chandrikawewa in Embilipitiya, Ratnapura District, and Kiriibbanwewa in Sewanagala, Monaragala District, are reservoirs both located within the Walawe Basin. Today, these stand as sites of national significance, being home to Sri Lanka's first-ever commercial floating solar power plants (FSPPs). When operations commenced in late 2024, the projects marked a significant milestone in Sri Lanka's energy transition. Yet their foundations were laid earlier through a rigorous Feasibility Study (FS) and Environmental Assessment (EA), completed in December 2023, which shaped the design and governance of the FSPPs from the outset. Now operational, these serve not only as a technological first, but as a reference case for embedding environmental and social safeguards into renewable infrastructure, offering valuable lessons for future floating solar expansion across the country.

The two projects comprise a 2 MW pilot installation introduced into reservoirs shaped by competing and interdependent uses, including inland fisheries, community bathing, irrigation, and domestic water supply. These settings represent complex social-ecological systems, making them a deliberate test case for assessing whether renewable energy infrastructure can coexist with sensitive freshwater ecosystems and local livelihoods. Importantly, the FS and EA treated the reservoirs as shared, multi-use resources rather than vacant technical sites, shaping the identification of risks and the design of context-appropriate mitigation measures.

One of the clearest insights to emerge from the FS and EA is the implicit recognition that the reservoirs themselves are the stakeholders in the project. Rather than limiting the assessment to narrowly defined construction or installation impacts, the baseline studies were designed to capture how the



reservoirs function as living and socially embedded freshwater systems. This included a detailed examination of the physical environment (e.g., hydrology and water level behavior), physiochemical characteristics (e.g., water quality parameters and nutrient dynamics), biological components (e.g., plankton communities, macrobenthos, aquatic fauna, and freshwater fish diversity and distribution), and the social dimension (e.g., patterns of human use, including fisheries activities and bathing practices). These ecosystems-wide baselines provided the foundation upon which all mitigation, management and monitoring measures were subsequently developed. The message is unambiguous: in shared and highly interconnected ecological systems, impact assessment must extend well beyond the physical footprint of a project and engage directly with the dynamics of the wider ecosystem within which infrastructure is placed.

Perhaps the most decisive design choice emerging from these FSPPs is not a technological innovation, but a spatial and ecological one. Each floating solar array occupies less than one per cent of the total surface area of the particular reservoir, a single planning decision that effectively underpins many of the study's environmental conclusions. By

maintaining such a limited coverage ratio, the FSPPs avoid material changes to light penetration, disruption of wind-driven mixing processes, thermally driven stratification effects, and interference with fish movement pathways within the reservoirs. The FS and EA repeatedly demonstrate that floating solar infrastructure becomes environmentally sensitive primarily when surface coverage extends to much higher thresholds, where physical and ecological processes begin to be altered at scale. For future projects, these FSPPs therefore establish a clear and practical planning principle: environmental sustainability in floating solar development is governed first and foremost by scale and ecological siting, rather than by technology type alone.



Building on this scale-sensitive approach, the FS and EA move beyond the conventional objective of simply “reducing damage” and demonstrates how engineering design can be deliberately aligned with ecological processes. The floating modules are arranged with an inter-row spacing of approximately 0.719 meters and installed at an inclined angle, allowing sufficient sunlight to penetrate the water column while simultaneously creating sheltered, low-turbulence zones beneath the array. The ecological assessments indicate that these calmer micro-environments along with the floating solar panels can provide refuge from surface predators, enhance feeding efficiency, and create favorable conditions for fish breeding and early life stages. Importantly, the floating system avoids the use of large bottom-mounted support structures, ensuring that natural movement pathways for fish and other aquatic organisms remain unobstructed. These FSPPs therefore illustrate a clear shift from traditional mitigation-driven approaches towards ecological design thinking, where infrastructure is intentionally shaped to operate in harmony with, rather than in opposition to, the functioning of natural systems.

The FS and EA also highlight operational risks which often overlooked in renewable energy projects

at the center of environmental management. It identifies pressures from routine activities such as panel-washing runoff, accidental oil releases, bird droppings, biofouling, and sediment disturbance, and translates them into clear operational safeguards. Recommended measures include avoiding chemical detergents, using water-only cleaning methods, enforcing strict material handling controls, and implementing structured waste management, supported by routine monitoring of dissolved oxygen, turbidity, pH, and nutrients. The key lesson is institutional: water protection must be embedded in daily operations and accountability systems, not left solely within environmental plans.

They further extend this operational lens to biodiversity interactions at the human–infrastructure interface, identifying perching and resting birds on floating structures as a potential source of localized nutrient loading and microbial contamination. Rather than proposing physical barriers or exclusion devices, which can create unintended harm to wildlife, the assessments recommend a combination of non-intrusive deterrence measures and panel layout and structural design features that discourage prolonged roosting. This approach reflects a pragmatic understanding of biodiversity management, recognizing animal behavior as an environmental factor that can be influenced through thoughtful design and operational practices rather than restrictive measures. For corporate operators, it provides a practical model for managing human–infrastructure–wildlife interactions in a preventative, adaptive, and non-conflictual manner.

A progressive dimension of the FS and EA is its

focus on often-overlooked aspects of floating solar development. Underwater transmission cables were assessed for potential electromagnetic effects on aquatic organisms, particularly electro-sensitive species and early life stages; although risks were low at the proposed scale, precautionary monitoring and adaptive mitigation were recommended. In addition, a life-cycle approach was embedded through structured decommissioning and recycling plans, strict construction-phase waste controls, and material recovery pathways, reinforcing the principle that environmental stewardship in renewable energy must be preventive, spatially informed, and integrated from design to decommissioning. The project also prioritized impact avoidance in these socially active reservoirs by siting floating arrays away from key fishing grounds, landing sites, hatcheries, and bathing areas, based on stakeholder consultation. By protecting access routes, working spaces, and community-use areas, the project preserved the social and economic fabric tied to the water body, rather than relying on post-impact compensation to address livelihood disruptions.

Now that both the Chandrikawewa and Kiriibbanwewa FSPPs are fully operational, their most enduring contribution lies not in the installed capacity, but in the institutional knowledge generated through the FS and EA, which provide Sri Lanka with a rare and practical evidence base, ranging from verified ecological and water quality baselines for a functioning irrigation reservoir, to tested mitigation measures for floating solar, operational monitoring frameworks suited to tropical freshwater systems,

and proven approaches to stakeholder engagement and grievance management.

As a forerunner in Environmental, Social, and Governance (ESG) practice in Sri Lanka, we from Skills International (Pvt) Ltd as the consultant of the FS and EA for these FSPP projects, reiterate that sustainable renewable energy development must be anchored in scientific rigor, prudent resource management, and a balanced consideration of environmental integrity, community interests, and long-term governance accountability. The lessons learnt underscore that floating solar development in Sri Lanka can be environmentally and socially viable only when guided by rigorous environmental science, careful spatial planning, and transparent governance. Renewable infrastructure should not be judged solely by the megawatts delivered to the grid. It must also be evaluated by how responsibly shared natural resources are managed, how livelihoods are protected, and how ecosystems are respected throughout the project life cycle. In this context, Chandrikawewa and Kiriibbanwewa FSPP projects stand as a significant national benchmark, offering practical insights for scaling floating solar initiatives while advancing sound environmental and social practice across the country.

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Transforming Waste into Wellness: The Soap For Hope Initiative in Sri Lanka

Introduction: Where Hospitality Meets Humanity

In Sri Lanka, known for its warm hospitality and natural beauty, the hotel industry flourishes. Every year, thousands of tourists visit, enjoy their stay, and leave behind something small yet important: partially used bars of soap. These leftover items often get thrown away and ultimately end up in landfills, adding to environmental waste.

At the same time, many communities near these hotels struggle with a basic need: access to Soap for proper hygiene. This shortage can lead to preventable illnesses, especially in children and the elderly. The question arose: Could these two situations, hotel waste and community need, be connected in a meaningful way?

This is the story of Soap For Hope, a project that began in October 2025 as a collaboration between Diversey, a global hygiene solutions company, the Embodhi Foundation, a Sri Lankan group focused on community development, and Hotel Emporium Sri Lanka, a key supplier to the hospitality industry. Together, they created a simple yet effective cycle:



collecting used soap from hotels, recycling it into new bars, and distributing these to those in need. The initiative also provides job opportunities for women from disadvantaged backgrounds.

How It Works: The Journey of a Soap Bar

The process is straightforward but carefully designed to ensure safety, quality, and measurable impact.



Step 1: Collection with Care

In partner hotels across Sri Lanka, including Hilton Colombo Residences, Sofía Colombo City Hotel, Amaya Hotels & Resorts, The Kingsbury Hotel, DoubleTree by Hilton Weerawila Rajawarna Resort, Taj Samudra Colombo, Cinnamon Life at City of Dreams, and Nuwa City of Dreams Sri Lanka, housekeeping staff are trained to collect used soap separately. Instead of throwing it away with other waste, each bar is placed in designated cardboard collection boxes. These boxes keep the soap dry and make transportation easier. Every box is weighed and recorded, forming the first link in a clear chain of impact.

Step 2: Safe Transformation

The collected soap is transported to a processing center managed by the Embodhi Foundation. Here, it goes through a thorough cleaning and recycling process:

- The soap is ground into small pieces.
- It is then heated to a temperature that kills germs and bacteria.
- Finally, it is pressed into new, hygienic bars of soap.

This process is backed by science. Independent laboratories, including TÜV, SGS, and CNAS, have tested the recycled soap to confirm it meets strict safety standards. This ensures that the distributed product is not just recycled soap but is safe and hygienic for community use.

Step 3: Community Connection

The newly produced soap bars serve two main purposes:

Health Support: They are given for free to schools, community centers, and villages. For example, on January 23, 2026, the program delivered soap to a school in Kalutara District, supporting children's daily hygiene practices directly.

Livelihood Creation: The recycling process employs women from underprivileged communities. Women from areas such as Dehiattakandiya, Ibbagamuwa, and Weliveriya receive fair wages, earning at least LKR 1,000 per day, along with meals and steady work opportunities.

Measuring Success: Tangible Results

The impact of Soap For Hope is reflected in measurable environmental, health, social, and business outcomes.



Environmental Impact

With multiple partner hotels contributing regularly, several tonnes of soap waste are diverted from landfills each year. This reduces waste management costs and minimizes the environmental burden associated with solid waste accumulation.

Health Impact

Thousands of soap bars are produced annually and distributed to communities with limited access to hygiene products. Regular handwashing with soap significantly reduces the transmission of communicable diseases and supports national public health objectives.

Social Impact

Women employed through the program gain not only income but also vocational skills, confidence, and strengthened social networks. Communities benefit from both access to soap and hygiene awareness, contributing to long-term behavioral change.

Business Impact

Participating hotels receive detailed quarterly reports outlining their contributions. These reports support sustainability disclosures, corporate social responsibility documentation, and brand positioning. The program aligns with global sustainability frameworks and contributes to the achievement of the United Nations Sustainable Development Goals.

Reimagining Packaging Through Circular Innovation and Responsible Design

In today's rapidly evolving global economy, packaging stands at the intersection of commerce, sustainability, and innovation. It protects what we produce, preserves what we consume, and connects manufacturers to markets across borders. Yet, as environmental concerns intensify and regulatory landscapes shift, the packaging industry is undergoing one of the most significant transformations in its history. What was once viewed simply as a protective layer is now recognized as a strategic asset—one that carries environmental responsibility, economic value, and brand identity.

A Global Industry at a Turning Point

Packaging remains the largest application of plastics worldwide, accounting for approximately 40% of total plastic demand in recent years. This dominant share places the sector at the center of the global sustainability debate. Governments are tightening regulations. Investors are scrutinizing environmental performance. Consumers are demanding accountability. Across Europe, Asia, and North America, Extended Producer Responsibility (EPR) frameworks are expanding. Recycled content targets are becoming mandatory. Global negotiations toward a legally binding plastics treaty signal a future defined by circular accountability. In this context, forward-thinking companies are not waiting for mandates—they are redesigning systems.

From Linear Thinking to Circular Value Creation

For decades, the industry followed a linear model: take, make, dispose. Today, that model is being replaced by a circular vision, one that keeps materials in use for as long as possible while minimizing waste and environmental leakage.

Circular packaging is not just about recycling. It is about designing smarter from the beginning:

- Eliminating unnecessary materials
- Optimizing weight and performance
- Enabling mono-material recyclability
- Integrating recycled content
- Designing for disassembly and recovery
- Supporting reuse systems

Innovation is accelerating. Advanced mechanical and chemical recycling technologies are expanding material recovery potential. Digital watermarking systems are improving automated sorting. High-barrier mono-material films are replacing complex multilayer structures.

The shift is clear: sustainability is becoming embedded in product design—not added at the end.

The 3Rs in Action:

Engineering Efficiency Without Compromise

At the heart of circular transformation lies the practical discipline of the 3Rs (Reduce, Reuse, Recycle.)

Reduce: Smarter Use of Resources

Light weighting technologies and structural engineering innovations allow manufacturers to use less material while maintaining strength and durability. In high-volume sectors such as cement, FMCG, and agriculture, marginal reductions per unit translate into significant environmental savings at scale.

Reuse: Building Systems, Not Just Products

Reusable transport packaging and refill models are expanding globally. Industrial supply chains increasingly rely on returnable systems, particularly in B2B environments where logistics can be optimized. Reuse reduces raw material dependency while strengthening supply chain resilience.

Recycle: Designing for Recovery

Recyclability begins at the design stage. Mono-material structures, clear labeling, and compatibility with local recycling infrastructure significantly improve recovery rates. As regulatory frameworks introduce recycled content requirements, packaging designed for effective recycling becomes a competitive advantage.

Responsibility Beyond Production

Extended Producer Responsibility (EPR) is redefining accountability. Rather than placing waste management solely on municipalities, EPR frameworks require producers to finance or manage end-of-life recovery systems.

Across multiple regions, EPR policies are evolving from voluntary initiatives to structured compliance systems. Companies that proactively align with these frameworks benefit from:

- Reduced long-term regulatory risk
- Stronger ESG positioning
- Improved investor confidence
- Enhanced brand credibility

Sustainability reporting is no longer optional, it is strategic. Transparent lifecycle management strengthens market trust and future-proofs operations.

Protecting What Matters: Packaging as a Quality Guardian

While sustainability commands attention, packaging's primary role remains unchanged: protection. In the food industry, improper packaging

contributes significantly to spoilage and loss, with up to 40% of global food production wasted across supply chains. Effective packaging extends shelf life, maintains nutritional integrity, and reduces waste-related emissions. In the cement industry, particularly in high-humidity climates traditional paper sacks are vulnerable to moisture exposure, leading to lumping, compromised strength, and increased rejection rates. Laminated PP packaging provides superior moisture resistance, preserving product integrity and reducing economic loss. When designed within 3R and EPR-aligned frameworks, such solutions offer both durability and recyclability. Beverage, pharmaceutical, and electronics sectors similarly rely on packaging to safeguard product stability, efficacy, and performance. Sustainable design must enhance—not weaken—this protective function. True sustainability balances environmental responsibility with uncompromised product quality.

From Perception to Performance: Rethinking Sustainable Packaging

Sustainability in packaging is no longer merely a matter of perception or compliance, it is a strategic imperative grounded in lifecycle performance. Materials that are often assumed to be environmentally preferable may carry significant resource, water, and energy demands during production, while offering limited durability under demanding conditions. In contrast, high-performance, reusable polymer-based solutions, when designed for circular recovery and repeated use, can reduce material consumption per functional cycle, lower greenhouse gas emissions over time, and minimize overall waste generation. By aligning durability, recyclability, and resource efficiency with regulatory frameworks and evolving market expectations, packaging becomes not just a protective tool, but a driver of competitive advantage, resilience, and long-term sustainable growth.

The Future Is Collaborative

The transition to truly circular packaging systems cannot be achieved by individual actors working in isolation. Meaningful progress requires coordinated collaboration across the entire value

chain; manufacturers, raw material suppliers, policymakers, recyclers, logistics providers, retailers, and consumers. Infrastructure development, material innovation, digital traceability, and regulatory alignment must evolve in parallel to create systems that are both economically viable and environmentally effective.

Organizations that actively engage in partnerships, invest in shared solutions, and support transparent accountability frameworks will not only

reduce environmental impact but also strengthen supply chain resilience and market credibility. The next phase of packaging innovation will be defined not simply by material choices, but by the strength of collaboration that enables circular systems to function at scale.

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