



Global Compact
Network
Malaysia & Brunei

Operationalising Product-Level Sustainability

HARPS Global's Life Cycle Assessment (LCA) Journey

A Case Study of



Knowledge Partner:



Sunway
**BUSINESS
SCHOOL**



HARPS Global Pte Ltd is the corporate headquarters and holding company of a growing international group dedicated to the manufacturing and marketing of examination and surgical gloves. The company is recognized for its strong commitment to quality, safety, and regulatory compliance, while continuously strengthening its approach to environmental responsibility.

Operating within a resource- and energy-intensive manufacturing environment, HARPS Global acknowledges the importance of understanding and managing the full environmental footprint of its products. To address this, the company has moved beyond traditional organisational-level carbon accounting by embedding product-level Life Cycle Assessment (LCA) into its core manufacturing and decision-making processes.

Through a third-party reviewed, cradle-to-grave LCA covering its nitrile glove portfolio, HARPS Global has integrated science-based lifecycle

insights into product design, operational optimisation, and stakeholder engagement—strengthening transparency, credibility, and long-term sustainability performance.

Company At A Glance

- Industry: Medical Device
- Headquarters: Singapore
- Manufacturing Base: Malaysia, Austria and Hungary
- Employees: 4,012

The Challenge

Prior to this initiative, HARPS Global lacked comprehensive, product-level insights into the environmental impacts of its nitrile gloves. Without full life-cycle visibility, it was difficult to accurately identify carbon-intensive stages, inefficient resource use, or major waste contributors across the value chain.

Data fragmentation across departments and reliance on secondary datasets limited the accuracy of early assessments and reduced confidence in sustainability reporting. At the same time, employees on the production floor highlighted inefficiencies related to energy use and waste management, while customers increasingly requested transparent, product-specific environmental information.

Externally, evolving regulatory and market expectations—including the European Green Deal, the EU Corporate Sustainability Reporting Directive (CSRD), Malaysia's energy transition roadmap, and broader ESG frameworks—further underscored the need for verifiable, lifecycle-based environmental accountability.



In response, HARPS Global launched a product-level LCA initiative to establish a robust, science-based foundation for environmental performance management across the entire product life cycle.

The Action

Implementing Life Cycle Assessment

HARPS Global adopted a full cradle-to-grave LCA approach, aligned with international standards, to ensure environmental impacts were measured consistently, transparently, and credibly.

Key Implementation Steps

1. Goal and Scope Definition

The objectives of the LCA were clearly defined, including product coverage, functional unit, and cradle-to-grave system boundaries.

2. Life Cycle Inventory (LCI) Data Collection & Collaborations

Primary data were collected from internal operations—covering raw materials, energy use, emissions, and waste—and complemented by supplier and logistics data. Secondary datasets from the Ecoinvent database were used where primary data was unavailable. In collaboration with our externally engaged LCA Expert in Belgium to work on this initiative.

3. Life Cycle Impact Assessment (LCIA)

Using SimaPro software, inventory data were translated into environmental impact categories to quantify the product's overall environmental footprint.

4. LCA Calculation Model Development

A customised LCA calculation model integrating process-level primary data, emission factors, and standardised impact assessment methods. This model enables consistent impact evaluation across life-cycle stages and products.

5. Model Verification and Review

The model underwent internal validation and independent critical review to confirm data accuracy, assumptions, and methodological consistency in line with ISO requirements.

6. Hotspot Identification and Interpretation

Results were analysed to identify key contributors to environmental impact, enabling prioritisation of improvement actions where reductions would be most effective.

7. Reporting and Independent Verification

A comprehensive LCA report was prepared and independently reviewed in accordance with ISO 14071. An EPD-qualified reviewer supported alignment with future Environmental Product Declaration (EPD) development.

8. Improvement Analysis and Benchmarking

LCA findings informed the evaluation of improvement scenarios and benchmarking against available industry data and comparable products.

9. Integration into Decision-Making

LCA insights were embedded into product development, ecodesign initiatives, operational optimisation, sustainability strategy, and external communication.

Enablers of Success



Leadership & Culture

Senior management provided clear direction, resources, and accountability, reinforcing sustainability as a core business priority.



Strategy

LCA is a key pillar of HARPS Global's sustainability strategy, supporting data-driven decisions, environmental impact reduction, and alignment with corporate and national goals.



Process and Governance

Structured data collection, stakeholder engagement, collaboration with external experts, and oversight by the Sustainability Committee ensured transparency and accountability.



People and Capability

Employees were actively engaged through data collection and knowledge-sharing sessions, building lifecycle thinking across the organisation.



Digital Tools

SimaPro software enabled systematic modelling, impact assessment, and scenario analysis.



Partnerships

Close collaboration with suppliers, consultants, and independent reviewers strengthened data quality, credibility, and upstream impact reduction.

Overcoming Barriers

1. Building Internal Capability

HARPS Global lacked in-house LCA expertise at the outset. Partnering with Materia Nova (Belgium) bridged this gap by combining their technical knowledge with HARPS' product expertise. On-the-job training and third-party reviews helped build internal capability and confidence throughout the project.

2. Securing Reliable Data

Collecting accurate data across operations and the supply chain was challenging. HARPS Global introduced structured templates and worked closely with suppliers and experts to ensure data quality, particularly for energy, chemicals, and waste streams.

3. Driving Awareness and Buy-in

Initial stakeholder awareness of LCA was low. The company addressed this through briefings, early findings, and practical examples of how LCA supports emissions reduction, cost savings, and regulatory alignment to build trust and collaboration across teams.

4. Gaining Leadership Commitment

Efforts were made to help senior leadership recognise the initiative's value. Their full support led to the integration of sustainability with operational excellence, reinforcing a long-term commitment to continuous improvement.

5. Overcoming Regional Expertise Gaps

Due to limited local expertise in Environmental Product Declaration (EPD), HARPS Global sought international support. The company partnered with Bureau Veritas Sweden to ensure independent verification and prepare for future EPD development aligned with global best practices.

Impact and Results

1. Identification of Environmental Hotspots

The cradle-to-grave LCA shows that seven out of 16 product environmental footprint impact categories are relevant to the nitrile glove manufacturing life cycle, as they contribute to the overall environmental impact across the assessed stages.

Key hotspot areas were identified across the nitrile glove life cycle:



Energy use during manufacturing

confirmed as the largest contributors to climate change impact

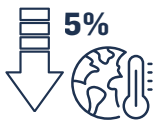


Raw materials

particularly nitrile latex, which account for over **95%** of product composition.

2. Measurable Environmental and Operational Improvements

LCA insights were translated into tangible operational improvements, including:



More than **5% reduction in climate change impact** per product through process optimisation and production line redesign



Approximately **47% increase in output** per block, improving productivity while managing energy use more efficiently

3. Improved Data Quality and Decision-Making

The use of primary, product- and block-level data significantly improved assessment accuracy. Combined with independent verification, this strengthened internal confidence in sustainability data and supported informed decisions across procurement, operations and product design.

4. Enhanced Transparency and Customer Engagement

Verified LCA results were translated into Product Eco-Profiles, providing customers with clear, science-based information on product environmental performance and supporting informed purchasing decisions.



5. Strengthened Supplier Engagement

The initiative deepened collaboration with key raw material and energy suppliers, encouraging data transparency and joint exploration of upstream emissions reduction opportunities.

6. Capability Building and Knowledge Sharing

HARPS Global developed in-house LCA expertise through hands-on involvement, training, and third-party reviews. Insights from the initiative were also shared externally, including participation in the Life Cycle Management (LCM) Conference 2025.



7. Independent Validation

The LCA study underwent independent critical review in accordance with ISO 14071, reinforcing the credibility of HARPS Global's sustainability claims.

Key Lessons Learned

1. Leadership and Early Planning

Strong leadership was essential in setting priorities, allocating resources, and driving organisation-wide participation. Earlier planning—particularly around data protocols, training, and supplier engagement—would have further improved alignment and data quality from the outset.

2. Stakeholder Engagement and Collaboration

Early engagement with internal teams, suppliers, and external experts strengthened data robustness and built shared ownership. Collaboration with consultants, reviewers, and suppliers enhanced credibility and accelerated implementation compared to working in isolation.

3. Building Internal Capability

Hands-on involvement in data collection, modelling, and review processes helped develop in-house LCA expertise. This reduced reliance on external support and enabled teams to sustain momentum beyond a single assessment cycle.

4. Standards-Based Approaches and Integration

Aligning the LCA with internationally recognised standards ensured methodological rigour and credibility. Integrating LCA insights into product design and operational decisions helped translate data into meaningful action rather than static reporting.

5. Continuous Improvement

Life Cycle Assessment is not a one-off exercise but a tool for continuous improvement. Each assessment cycle revealed new opportunities for impact reduction, supported by ongoing training, engagement, and partnerships.



Alignment with the UN Global Compact

HARPS Global has been a member of the United Nations Global Compact (UNGC) since 2024. In 2025, the company participated in all UNGC Accelerator programmes, including Climate Ambition, Young SDG Innovators, Business & Human Rights, Target Gender Equality, and IFRS S2.

The LCA initiative aligns with UNGC Principles 7, 8, and 9 by applying a precautionary approach to environmental challenges, promoting greater responsibility, and driving environmentally friendly innovation.



“ Embedding Life Cycle Assessment into our operations reflects our commitment to responsible growth. By strengthening data transparency, partnering closely with our suppliers, and building internal capability, we are ensuring that HARPS Global delivers products that safeguard communities while reducing our environmental footprint. This initiative is a key part of how we will continue to innovate, lead, and contribute to global health sustainably. ”

Haziq Zairel Oh,
Group Chief Executive Officer,
HARPS Global Pte Ltd



THE TEN PRINCIPLES OF THE UNITED NATIONS GLOBAL COMPACT



HUMAN RIGHTS

- 1 Businesses should support and respect the protection of internationally proclaimed human rights; and
- 2 make sure that they are not complicit in human rights abuses.



LABOUR

- 3 Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining;
- 4 the elimination of all forms of forced and compulsory labour;
- 5 the effective abolition of child labour; and
- 6 the elimination of discrimination in respect of employment and occupation.



ENVIRONMENT

- 7 Businesses should support a precautionary approach to environmental challenges;
- 8 undertake initiatives to promote greater environmental responsibility; and
- 9 encourage the development and diffusion of environmentally friendly technologies.



ANTI-CORRUPTION

- 10 Businesses should work against corruption in all its forms, including extortion and bribery.

The Ten Principles of the United Nations Global Compact are derived from: the Universal Declaration of Human Rights, the International Labour Organization's Declaration on Fundamental Principles and Rights at Work, the Rio Declaration on Environment and Development, and the United Nations Convention Against Corruption.

ABOUT UN GLOBAL COMPACT NETWORK MALAYSIA & BRUNEI

United Nations Global Compact (UNGC) is a strategic policy initiative for businesses that are committed to take actions to advance broader societal goals. UN Global Compact Network Malaysia & Brunei (UNGCMYB), the official country network of UNGC, is the leading advocate for business sustainability action in Malaysia and Brunei. We empower both corporates and SMEs through value-creating initiatives across learning, connections, and enablers to Forward Faster a collective sustainable future. We support Malaysian and Bruneian companies in aligning with the Ten Principles and contributing meaningfully to the Sustainable Development Goals (SDGs), while providing access to partnerships, tools and knowledge sharing to advance responsible business practices.

Talk to us about joining us or visit our website at www.ungcmlyb.org



**Global Compact
Network
Malaysia & Brunei**

📍 B-8-3A, Block B West, PJ8
Office Tower, Jalan Barat, Pjs 8,
46050 Petaling Jaya, Selangor

☎ 03-2935 9051
✉ info@ungcmalaysia.org

Johor Office

📍 No. 51B, Jalan Impian Emas 5/1,
Taman Impian Emas,
81300 Johor Bahru, Johor

☎ 07-571 2016
✉ info@ungcmalaysia.org