GAPL PROJECT

Green Air Pharma Logistics
with a focus on Green Lane

TABLE OF CONTENTS

ABSTRACT

The pharmaceutical and life science industry, while essential for saving lives, significantly contributes to global carbon emissions. This white paper presents the findings of the Green Air Pharma Logistics project conducted by Pharma.Aero with the purpose of examining the sustainability aspects and challenges within the life science logistics, particularly focusing on air transportation. The project explored the concept of a green air pharma lane, aiming to develop a set of indicators and measurements to assess sustainability readiness and performance.

This white paper discusses the methodology, including industry consultations and the formation of a Lane Sustainability Readiness Index (LSRI). The LSRI offers a comprehensive approach to evaluating sustainability readiness, encompassing airlines, airports, and ground handlers.

The paper concludes by outlining potential spin-off projects. Overall, it underscores the importance of collective action in promoting sustainable practices within the pharmaceutical and air cargo industries.

INTRODUCTION

The imperative for mitigating climate change has brought industries under increasing scrutiny for their contributions to global greenhouse gas (GHG) emissions. Among these, the life science industry has emerged as significant contributor to carbon emissions.

A critical aspect highlighted in sustainability reports of major life science manufacturers is the predominance of Scope 3 emissions, which constitute over 80% of their total emissions. Scope 3 emissions reflect the environmental impact of a company's value chain. This underscores the complex interplay of factors such as outsourcing, transportation methods, packaging choices, and other indirect emissions associated with the supply chain.

Within Scope 3 emissions, upstream[1] and downstream[2] transportation and distribution activities constitute approximately 10%, necessitating collaborative efforts of life science manufacturers with suppliers and customers to reduce energy consumption, manage waste and enhance resource efficiency.

---

1 Upstream examples: Purchased goods and services, business travel, waste disposal, employee commuting
2 Downstream examples: Transportation and distribution of products, use of sold products, investments

Navigating Regulations and Sustainability Reporting

Amidst the ever-evolving regulatory landscape and growing emphasis on sustainability reporting, companies are facing mounting pressure to address their environmental impacts.

Sustainability reporting, encompassing environmental, social, and governance (ESG) performance, has become a vital tool for companies to demonstrate their commitment to sustainability and climate action. Notably, regulations on sustainability reporting vary globally, with some countries implementing mandatory reporting requirements for specific industries or large companies. Furthermore, financial institutions are increasingly factoring ESG performance into investment decisions.

Aligned with global efforts to combat climate change, the 17 Sustainable Development Goals (SDGs – Exhibit 1) provide a framework for companies to align their strategies with broader objectives.
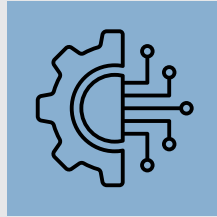
Climate Action (SDG 13) stands out as a priority goal[3].

Exhibit 1: Sustainable Development Goals

In the aviation sector, decarbonization efforts are gaining traction, driven by the industry's commitment to achieving net-zero carbon emissions by 2050. The International Air Transport Association (IATA) has outlined a comprehensive four-pillar strategy encompassing technological advancements, operational improvements, infrastructure development, and global market-based measures.
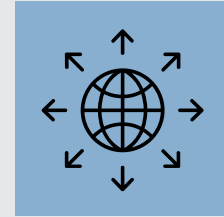
3 https://www.globalreporting.org/news/news-center/most-companies-align-with-sdgs-but-more-to-do-on-assessing-progress/

| **Improving Technology** | **Operational Improvements** | **Infrastructure Development** | **Global Market-Based Measures (MBMs)** |

In response to climate emergency, the aviation industry is accelerating the adoption of readily available solutions such as Sustainable Aviation Fuels (SAF) to reduce its carbon footprint. However, challenges related to SAF production, scalability, and cost pose significant hurdles to widespread adoption.

Carbon Offsetting and Insetting

In the quest for carbon neutrality, carbon offsetting and insetting strategies have emerged as complementary approaches.

While carbon offsetting involves investing in projects to offset emissions, carbon insetting focuses on reducing emissions within a company's operations and supply chain. Leveraging the Book & Claim system for SAF procurement offers organizations flexibility and cost-effectiveness in achieving carbon footprint reductions.

As industries navigate the complexities of sustainability and climate action, partnerships, innovation, and concerted efforts across stakeholders are essential to realizing a sustainable and resilient future. The establishment of green transportation lanes presents an innovative solution to decarbonize transportation networks, offering collaborative opportunities across the value chain.

According to "The Next Wave: Green Corridors" report[4], a green corridor could be defined as a shipping route between two major hubs (including intermediary stopovers) on which the technological, economic, and regulatory feasibility of zero-emissions shipments is catalysed through public and private actions and offers the opportunity to accelerate progress in tackling the challenges of decarbonising transportation.

4 https://www.mckinsey.com/capabilities/sustainability/our-insights/green-corridors-a-lane-for-zero-carbon-shipping#

Measuring and Reporting Lane Sustainability

Current challenges in measuring and reporting lane emissions covering cross-border transportation and ground operations include data limitations (non-availability of primary data, different data collection and reporting methodologies, incomplete data coverage), especially when measuring airport ground services and cargo handling operations.

Notwithstanding, measuring the GHG emissions of a transportation lane requires an integrated approach and partnerships across multiple parties responsible for freight and logistics segments. While GHG emissions as a metric remain crucial in making sustainable freight decisions, assessing the sustainability readiness and progression of the key stakeholders on a lane such as a company's commitment to long-term sustainability goals and their investments in innovation and technologies to reduce carbon impact are important in paving the way for a sustainable and responsible future of air transportation.

As part of its project *Green Air Pharma Logistics (GAPL)* with a focus on Green Lane, Pharma.Aero engaged its global network of value chain stakeholders (Life science manufacturers, Airports, Cargo Handlers, Airlines, Solution Providers etc.) to actively participate in a collaborative effort to define the building blocks of a green air transportation lane and develop a set of indicators and measurements to assess the level of sustainability readiness and performance of an airport-to-airport lane.

The results will support life science manufacturers and freight forwarders in integrating environmental sustainability into their freight procurement and lane assessment procedures, thereby assisting them in reaching their Scope 3 emission reduction objectives. Further, it will facilitate freight forwarders and airlines in developing appropriate pharmaceutical products and value propositions aligned with their customers' sustainability objectives.
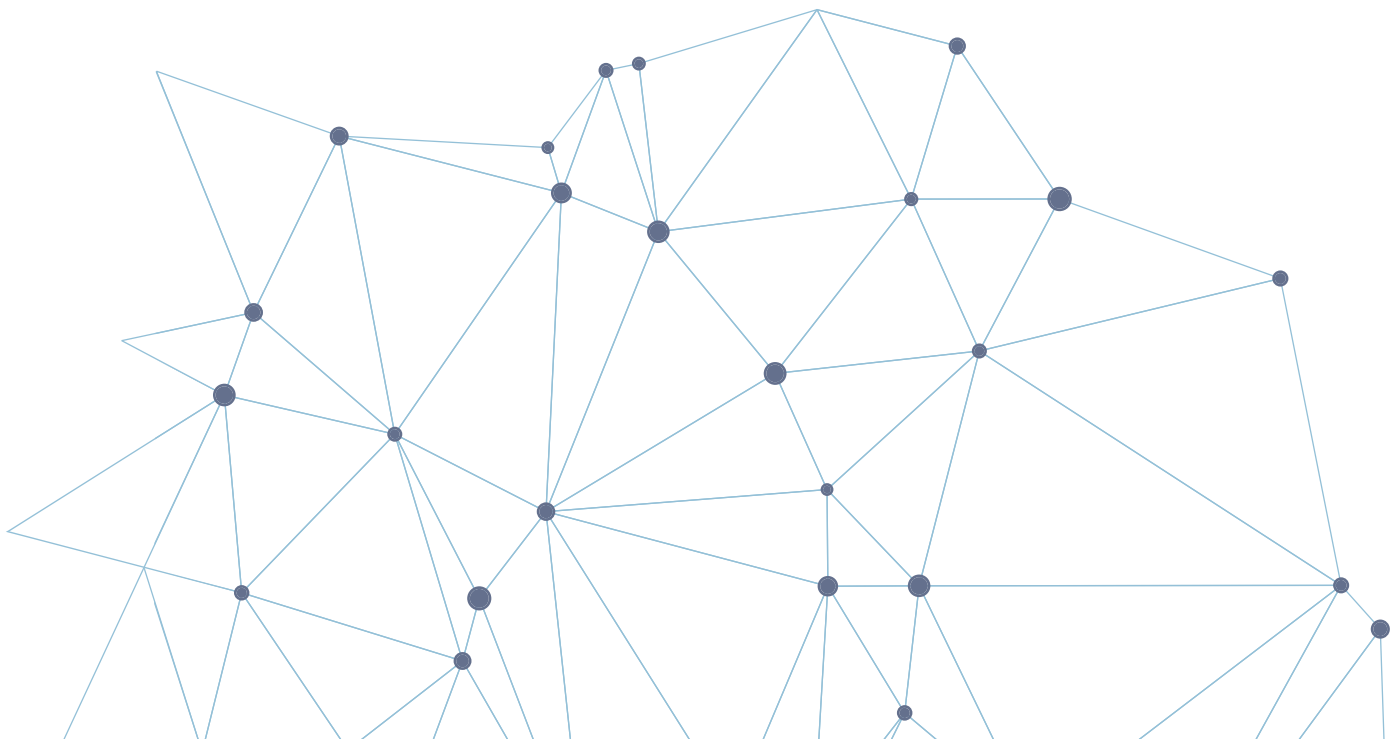
METHODOLOGY

The GAPL project embarked on a comprehensive exploration of sustainability within the air cargo value chain with Life science manufacturers, airports, cargo handlers, airlines, and solution providers.
Comprising three distinct Work Packages (WPs), each phase was meticulously designed to address key aspects of the project's objectives and methodologies.

WP 1	**WP 2**	**WP 3**
Baselining and Identifying the Problem Statement	Defining a Green Air Pharma Lane	Publications
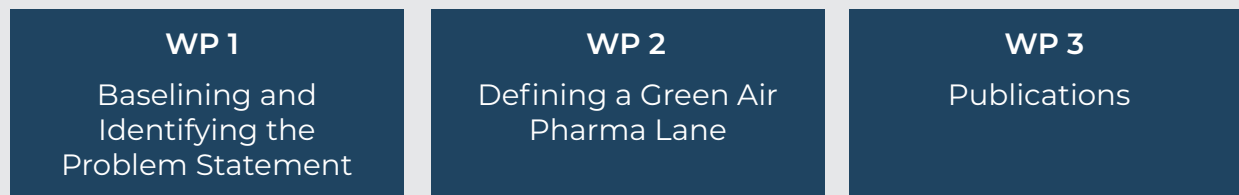
Work Package 1 (WP1) - Baselining and Identifying the Problem Statement

Work Package 1 aimed to understand industry sustainability goals through interviews with life science manufacturers, freight forwarders, and airlines. Sustainability reports were analysed before each interview, and sustainability experts were consulted. The interviews explored companies' sustainability commitments, how they affected procurement, and expectations on sustainability from partners. Insights on aviation carbon impact, SAF, carbon offset, and inset programs were sought. Potential indicators for assessing lane sustainability were identified and documented in an interim report (available for Pharma.Aero members only).

Work Package 2 (WP2) - Defining a Green Air Pharma Lane

WP2 focused on identifying the indicators and measurements to qualify and quantify the sustainability readiness and performance of a lane. A Design Thinking Workshop was held in conjunction with the Pharma Logistics Masterclass in Singapore[5]. Participants, including Pharma.Aero members and partners, prioritized indicators into categories such as "Must-Have", "Should-Have", and "Good-to-Have". The findings were further refined over a follow-up workshop that was held virtually.

---

5 https://pharma.aero/wp-content/uploads/2023/12/2023-PLMC-White-Paper.pdf

Work Package 3 (WP3) – Publications

Work Package 3 centred on synthesizing research findings, insights, and conclusions into a comprehensive Technical Report exclusively shared with Pharma.Aero members and associate partners. Additionally, a high-level white paper was developed for broader dissemination, fostering knowledge exchange and industry collaboration.

Project team composition

NAME	ORGANISATION	PROJECT ROLE
Jaisey Yip, Renee Gan, Yue Ming	Changi Airport Group	Project Leads
Céline Crahay	3CeL	Project Manager
Sara Van Lerberghe	Pharma.Aero	Project Coordinator
Frank Van Gelder	Pharma.Aero	Secretary General
Samuel Speltdoorn	Brussels Airport	Board Liaison
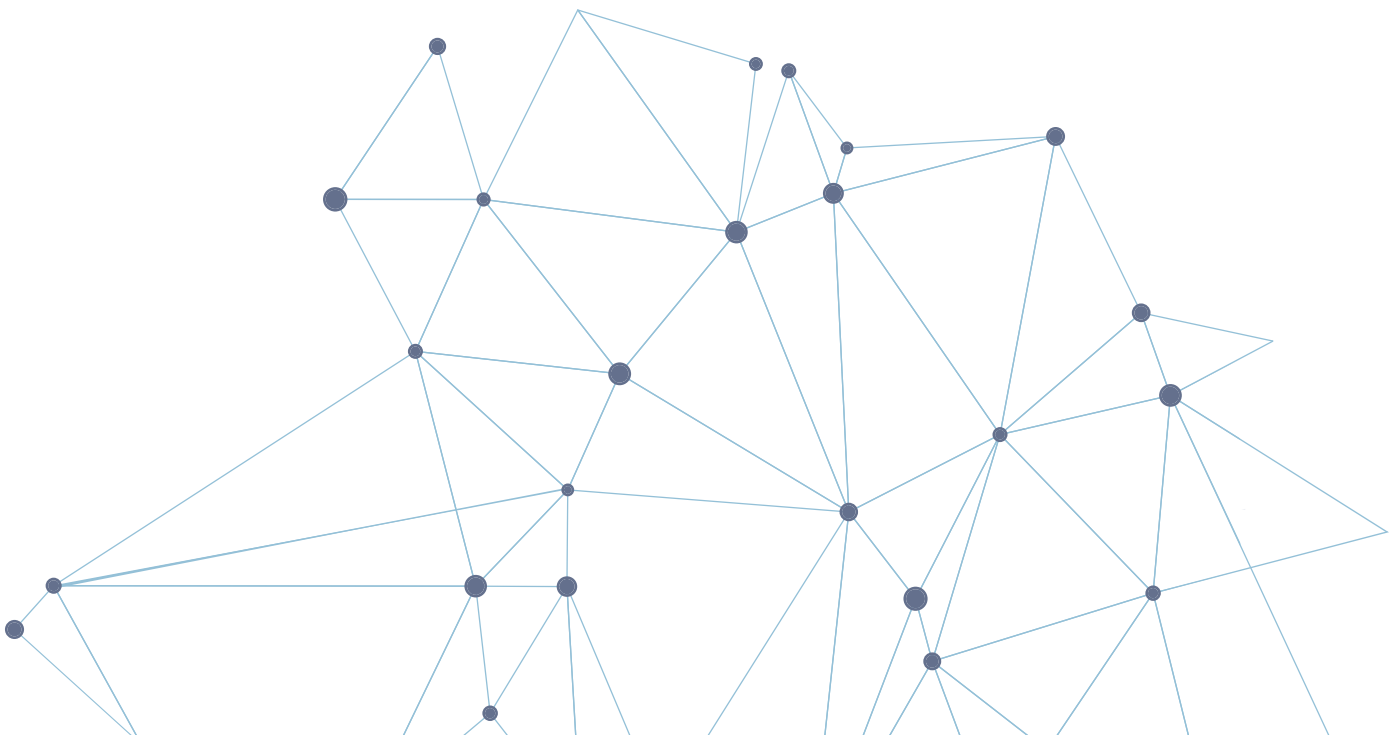
RESULTS

Industry Consultations – Key Takeaways

Seven global life science manufacturers, six freight forwarders and eight global airlines were interviewed as part of the GAPL project's industry consultation phase.

Life science manufacturers

- Global life science manufacturers companies are committing to Net Zero targets and are increasingly adopting science-based targets.
- Scope 3 represents the largest source of life science manufacturers companies' GHG emissions.
- Life science manufacturers are undertaking a myriad of actions to abate their Scope 3 emissions.
- Modal shift, while predominantly still driven by costs, is becoming a sustainability measure. Notwithstanding, airfreight cannot be entirely replaced.
- Life science manufacturers are pursuing sustainable freight procurement.
- Life science manufacturers recognise the importance of data availability and quality. Most rely on their logistics service providers for their logistics carbon footprint.
- Life science manufacturers seek enhanced manufacturers data visibility through the Green Air Pharma Lane Concept.

Freight Forwarders

- Global freight forwarders are committed to Net Zero, at various stages.
- Freight forwarders are developing green transportation solutions.
- Freight forwarders aim to create CO_2 visibility on a lane basis for life science manufacturers.
- Freight forwarders cascade sustainability requirements onwards to their airline partners.

Airlines

- Airlines are committed and have relatively concerted efforts to achieve Net Zero.
- Airlines have a collective goal but not a consistent approach to carbon emissions calculation and data sharing with their customers.
- Airlines navigate between mandatory and voluntary carbon offsets.
- Decarbonisation of air logistics is more than flight-based emissions and requires engagement along the entire air cargo value chain.
- Airlines are looking for a quantitative and qualitative assessment of a Green Air Pharma Lane concept.

Introducing the Lane Sustainability Readiness Index (LSRI)

Building upon the insights from Work Package 1, it became evident that assessing air pharma lane environmental impact requires a comprehensive, multistakeholder approach across the entire air cargo value chain. Thus, the GAPL project prioritized key stakeholders and focused on comprehensive indicators to determine lane sustainability readiness and performance.

The introduction of the LSRI serves as a pivotal tool for life science manufacturers and freight forwarders to make informed decisions in selecting sustainable options that align with their environmental objectives. Moreover, this initiative aims to drive continuous improvements and elevate the overall sustainability of air transportation.

LSRI Construction

In measuring the sustainability readiness and performance of a lane defined by airport to airport, three key actors ("dimensions") have been identified: the Airline, the Airport and the Ground Handling Agent. In a direct lane, there will be at least five stakeholders:

ORIGIN			DESTINATION	
GROUND HANDLER	AIRPORT	AIRLINE	GROUND HANDLER	AIRPORT

LSRI Indicators

Each dimension is composed of six leading indicators and several sub-indicators, with equal importance.

Data is to be collected through a self-assessment questionnaire of the relevant stakeholders in each of the three dimensions. To evaluate the performance and readiness of each sub-indicator, a primary question with a binary response was formulated. Additional data may be collected such as names of certification or set dates for targets. Upon request, the companies undergoing assessment may be required to produce supporting documents.

AIRLINES

Indicators	Sub-Indicators	
Corporate Sustainability Roadmap	Corporate Sustainability Strategy	
	Corporate Sustainability Governance & Management	
ESG Accreditation or Label	ESG/ Sustainability Accreditation	
Route & Capacity Optimization	Adoption of Flight Route optimization Technologies & Innovation	
	Adoption of Load Optimization	
Aircraft Fleet	Aircraft Technology & Innovation	
	Fleet Modernization Plans	
Carbon Offsetting and Insetting	Airline's Carbon Offset & Inset Initiatives	
	Airline's voluntary carbon offset & book-&-Claim programs to cargo customers	
SAF Usage	Global SAF Usage of the Airline	

Exhibit 2: LSRI Indicators - Airlines

GROUND HANDLERS

Indicators	Sub-Indicators	
Corporate Sustainability Roadmap	Corporate Sustainability Strategy	
	Corporate Sustainability Governance & Management	
ESG Accreditation or Label	ESG/ Sustainability Accreditation	
Green Infrastructure	Energy Efficient Warehouse	
Asset Optimization	Asset/ Equipment Optimization	
Green Equipment	Low & Zero Carbon Vehicles & Equipment	
Airfreight Consummables & Waste Management	Sustainable Materials Policy	
	Waste Management Policy	

Exhibit 3: LSRI Indicators - Ground Handler

AIRPORTS

Indicators	Sub-Indicators	
Corporate Sustainability Roadmap	Corporate Sustainability Strategy	
	Corporate Sustainability Governance & Management	
ESG Accreditation or Label	ESG/ Sustainability Accreditation	
	Airport Community Approach	
Energy Management	Energy Management Strategies	
Operations Management	Air Traffic Management	
	Ground Traffic Management	
Green Equipment & Infrastructure	Low & Zero Carbon Vehicles & Equipment	
	Energy Efficient Cargo Infrastructure	
SAF Capability	Airport SAF Infrastructure	

Exhibit 4: LSRI Indicators - Airport

LSRI Applications

Lane Sustainability Assessment and Progression against an Internal Target

Comparing Air Transport Options on a Lane

Selecting a Transit Hub

Inclusion of a Sustainability Component in Lane Risk Assessment

CONCLUSIONS

Achieving carbon neutrality in air transportation necessitates a comprehensive strategy involving multiple stakeholders and dimensions. Pharma.Aero's GAPL project proposes a Lane Sustainability Readiness Index (LSRI) to support life science companies and freight forwarders to integrate sustainability considerations into freight procurement and lane assessment processes, as part of their efforts in achieving Scope 3 targets. Additionally, it supports freight forwarders and airlines in developing low-emissions products and value propositions aligned with their customers' sustainability goals.

The LSRI is designed to be inclusive, recognizing the important roles that airports and ground handlers, in addition to airlines, play in the overall sustainability performance of a lane. Used in conjunction with existing programs and/or a carbon-focused calculator, the LSRI would be a valuable tool for manufacturers and forwarders to make informed decisions about transportation arrangements. It advocates for sustainable practices within the air cargo industry.

It is important to acknowledge that sustainability is a rapidly evolving concept. The indicators and measurements outlined in this project represent a best-effort perspective derived from extensive industry consultations at a specific moment in time. Pharma.Aero is committed to ensuring the LSRI is constantly updated to remain relevant to the industry's evolving needs. The GAPL project paves the way for further exploration and deep dive into specific areas aimed at achieving sustainable air pharma logistics.

- **Developing a Centralized Digital Platform**

- **Repository of Industry Best Sustainable Practices**

- **Expanding beyond Airport-to-Airport Scope**

- **Sustainable Packaging**

- **Waste Control and Loss of Pharmaceutical Products**

Pharma.Aero is currently engaging with various industry groups and organizations involved in sustainability efforts to explore potential spin-off projects and foster collaboration for extensive research and development. Through these endeavors, Pharma.Aero seeks to harness collective expertise and resources to promote sustainable practices within the life science and med-tech logistics sector, thus advancing towards a greener and more resilient future for healthcare logistics.

ACKNOWLEDGEMENT

We extend our heartfelt appreciation to the project leads, Jaisey Yip, Renee Gan, and Yue Ming of Changi Airport Group, for their time and unwavering dedication to this endeavor.

We also express gratitude to Samuel Speltdoorn from Brussels Airport for his invaluable role as Pharma.Aero Board Liaison.

A sincere thank you to all project members and external partners for their participation in interviews and workshops, which greatly enhanced the quality of this report.

Special recognition goes to Céline Crahay from 3CeL for project management and execution, along with the coordination efforts of Sara Van Lerberghe, Pharma.Aero Projects Coordinator, and the guidance provided by Frank Van Gelder, Secretary General of Pharma.Aero.