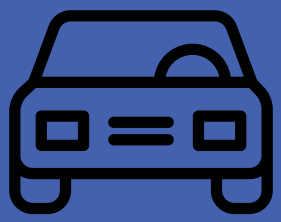

Transportation & Logistics

TRANSPORTATION & LOGISTICS

Overview

Transportation and logistics include the movement of goods and people. Whether it's a raw material moving to a production facility, a product shipped to your customer, or your employees' commute, transportation can have a significant impact on people and the environment. Improving the social and environmental impact of your transportation and logistics is a great place to start your sustainability journey.

Transportation optimization can have a huge positive effect on the local areas where your goods are produced in terms of reducing greenhouse gas emissions, congestion, and noise pollution while improving local air quality. Optimizing transportation for sustainability usually means increased efficiency in business operations, which can also save your company a lot of money.

In today's complex global fashion supply chain, products and their components are usually transported many times using multiple forms of transportation. In 2015, the U.S. logistics industry moved more than 49.5 million tons of goods worth nearly $52.7 billion every day, which is more than 56 tons of freight per person per year, according to the EPA. Projections are that by 2025, as international commerce increases and supply chains become more global and complex, shipments of U.S. goods will grow another 23.5 percent, and by 2040, a total of 45 percent.

Pollution emitted from transportation contributes to smog and to poor air quality, which has negative impacts on the health and welfare of people around the world. For example in the U.S., the transportation sector is responsible for:

- Over 50 percent of nitrogen oxides (NOx) total emissions inventory
- Over 30 percent of volatile organic compounds (VOCs) emissions
- Over 20 percent of particulate matter (PM) emissions

Within transportation, heavy-duty trucks are the fastest-growing contributor to emissions.

US EPA SMARTWAY® PARTNERSHIP

"There are many important reasons for establishing a green freight program. ***The freight industry has far-reaching and complex environmental, social, and economic impacts that accrue at the local level but have global consequences.*** While the freight industry provides a critical service to the world's growing population, it nonetheless accounts for a significant portion of the total emissions of black carbon, greenhouse gases, and other pollutants from the transport sector. In certain regions of the world, the freight sector's contribution of GHG emissions can be inordinately high. In India, only 5 percent of vehicles are trucks, yet they consume 46 percent of transport fuel and generate 63 percent of carbon dioxide (CO_2) and 59 percent of particulate matter emissions (which includes black carbon)."

WORKSHEET

Make your transportation & logistics more sustainable

Understand, track and measure how your goods are transported

Understand

- The first step is simply to understand how your goods are transported during every step of the supply chain, from raw material through all stages of production, distributors, retail, user, and landfill/ incinerator/recycling facility.
- Things to think about include: emissions, natural resource utilization, waste and recycling, efficiency, impact on people (at all levels) in terms of health and safety

Measure

- Once you understand the big picture, start to track, measure and reduce your environmental impact. Only with good information can one make effective decisions about what to produce and how much, where to locate inventory and how best to transport it.

Engage

- Share any relevant data and engage with vendors to apply best practices, reduce impact, improve utilization, and optimize routes.
- Implement an internal or "shadow" price on carbon high enough to materially affect investment decisions.

Use renewable energy and reduce your carbon footprint

Calculate your carbon footprint

- This can be initially be done using basic calculators that carbon offset companies provide . For more accurate and more complex calculations, options are listed in the tools section below.

Consider carbon offsets

- Reducing your carbon footprint should be your priority. But until you're completely neutral or actually improving air quality, consider purchasing carbon offsets. You should do due diligence to make sure your're buying from companies that are transparent (and ideally third party certified).
- Consider planting trees!

Choose the mode of transportation with the lowest impact

There are many modes of transportation to choose from, including rail, road, air, and water. Which mode is the most sustainable depends on your specific product and company, each has its advantages and disadvantages.

- Shipments by land and sea have significantly smaller carbon footprints than air shipments. Air shipments are most common in the final leg of transportation, from retail to consumer, so incentives can be provided to consumers for selecting slower shipping.
- For land transportation, trains and more efficient trucks are preferable.

WORKSHEET

Make your transportation & logistics more sustainable cont'd

Minimize transportation distance

Reduce the distance materials need to travel between production facilities, distribution centers, retail, and beyond

- Slower modes of transportation use less energy. For example, ocean transport has a much lower carbon footprint than air transport, as mentioned above. But, driving a vehicle slower than its' maximum speed also greatly reduces energy consumption.

Consolidate & increase density of shipments

- Moving the same quantity of goods in fewer trips reduces spending on fuel, vehicle maintenance, and energy.

Engage with your carriers

- Work with your transportation companies to comply with best practices, reduce impact, improve utilization, and optimize routes.
- Help educate them about basic efficiently tips such as properly inflated tires, driving during off hours when there is less traffic and idle time, combining shipments to reduce empty space in trucks and when possible, using lower emission fuels, hybrid vehicles or electric vehicles.
- Best practices show that better routing, loading, driver training and advanced tech can improve fuel efficiency by 87%, resulting in a reduction of 15,000 tons of CO2 emissions – equivalent to savings of $11 million.

Reduce waste

Employee Transportation

This includes how your employees commute to and from work as well as business travel. Encourage public transportation, carpooling, bicycling, walking, etc. Days spent working at home reduce transportation if they are possible. If you have employees that drive, consider installing electric car chargers at your workplace.

Reduce environmental noise

Environmental noise refers to unwanted or harmful outdoor sound created by human activities, including noise emitted by means of transport, road, rail, air and sites of industrial activity.

- According to the WHO, excessive noise seriously harms human health and interferes with people's daily activities. It can disturb sleep, cause cardiovascular and psychophysiological effects, reduce performance and provoke annoyance responses and changes in social behavior.

Design products and packaging with less volume and weight.

- To use less and better packaging, see Packaging.
- To design more compact and lightweight products, see Design Strategies.

TOOLS & RESOURCES

Examples

Examples of company sustainable logistics & transport initiatives:

Gap Inc.

Gap Inc. was recognized by the U.S. Environmental Protection Agency with the 2017 SmartWay Excellence Award, a recognition of top environmental performers and leadership for freight supply chain efficiency. They effectively hauled 99 percent of all freight with environmentally and energy efficient SmartWay carriers, rigorous management of their supply chain network and tracking efficiencies in moving freight to and from Distribution Centers to reduce their carbon footprint. They review transportation network performance weekly to ensure efficiency and reduce fuel emissions.

Amour Vert

With every purchase of a t-shirt, Amour Vert plants a tree in North America with partner American Forest®, helping to offset their carbon footprint.

Johnson & Johnson

On their website, Johnson & Johnson publicly shares their company Climate Policy. You can read about their Fleet Efficiency and logistics programs here.

Home Depot

This Forbes article dives into why Home Depot is investing in a more efficient supply chain.

Walmart

Read about how Walmart improved the efficiency of their truck fleet.

Ikea

You can read all about Ikea's transport sustainability initiatives on page 46 of this sustainability report.

Examples of sustainability initiatives at shipping companies:

DHL

DHL provides Green Logistics Solutions to help their clients calculate, account for and reduce their emissions. Tools include carbon reporting and expert help in implementing eco-efficient logistics processes.

USPS

USPS offers sustainability services to their customers through the program BlueEarth®.

TOOLS & RESOURCES

Tools

Transportation & logistics tools:

How to Develop a Green Freight Program: A Comprehensive Guide and Resource Manual

This 5-module toolkit developed by EPA SmartWay provides the information needed to learn about and implement a green freight program.

Global Green Freight Guide to creating and Implementing a Green Freight Initiative

A project of the Clean Climate Coalition, Global Green Freight provides step-by-step guidance and resources to help make your freight operations cleaner and more efficient.

Corporate Climate Stewardship: Guidelines for Best Practice Climate Action in the Paris Agreement Era

Developed by Gold Standard, CDP and WWF, these guidelines offer recommendations on how to structure an ambitious climate strategy.

Retail Leaders Association Sustainability in Retail Logistics & Transportation

A concise, informative brief on how retailers can make logistics & transport more sustainable.

Tools to calculate & reduce your carbon footprint:

B Lab & GIIRS Resource Guide: Calculating Greenhouse Gas Emissions

This comprehensive guide from B Lab & GIIRS covers all the basics of calculating greenhouse gas emissions in addition to sharing helpful information and resources.

Native Energy Small Business Calculator

Native Energy has created four different calculators to measure carbon footprint for Facilities, Travel, Events, & Freight.

***Note: Wondering whether or not to use carbon offsets?**
We recommend reading: "Should You Buy Carbon Offsets? A practical and philosophical guide to neutralizing your carbon footprint" from the NRDC.

TOOLS & RESOURCES

Standards & certifications

GLEC Framework

The GLEC Framework for Logistics Emissions Methodologies allows companies to consistently calculate their GHG footprint across a global multi-modal supply chain to inform their business decisions and efforts to reduce emissions. Comparing greenhouse gas emissions (GHG) across different modes of transport can be like comparing apples to oranges because so many methodologies exist, the GLEC Framework aims to combine existing methods into one framework and fill the gaps, enabling a company to understand its carbon footprint alongside cost and time to decide the best way to transport its goods.

Greenhouse Gas (GHG) Protocol

GHG Protocol establishes comprehensive global standardized frameworks to measure and manage greenhouse gas (GHG) emissions from private and public sector operations, value chains and mitigation actions. Building on a 20-year partnership between World Resources Institute (WRI) and the World Business Council for Sustainable Development (WBCSD), GHG Protocol works with governments, industry associations, NGOs, businesses and other organizations. They offer online training on our standards and tools, as well as the "Built on GHG Protocol" review service, which recognizes sector guidance, product rules and tools that are in conformance with GHG Protocol standards.

Air Cargo Carbon Footprint (RP1678)

A global standard to measure air cargo carbon footprint at shipment level; also recognized as the reference methodology for air cargo by the Global Logistics Emissions Council (GLEC) in their framework for logistics emissions calculation methodologies.

EN 16258: Methodology for calculation and declaration of energy consumption and GHG emissions of transport services (freight and passengers)

This European Standard establishes a common methodology for the calculation and declaration of energy consumption and greenhouse gas (GHG) emissions related to any transport service (of freight, passengers or both). It specifies general principles, definitions, system boundaries, calculation methods, apportionment rules (allocation) and data recommendations, with the objective to promote standardized, accurate, credible and verifiable declarations, regarding energy consumption and GHG emissions related to any transport service quantified. It also includes examples on the application of the principles.

Gold Standard for the Global Goals

Gold Standard for the Global Goals is designed to accelerate progress toward climate security and sustainable development. The standard enables initiatives to quantify, certify and maximize their impacts toward climate security and the Sustainable Development Goals. It is tailored to provide the right safeguards, requirements and methodologies to measure and certify impact - from market instruments like carbon credits and Renewable Energy Labels to gender equality and improved health.

Verified Carbon Standard

The VCS Program is a voluntary greenhouse gas program that can be third-party certified. By using carbon markets, entities can neutralize, or offset, their emissions by retiring carbon credits generated by projects that are reducing GHG emissions elsewhere. Once projects have been certified against the VCS Program's rigorous set of rules and requirements, project developers can be issued tradable GHG credits that are called Verified Carbon Units (VCUs). Those VCUs can then be sold on the open market and retired by individuals and companies as a means to offset their own emissions. Over time, this flexibility channels financing to clean, innovative businesses and technologies.

Supply Chain Operations Reference (SCOR) Model

The SCOR model is unique in that it links business processes, performance metrics, practices, and people skills into a unified structure. Process reference models integrate the well-known concepts of business process engineering, benchmarking, process measurement and organizational design into a cross-functional framework.

TOOLS & RESOURCES

Organizations

Transport & Environment

The mission of Transport & Environment is to promote a transport policy based on the principles of sustainable development at both EU and global levels - a transport policy should minimize harmful impacts on the environment and health, maximize efficiency of resources (including energy and land), and guarantee safety and sufficient access for all.

Clean Cargo Working Group (CCWG)

A business-to-business leadership initiative involving major brands, cargo carriers, and freight forwarders dedicated to reducing the environmental impacts of global goods transportation and promoting responsible shipping. CCWG tools measure and reporting ocean carriers' environmental performance on carbon dioxide emissions.

Smart Freight Centre (SFC)

Established as a global nonprofit organization in 2013, SFC's vision is "Smart Freight"– a transformation to an efficient and environmentally sustainable global logistics sector. SFC mobilizes business to reduce emissions and recognizes leaders. SFC is independent from industry or government, and has a global network across stakeholder groups with local presence.

Global Green Freight

Initiated by the Climate and Clean Air Coalition with support from the EPA, Global Green Freight is a large-scale effort to reduce the climate and health impacts and improve the energy and economic efficiency of transporting those goods and materials.

SmartWay® Transport Partnership

The EPA's SmartWay® Transport Partnership helps companies and organizations achieve their freight supply chain sustainability goals by providing credible tools, data, and standards—at no cost—for measuring, benchmarking, and improving environmental performance. There are three types of SmartWay® Partners:

1. Shippers are companies and organizations that ship or receive freight.
2. Carriers are companies that carry or move goods for shippers.
3. Logistics Companies are companies that hire freight carriers and manage freight shipments for shippers.

Coalition for Responsible Transportation (CRT)

CRT is a national coalition of importers, exporters, trucking companies, clean truck manufacturers and ocean carriers formed to facilitate the implementation of practical and sustainable solutions to reduce port truck pollution in a manner that balances the environmental needs of port communities with efficient flow of commerce.

Partnership on Sustainable Low Carbon Transport (SLoCaT)

SLoCaT promotes the integration of sustainable transport in global policies on sustainable development and climate change. It consists of a multi-stakeholder partnership of over 90 organizations which is supported by the SLoCaT Foundation. The thematic scope of the Partnership is land transport including freight and passenger, both motorized and non-motorized. The policies proposed by SLoCaT are universal, but the geographical scope of the Partnership is mainly for developing countries, its focus is on Asia, Latin America and Africa.

Green Freight Asia

Green Freight Asia is a network of Asian road freight companies working together to improve fuel efficiency, reduce carbon dioxide emissions, and lower logistics costs across the entire supply chain. The group is made up of large, medium, and small logistics companies and customers of logistics companies.

TOOLS & RESOURCES

Organizations

Green Freight Europe (GFE)

GFE is an industry-driven program to support companies in improving the environmental performance of freight transport in Europe. The program drives reductions of carbon emissions by:

- Establishing a platform for monitoring and reporting of carbon emissions, to assist in the procurement of transportation services and based on existing standards;
- Promoting collaboration between carriers and shippers in driving improvement actions and monitoring progress;
- Establishing a certification system to reward shippers and carriers who fully participate in the program.

It is also a platform for companies to share best practices, promote innovations and communicate sustainability improvements. Furthermore, it fosters cooperation with other related initiatives, programs and working groups globally.

APICS Supply Chain Council (APICS SCC)

APICS SCC is a nonprofit organization that advances supply chains through research, benchmarking and publications. They maintain the Supply Chain Reference model (SCOR), a framework for evaluating and comparing supply chain activities and performance. APICS SCC enables corporations, academic institutions and public sector organizations to address the ever-changing challenges of managing a global supply chain to elevate supply chain performance.

Climate and Clean Air Coalition (CCAC)

The CCAC is a voluntary partnership of governments, intergovernmental organizations, businesses, scientific institutions and civil society organizations committed to improving air quality and protecting the climate through actions to reduce short-lived climate pollutants. Their global network currently includes over 120 state and non-state partners, and hundreds of local actors carrying out activities across economic sectors, and their scope covers transportation and much more.

NOTE

What is noise pollution?

According to the US Environmental Protection Agency:

The traditional definition of noise is "unwanted or disturbing sound". Sound becomes unwanted when it either interferes with normal activities such as sleeping, conversation, or disrupts or diminishes one's quality of life. The fact that you can't see, taste or smell it may help explain why it has not received as much attention as other types of pollution, such as air pollution, or water pollution. The air around us is constantly filled with sounds, yet most of us would probably not say we are surrounded by noise. Though for some, the persistent and escalating sources of sound can often be considered an annoyance. This "annoyance" can have major consequences, primarily to one's overall health.

Health Effects

Noise pollution adversely affects the lives of millions of people. Studies have shown that there are direct links between noise and health. Problems related to noise include stress related illnesses, high blood pressure, speech interference, hearing loss, sleep disruption, and lost productivity. Noise Induced Hearing Loss (NIHL) is the most common and often discussed health effect, but research has shown that exposure to constant or high levels of noise can cause countless adverse health affects.

Learn more about the health effects:
The Noise Effects Handbook, Office of Noise Abatement and Control, US EPA, 1981
Noise and Its Effects, by Dr. Alice H. Suter, Administrative Conference of the United States, November 1991

Protection from Noise

Individuals can take many steps to protect themselves from the harmful effects of noise pollution. If people must be around loud sounds, they can protect their ears with hearing protection (e.g., ear plugs or ear muffs). There are various strategies for combating noise in your home, school, workplace, and the community.

Learn more about noise pollution prevention:
Noise Pollution Clearinghouse