Introduction

Green logistics is quickly gaining importance throughout logistics and supply chain management. Donors and host nations are becoming more aware of environmental issues. Simultaneously, international "green" legislation is being introduced and applied world-wide to all aspects of business including humanitarian supply chains.

This topic aims to introduce logisticians to green logistics aspects and considerations and encourage them to think in "green" terms, to highlight the challenges and to indicate some advantages.

What is Green Logistics?

Green logistics in the context of humanitarian logistics encourages all stakeholders to consider the impact of their actions on the environment. The main objective of green logistics is to coordinate the activities within a supply chain in such a way that beneficiary needs are met at "least cost" to the environment. It is a principal component of reverse logistics. In the past "cost" has been defined in purely monetary terms, whereas "cost" can now also be understood as the external costs of logistics associated with: climate change, air pollution, dumping waste (including packaging waste), soil degradation, noise, vibration and accidents.

Protecting the environment is especially important in humanitarian logistics, because often a degraded environment (due to conflict, natural disasters or over-use) is one of the reasons a beneficiary community is in need of humanitarian assistance.

Diagram 1: Where-as cost
Green or sustainable logistics is concerned with reducing environmental and other negative impacts associated with the movement and distribution of supplies. Green supply chains seek to reduce negative environmental impact by redesigning sourcing/distribution systems and managing reverse logistics to eliminate inefficiencies.

For example, logistics deals with packaging of materials. Packaging represents one of the greatest challenges to environmentally friendly logistics while at the same time being vital in shipping and storage.

Correct or incorrect packaging has consequences on the transportation, storage and volume of materials in a given space. This can increase the unit cost if the packaging hinders optimization of storage space. Many industries have developed forms of packaging that can perform in transit but do not justify the expense of returning them to the point of origin. This packaging is only used once and then discarded. There should be a responsibility for the supplier and the buyer to recover and recycle or effectively dispose of packaging.

Best practises exist that allow a more sustainable balance between economic, environmental and social objectives.

**Environmental Management Systems (EMS)**

Logistics and transport activities have been identified as having a major impact on the environment. Consequently, significant legislation at both national and international level has started to be produced. Targets for improving environmental performance have been set by the international community via a range of international agreements and meetings, from the Rio Earth Summit in 1992 to the adoption of the Sustainable Development Goals at Rio+20 in 2015 and the climate change related meetings of the Kyoto Protocol, in particular the Paris Accord, also adopted in 2015. International agreements of particular relevance to logisticians include the Basel-Rotterdam-Stockholm conventions on management of wastes, the Montreal Protocol on protecting the ozone layer (covering substances including air conditioning gases) and the Minamata convention on phasing out mercury.

Environmental impacts are best managed using a systematic approach that helps organizations to understand all their impacts and address them in some sort of priority order. The most common tool is an environmental management system (EMS), and the best known approach to EMS is laid out by the International Organization of Standards (ISO) 14000 series of standards. The ISO 14000 family addresses various aspects of environmental management and have been adopted by more than 300,000 organizations world wide. The very first two standards deal with environmental management systems (EMS).

- ISO 14001:2015 provides the requirements for an EMS.

The other standards and guidelines in the family address specific environmental aspects, including:

- labelling;
- performance evaluation;
- life cycle analysis;
- communication and auditing.

These standards provide a framework for managing environmental issues rather than establishing performance requirements. The process that starts with a senior management commitment and the creation of an environmental policy and leads on to:

- documenting environmental impacts, prioritising them and setting goals for improvement;
- planning how stakeholder obligations (including legal requirements) and targets will be met;
- implementation (including operational controls);
- training and communicating with staff; and
- control of relevant documentation.

**Monitoring**

Once an EMS is set up, it is then formally monitored through an auditing process, which will identify any missed targets, procedures not followed or new procedures needed, and document corrective actions required to ensure the EMS meets its objectives. Managers are required to engage in this process and review the performance of the system on a regular basis. This review may lead to the policy or objectives being changed or updated, in light of the audit reports or changes in circumstances. This process should encourage a commitment to continuous improvement in environmental management as well as ensure that the organisation is not exposed by failing to meet its legal and moral obligations.

**Performance Measurement**

Organisations with environmental management systems will attempt to monitor their performance, and simple measures might include:

- miles per gallon of fuel;
- average life of tires (in miles);
- amount of waste lubrication oil generated by the operation;
- utilisation of vehicle load space (expressed as a percentage);
- percentage of miles run by vehicle empty; and
- targets for reducing waste packaging.

**Minimising Negative Environmental Impacts**

Some key opportunities for improving the sustainability of logistics include:
• Preferencing low-carbon forms of transport (shipping and road transport over air freight, for example)
• Conserving energy and use renewable energy instead of fossil fuels to power premises, especially in remote areas where fuel costs may be very high
• Avoiding wasting water by using simple water efficiency, leak prevention and recycling methods;
• Using interceptor tanks and bunding to avoid run-off pollution from fuel dispensing areas;
• Careful management and monitoring of other hazardous chemicals on site (Attachment - Safe Management of Hazardous Waste in WFP Workshops: available in English or in French);
• Phase out of ozone-depleting gases from air conditioning systems in warehouses and vehicles;
• Keeping pallet stacks tidy and other measures to reduce spoilage of food and non-food items; and
• Taking steps to better manage the production, collection and disposal of waste, including packaging wastes (Attachment - Safe Management of Hazardous Waste in WFP Workshops: available in English or in French).

For vehicles, minimising factors include:

• selecting fuel efficient vehicles and ensuring right-sizing of fleets;
• driver training to reduce accidents and improve fuel consumption;
• monitoring fuel consumption;
• monitoring vehicle utilisation in terms of both payload and empty running;
• conducting preventative maintenance, as a poorly serviced vehicles use more fuel; and
• dispose of used tyre casings, batteries, motor oil and other vehicle wastes responsibly.

Environmental Checklist

This series of questions can be used as a check-list to focus on key areas for consideration in the humanitarian sector:

• what environmental risks do your organisation’s activities pose?
• do the materials you use pose any danger to the environment, staff or beneficiaries?
• do you know what impact the material that you supply (including its disposal) and services you provide have on the environment?
• do you know the quantity or type of waste you produce?
• do you know how this waste is disposed of or what the cost is?
• are there hidden benefits such as greater efficiency, or even straightforward business opportunities (for example, commercial utilisation of waste) from adopting alternative methods of controlling or eliminating pollution risk?
• are you aware of existing environmental standards and legislation in the country in which you are operating?
• what arrangement do you have for monitoring compliance with environmental legislation?
• is senior management actively engaged in ensuring that proper attention is given to environmental considerations in your organisation?
• are you highlighting your environmental performance to donors?

Conclusion

Green logistics should be everyone’s responsibility and there should be commitment from various actors to promote and respect it.

Reference

This document is inspired by the collaborative works of the Universities of Cardiff, Heriot Watt, Lancaster, Southampton, Leeds and Westminster. These universities are undertaking research into the sustainability of logistics systems and supply chains – http://www.greenlogistics.org.

Links

Forest Certification Resource Center: for businesses and consumers seeking accurate, objective information about forest certification.

Legambiente: (League for the Environment) is the most widespread environmental organization in Italy.

Sustainable Event Management: A Practical Guide: a practical, step-by-step guide leading readers through the key aspects of how to understand and manage the impacts of events of any type and scale.

Earthscan: The world’s leading publisher on climate change, sustainable development and environmental technology.

Fleet Forum: the first independent knowledge centre, focused on issues surrounding humanitarian fleets within the aid and development community.

Clean Fleet Toolkit: developed by Fleet Forum together with UN Environment, organisations can use this toolkit to get insights into their fleet emissions.