

Green logistics approach or green logistics at the moroccan public university : analysis essay

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Abstract. Green logistics has become an integral part of economic, political and social debates in all areas of activity. The environment has become a major priority for all organizations, whether public or private, and has prompted them to go beyond the two predominant management concepts (competitiveness and performance), and revolutionize their management methods to become more agile and, above all, more sustainable in the face of various changes, particularly climate change. In fact, it's all about "doing better with less" impacts to respect the environment. Facing this situation, the Moroccan public university could not stay back as an active part of the business ecosystem. It also had to adopt Green Logistics, which had become an urgent imperative in order to ensure its own performance at national and international level. This paper is an exploratory study that attempts to analyze the current situation of the Moroccan public university by answering the following questions: What are the motivations behind Green Logistics at Moroccan public universities? What are its practices and areas of application? Are there any obstacles, and if so, what are they? And what are the university's future prospects?

Keywords: Sustainable Development, Green Logistics, Green Logistics practices, University.

Introduction

The environmental dimension consideration is a major trend today, and many organizations have already recognized its strategic importance for their sustainable development.

Indeed, this dimension paves the way for many environmental improvement projects and ensures a fair balance between economic and environmental aspects.

Aware of the importance of the green dimension, the university commits to a set of actions of sustainable development and, more specifically, green logistics.

However, a number of questions need to be asked about this approach:

- What is the level of commitment of the Moroccan public university to green logistics?
- What is the outcome of this experience and what are the prospects for the future?

This paper will attempt to answer these questions.

1. Green logistics overall context

The Green Logistics concept was first proposed by the Manufacturing Research Consortium at the University of Michigan in 1996, to study the environmental impacts and resource optimization of manufacturing supply chains [1].

The main motivations for implementing green supply chains can be grouped into four categories [2-3]: rules and regulations, the quest for competitive advantage, stakeholder's pressure and internal company innovation.

Ranking these motivations in order of priority is difficult, and depends on many factors, such as the country, field of activity and size of the organizations studied.

Today, organizations are becoming increasingly proactive in their pursuit of environmental sustainability, as it brings improvements in cost reduction, customer loyalty and opportunities in national and international markets.

According to [4-5], the green supply chain is "the most appropriate way to balance profit and environmental performance».

In Morocco, a sustainable development approach integrating the green logistics chain is beginning to be established. Its aim is "development that meets the needs of the present without compromising the ability of future Moroccan generations to meet their own needs". As a key player in the national and international economy, the university is committed to this approach through the "Sustainable Development Goals" (SDGs).

Set out in the " 21 Agenda", the United Nations conference on the environment and development held in Rio de Janeiro in 1992, but also through national policies and strategies in favor of the environment, notably the green actions undertaken by the logistics sector in 2010 and the 2030 Agenda for Sustainable Development and the SDGs...Etc).

1.1. Conceptual definitions of green logistics

The Awareness of the planet's ecological problems has taken on a global dimension since the United Nations Conference on the Human Environment in 1972 in Stockholm, with the publication of a report by the Club of Rome. The conference gave rise later to the concept of sustainable development, which links economic and ecological issues.

The institutional framework of sustainable development and the Sustainable Development Goals (SDGs) were launched in June 2012 in Rio de Janeiro, this concept has been the subject of many discussions at international conferences on the environment and development organized under the aegis of the United Nations: Kyoto Protocol of 1997, Copenhagen conference 2009, Lima conference 2014, Paris conference 2015 (cop 21), Cop 22 in 2018, ...etc.

Sustainable development has three dimensions:

The economic dimension: which involves modifying production and consumption patterns by introducing measures to ensure that economic growth is not achieved at the expense of the environment and society.

The social or human dimension: which aims to combat social exclusion, working conditions, general access to goods and the development of balanced trade.

The environmental dimension: aimed at protecting the ecosystem, biodiversity, flora and fauna, and minimizing waste production.

Indeed, as the various summits and events have progressed, other key concepts have been added, including Green Logistics, which is part of the environmental dimension. Green supply "is a potentially effective mechanism for supply chain managers to improve the organization record on corporate social responsibility, minimize reputational risks, recue wastes and increase flexibility in response to new environmental regulations".

According to [6], it has been imposed by a number of triggers such as regulations, consumer demand, pressure groups, the search for a competitive advantage, loss of reputation, etc.

The combination of these factors varies from one study to another and from one situation to another.

1.2. Green Logistics: one concept, many visions

Green supply chain management or Green Logistics has its roots in the environmental management literature, which contains a wide range of definitions. These definitions vary from purchasing to an integrated closed-loop supply chain.

The reference [7] mention that green logistics is more than reverse logistics, as it seeks to save resources, eliminate waste and improve productivity. The reference [8] states that green logistics must have the smallest environmental footprint. It is "the integration of environmental awareness into supply chain management, including the product design phase, the extraction and selection of materials and raw materials, the manufacturing process and procedure, the delivery of finished products to customers, and the management of the product's end-of-life".

The reference [9] defines it as the integration of ecological considerations into inter-organizational supply chain management practices, including reverse logistics.

For [10], green logistics can be defined as an efficient distribution and transportation system.

Although there are differences between these definitions, several common terms are clearly used: green eco-design, green manufacturing, environmental performance, green purchasing, waste management ...etc and the objectives remain well defined as well as the fields of application (measuring the carbon footprint of logistics operations, reducing air, soil and water pollution, managing resources efficiently by recycling and reusing, greening the supply chain, using green traceability systems ...etc.).

2. Green logistics in Morocco: state of play

In Morocco, environmental issues have become a priority in political, economic and social debates, and stakeholders' interest in environmental issues is growing.

A large number of "Green" actions and practices are being undertaken as part of the national logistics strategy launched in 2010 to reduce pollutant emissions generated by the sector. The organization of Cop 22 by Morocco was an opportunity to set up a pool in partnership with a number of industry actors from the Moroccan logistics community, and to present a charter announcing the principles and best practices of green logistics, which will serve as a "moral and ethical" reference for all actors wishing to be part of the innovative developments in green logistics.

Morocco has also defined and implemented an integrated national strategy for the development of the logistics sector, with clear, quantified macro-economic and environmental objectives consisting of a 35% reduction in CO₂ emissions from road freight transport.

2.1. Moroccan public universities: the move towards Green Logistics

The sustainable development approach began to take hold in Morocco in the 90s, with the aim of striking a balance between the three environmental, economic and social dimensions.

To make sustainable development a reality, the French government has launched a series of reforms and actions affecting various sectors and activities, with a focus on sustainable development.

This is how the Moroccan public university came to face this issue.

Respecting the environment has taken on greater importance at the Moroccan Public University, with the inclusion of sustainable development "Agenda 21" and its Sustainable Development Goals.

The 1992 Rio "planetary" summit created a new international consensus emphasizing the decisive role that education must play in guaranteeing sustainable development.

Principle 36 (one of the 40 principles of Agenda 21) emphasizes the role of education in environmental and development issues: "the relevance of higher education must be measured by the match between what society expects of institutions and what they do." UNESCO 1991.

The International Association of Universities (IAU), at its second round table held in Japan, recommended that each "university should strive to make an institutional commitment the practice of sustainable development within the university community and to transmit this commitment to its students, employees and the general public" AIU 1993.

Its initiatives were later supported by the Global Action Program for sustainable development education (2014-2019) and that of 2030.

The Sustainable development goals define 17 priorities for socially equitable development on environmental, economically prosperous, inclusive and predictable point of view by 2030. They were adopted by the United Nation Organization in September 2015 as part of the 2030 Agenda after approval by 193 member states.

Many universities around the world have embarked on the path of sustainable development, integrating the various academic and institutional dimensions [11]. However, most of these efforts focus on the core business of public universities and campus activities [12].

The Sustainable Development Goals offer public higher education institutions a unique opportunity to demonstrate their willingness and ability to play an active and significant role in the development of their country on a global scale.

A number of objectives seem relevant to the university, notably those relating to education, research, governance and public engagement.

As the **Times Higher Education** international ranking has shown for several years, the Moroccan public university is more committed to certain Sustainable development goals: the one concerning well-being and health and the one referring to quality education.

It is less committed to the sustainable development objectives that concern Green Logistics, in particular:

- SDG 6: drinking water and sanitation.
- SDG 7: clean, affordable energy.
- SDG 11: sustainable cities and communities.
- SDG 13: combat climate change.

In fact, when it comes to Green Logistics, the Moroccan public university places greater emphasis on programs, research-innovation, responsible energy consumption, water and some of its energy efficiency resources.

2.2. Green Logistics practices at the Moroccan public university

Very few, if any, empirical studies have been carried out on Green Logistics practices at Moroccan public universities. Based on a review of the literature, data available from the relevant ministries, the specialist press, statistics published by higher education institutions and a few interviews conducted with some of the heads of these institutions, we can make the following observations:

2.2.1. Motivations for Green Logistics

The reasons behind the Moroccan public university's commitment to the environment can be summarized as follows:

Table 1: Reasons for Green Logistics at the Public Moroccan University

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| Global environmental concerns in favor of sustainable development |
| Integration of strategies launched by the Moroccan government in favor of green logistics in the various business sectors. |
| Conformity with regulatory constraints on green logistics (pollution, CO2 reductionetc) |
| Improving the overall performance of the Moroccan public university, mainly by reducing costs |
| Better positioning (ranking) in relation to other public and private institutions (image, influence) |

2.2.2. Main Green Logistics practices within the Moroccan Public University

If we take up again the circles that challenge the university's main functions in terms of green logistics already mentioned, the analysis leads to the following practices.

Table 2: Main green logistics (GL) practices at Moroccan Public University

| Green Logistics Practices | Current practices | Uncommon practices |
|---|---|---|
| Functions of the Moroccan public university in Green Logistics | | |
| Learning and research | <ul style="list-style-type: none"> - Implementation of Green Logistics training courses (bachelor's and master's degrees) and sustainable development courses. - Encouraging scientific research in the field (progress and support for research clusters in terms of specific funding). - Organization of scientific events | <ul style="list-style-type: none"> - Training for Green Logistics managers, employees and students |

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| | (seminars, study days, symposiums, forums, etc.) in the Green Logistics field. - Raising Green Logistics awareness among students (Earth Day, etc.) | |
| Organizational dimension | - Installation of a number of environmentally-friendly infrastructures (mainly solar panels) - Use of ICT and IS to reduce the quantity of physical documents (archiving, printing, copying, etc.) - Processing of a number of reverse logistics flows, in particular the recycling of materials used in logistics activities. - Outsourcing of certain logistics services. - Use of some carbon footprint measurement devices. Make a few ecological purchases. | - Use of energy-efficient equipment. - Use of green fuel. Environmentally-friendly distribution and transport practices. -Internal waste recycling. -Replacement of toxic inputs. - Recovery of end-of-life items. |
| Territorial dimension | - Collaboration between regional, national and international institutions in the field of green logistics. - Mutualization and collaborative management of certain resources between universities. | |

2.2.3 Obstacles to the implementation of a Green Logistics in the Moroccan public university

Implementing Green Logistics is a complex process, facing many obstacles. We have tried to summarize them in this table, focusing on their direct and indirect impacts.

Table 3: Main obstacles to Green Logistics within the Moroccan Public University

| Obstacles | Impacts |
|---|---|
| Lack of qualified human resources to implement the green supply chain | Green Logistics cannot be implemented effectively unless universities have the qualified human resources to implement it. |
| No specific regulations for Moroccan public universities | The current regulatory framework may discourage the Moroccan public university from integrating Green Logistics. |
| Lack of knowledge or understanding of the Green Logistics concept | The implementation of green Logistics within the Moroccan public university may fail due to lack of knowledge of the Green Logistics concept. |
| Inadequate organizational structure | Many universities have difficulty adopting Green Logistics because of their "classic" |

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| | organizational structure. |
| Lack of commitment from managers | Is a major obstacle to the implementation of Green Logistics. |
| Complexity of implementing Green Logistics | The Green Logistics approach and practices are difficult to implement. |
| High Green Logistics costs | The investment costs involved in implementing environmentally-friendly practices within the Moroccan Public University are high. |
| Weak collaboration with other partners | Collaboration with other partners is weak to non-existent, which makes it difficult to generalize the Green Logistics approach within the Moroccan Public University. |
| Low return on investment | Green Logistics requires investments spread over the medium and long term. |

2.2.4. Proposals for a new Green Logistics framework within the university

To establish a Green Logistics approach, we propose the following propositions:

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| - Integration of green logistics into the Moroccan Public University's strategy and priorities. |
| - Creation of a budget line reserved for Green logistics. |
| - Integration of green logistics management tools, such as ISO 14001, and use of indicators to assess results, with publication of an annual report. |
| - Raising students' awareness of Green Logistics within their institutions. |
| - Training for green logistics staff and managers. |
| - Involvement and collaboration of all university actors and its socio-professional partners. |

Conclusion

Statistics published by Moroccan public universities show a shift in their attitude towards implementing more and more environmental actions along their supply chain.

Despite this changeover, there are still many strategic, organizational and technical challenges to deploying sustainable initiatives.

There are many obstacles, but the main one is the lack of a specific green strategy for these universities.

In fact, it's more a case of green initiatives, the application of a few "green" principles without any "green" organizational philosophy and limited awareness of environmental aspects.

Today's challenge is to integrate the Green Logistics approach into a daily process, so as to facilitate "green" decision-making and move Green Logistics from myth to reality.

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