The Impact of Green Supply Chain Management on Operational Efficiency. Case study: Unilever

أثر إدارة سلسلة التوريد الخضراء على الكفاءة التشغيلية. دراسة حالة: يونيليفر

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Abstract:

Sustainable development is becoming more relevant for all companies, across all industries. Incorporating environmental thinking within the Supply Chain is the most efficient manner to respond to this century's challenges of depletion of resources and waste problems. Therefore, we will discuss the impact of implementing a Green Supply Chain Management (GSCM) in Unilever Algeria had on its operational efficiency by analyzing the results obtained from interviews conducted with managers in order to further comprehend the GSCM related practices used within the company concluding with recommendations we've seen fit as solutions for the gaps observed throughout the research.

In conclusion, we have deduced that this impact on economic performance is indirect and often goes through one or more intermediate variables, such as waste reduction, customer loyalty and the improvement of the company's image which are in turn factors of improvement regarding the economic performance and in the process the operational efficiency.

Keywords: Green SCM; Sustainable development; Operational efficiency.

Jel Classification Codes: Q5 ; Q57 ; Q01 ; Q53.

Abstract in Arabic:

أصبحت التنمية المستدامة أكثر أهمية لجميع الشركات في جميع الصناعات. يعد دمج التفكير البيئي ضمن سلسلة التوريد الطريقة الأكثر فاعلية للاستجابة لتحديات هذا القرن المتمثلة في استنفاد الموارد ومشاكل النفايات. لذلك ، سنناقش تأثير تنفيذ إدارة سلسلة التوريد الخضراء (GSCM) في شركة يونيليفر الجزائر على كفاءتها التشغيلية من خلال تحليل النتائج التي تم الحصول عليها من المقابلات التي أجريت مع المديرين من أجل

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فهم الممارسات ذات الصلة بـ GSCM والمستخدمة داخل الشركة. التوصيات التي رأيناها مناسبة كحلول للفجوات التي لوحظت خلال البحث.

أخيرًا ، استنتجنا أن هذا التأثير على الأداء الاقتصادي غير مباشر وغالبًا ما يمر عبر متغير واحد أو أكثر من المتغيرات الوسيطة ، مثل الحد من الهدر وولاء العملاء وتحسين صورة الشركة والتي تعد بدورها عوامل تحسين فيما يتعلق بالأداء الاقتصادي وفي العملية الكفاءة التشغيلية.

Keywords (in Arabic):

إدارة سلسلة التوريد الخضراء ؛ تنمية مستدامة؛ كفاءة العملية.

Jel Classification Codes: Q5 ; Q57 ; Q01 ; Q53.

1. INTRODUCTION

The problems of depletion of natural resources, global warming, the major emissions of toxic gases and environmental pollution are the real issues of this century and finding a solution is becoming essential not only for the survival of generations to come but also for all leaders, especially industrialists and managers of supply chain function considering the importance of this function and its impact on the environment. Thus the concept of a green supply chain was born. This idea has gained the attention of many practitioners in many countries all through the decades, it's considered as a new challenge, and a rather worthy one in a world that continues to evolve beyond its abilities and its resources. The pressure coming of external sources (consumers, NGO) and surrounding companies has also increased because such sources have decided that it's time to reunite and to push the companies into a more sustainable solution towards the society that they represent an important part of, and to take actions towards the problem of environment preservation (HUGOS, 2018).

Until now the only concern and goal of supply chain management is to gain a competitive edge and to minimize costs, all by maintaining the same level of service provided to the costumer and by effectively allocating its activities (production, distribution, transport). Today comes the necessity of considering the environmental aspect, i.e. implementing a green supply chain management practices and evaluating its impact on the company's operational efficiency. Being considered a leader in supply chain management, and being classed within the top 5 of companies committed in sustainability plans, Unilever aims to halve its environmental footprints all while continuing to gain market share and profit, therefore the supply chain giant has implemented the *Unilever Sustainable Living Plan* which has two

major objectives: Doubling the company's activity all while reducing its environmental impacts and increasing its positive social impacts. These goals are the beating core of Unilever's structure and especially its supply chain function.

As a result, the overall question study this research poses is: **What is the impact of implementing green supply chain management on operational efficiency?**

In order to reach a compelling answer for this question it was required to pass by several sub-questions, we mention:

1. Is implementing GSCM important in order to gain a competitive advantage?
2. Does implementing GSCM actually improve the company's environmental impact?
3. What value did GSCM add to the company's operational efficiency?

These sub-questions has led us into formulating initial research hypotheses, depending on prior personal perception and initial research, we have been able to conceive two main assumptions:

H1: GSCM is an efficient tool to enhance environmental impact and sustainability.

H2: Implementing GSCM can increase resource efficiency and lower production costs.

Keeping in mind the nature of the study, it seemed convenient to adopt a both descriptive and analytical approach through a qualitative study chosen according to this research's objectives, and that had as a purpose to collect maximum data through interviews held with managers at Unilever Algeria. This research has allowed us to refine our understanding of the phenomenon and its evolution, and to further understand the GSCM related practices, the methods actually chosen, and the impact of such practices on the company's operational efficiency.

The practices are connected and have a common advantage of achieving efficiency as they are all based on the 4R's approach (Reduce, Reuse, Recycle, and Recover) which will allow any company to maximize its value with minimum consumption of resources. The table bellow represents a summary of the GSCM's practices.

Table 1. Main green practices in Supply Chain Management

	Practices
Green design	– Reducing raw material and energy consumption

	during production and use. – Designing products easy to be reused/recycled/recovered. – Minimizing the use of hazardous material. – Use of clean technologies.
Green packaging	– The use of sustainable packaging with appropriate design.
Green procurement	– 4R'S: (Reduce, Reuse, Recycle, and Recover). – Cooperation with suppliers. – Green outsourcing.
Green manufacturing	– Using the appropriate material and technology. – Promoting positive ecological business operation practices such as recycling and reusing. – The use of new and appropriate technology. – Setting an Environmental Management System (EMS) to monitor and steer the different actions and thus have a better visibility of the level of effectiveness.
Green logistics	– Using sustainable or recycled material. – Enhancing packaging design in order to reduce waste and costs. – Green transportation. – Using shared databases. – Using less polluting transportation modes. – Warehousing.
Reverse logistics	– Recollect the defective or unused products, to be sorted then inspected, recycled, reused or remanufactured.

Source: LINTON et al., 2019.

2. Motivations and benefits of Green Supply Chain Management

Supply chains have come to evolve in a constantly changing manner, as a result of different businesses are in need of help in order to not only adapt but also to catch up with these changes in a way where it is possible to measure the impact of the decisions they make. One of the results of these decisions is the integration of environmental thinking, giving birth in the process to green supply chain management which has gained increasing attention over recent decades. Depletion of natural resources, climate change and raising consumer concerns have been key reasons for greening the supply chains, which represents an approach that can significantly help improve processes and products performance all while incorporating an environmental thinking (REID, 2017).

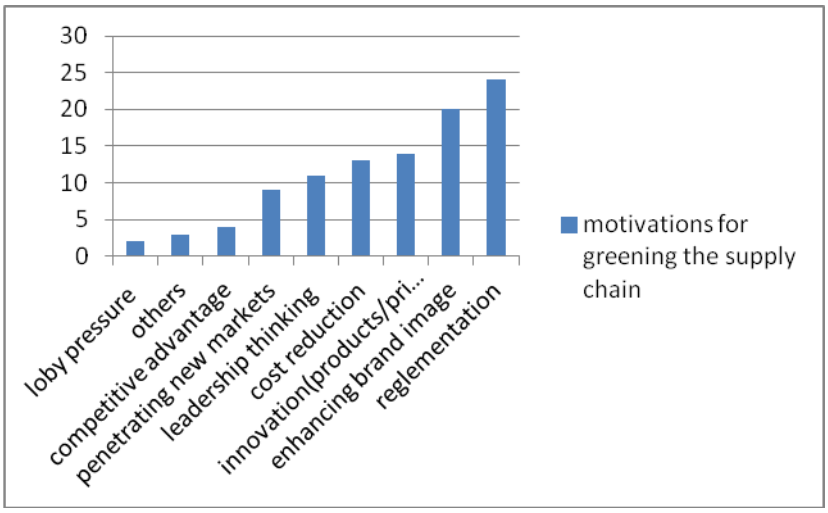
Green Supply Chain Management is a supply chain that aims to reduce its activities' impact on the environment in every step of the product's life cycle: conception, purchasing, production, packaging, logistics, distribution and recycling (HERVANI, 2005). Strategically elaborated motivations push today's managers into adopting a GSC, in addition to the clients becoming more and more environmentally conscious and interested in their consumption's impact on the environment.
We find that these are the main reasons for which GSC is becoming more and more relevant: (LINTON et al., 2019)

- Regulations: the majority of firms want for their procedures to be conformed to legislations and regulations in order to meet and anticipate future requirements.
- Enhancing brand image: the brand image is an important factor that pushes firms to satisfy continuingly new and fluctuating demands of consumers.
- Reducing costs: this factor is mainly about reducing energy consumption, raw material use, waste evaluation and other procedures in order to cut costs and reduce the SC's costs.
- Innovation: implementing a GSC drives firms to innovate on a continuant basis regarding their process and organization in order to gain a competitive advantage.
- Environmental concerns: this represents a genuine approach resulting from real precautions, concerns, and desire to minimize the negative impact on the environment (SUNDARAKANI, DE SOUZA, GOH, and VAN OVER, 2010).

Keeping in mind that the ultimate purpose of a firm is to create value, and not to protect the environment, it is however essential to understand that the

decisions made by the company have a direct and a somehow strong impact on the well being of the environment.

Fig 1. Motivations for greeing the SC

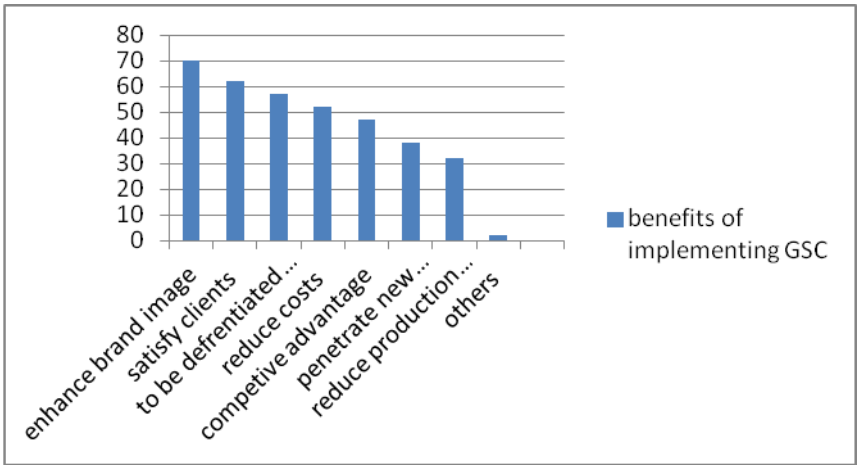


Source: Observatoire de la Supply Chain verte, 2008, p.20.

As the figure shows, motivations for implementing a GSC exceed just the need to gain competitive advantage even if that represents an important motive. It is more about following and respecting laws and enhancing brand image which represent the highest percentage, in addition to the role that adapting to today's technologies and the need to reduce costs play as a motive.

The common misconception that greening the supply chain costs additional expenses still exists despite facts proving otherwise, due to the lack of a systematic approach and willingness to engage in environmental thinking. Key benefits of GSCM would include not only the positive long term effect on the company's financial performance but also a significant decrease in costs, new opportunities for competition and innovation, in addition to benefits regarding all concerned parties including consumers, workforce, society and government, etc (MCKINNON, BROWNE, PIECYK, and WHITEING, 2015).

Fig 2. Benefits of implementing GSC



Source: Observatoire de la Supply Chain verte, 2008, p.26.

The figure represents the degree of impact that each advantage -resulting from implementing GSC- has on the operational efficiency of the company in question, where we can notice at first hand that the biggest effect would be in terms of enhancing the brand image where the company gains a reputation for being environmentally conscious. GSC's advantages goes beyond brand image as the figure shows, where we can notice its contribution in reducing costs and penetrating new targeted markets. (ZSIDISIN and SIFEERD, 2011)

Integrating environmental thinking into a company's SC is a direct result of many motivations (the desire to cut costs, enhance the quality of the product, regulation, consumer pressure, gaining competitive advantage, and enhance the brand image…) and has been a source of many advantages. All these developments have significantly changed the company and starting from these rather positive adaptations. We can say that the company is becoming more and more involved in the protection of the environment that surrounds it and by doing so they're taking charge of the responsibility they have towards it. This measures adopted by the company certainly have a significant impact on the overall performance of the latter in general, but especially (what interests us) on the operational efficiency. (WIDLOECHER and QUERNE, 2019)

3. Methods and materials

The assessment of the overall impact of GSCM related practices on the operational efficiency of Unilever Algeria has presented many challenges; the difficulty lies in the fact that the access to information was an enormous obstacle. Thus the choice of the analysis tool seemed extremely limited. For

this reason, we initially chose to interview a number of managers within Unilever Algeria, in the three departments that seemed best related to our study -supply chain, HSE and quality- therefore, we have been able to talk to the Health, Safety and Environment department Manager, the MCO Algeria Quality assistant manager and the Supply Chain process Control, claims & pallets management specialist. It is only appropriate to mention that due to distance obstacles, the interviews with the HSE department Manager and the MCO Algeria Quality assistant Manager were through a video call using Skype.

In order to maximize the use of the information available and answer the main research question, as we recall, we have seen it best fitting to conduct a qualitative study through interviews with the managers concerned.

Considering the nature of this research, it seemed proper to use a qualitative study, allowing us in the process to gather the necessary information based on answers provided by managers at Unilever Algeria containing their opinions, point of views and facts extracted based on their experience and activity in the company. There are multiple techniques used within the qualitative study in order to collect the information required for a research, amongst which the mostly used techniques are: Individual interviews, group interviews, projective techniques, creative techniques and observation techniques. Based on the objective set in accordance with this research and the position held by the interviewees within Unilever Algeria, it seemed more fitting to carry out individual interviews. This specific technique has three main types: the non-directive interview, the semi-directive interview and the directive interview. As the research required versatile information, we opted for the semi-directive interviews, as a result of the resilience and controlled freedom it offers to the interviewees, and thus allows to deepen the field of answers (VERNETTE, 2017). The questions asked during the interview are intended to gather as much information as possible. We specifically wanted to reach a conclusion containing a real estimation of the impact that followed the implementation of GSCM on the operational efficiency of Unilever Algeria.

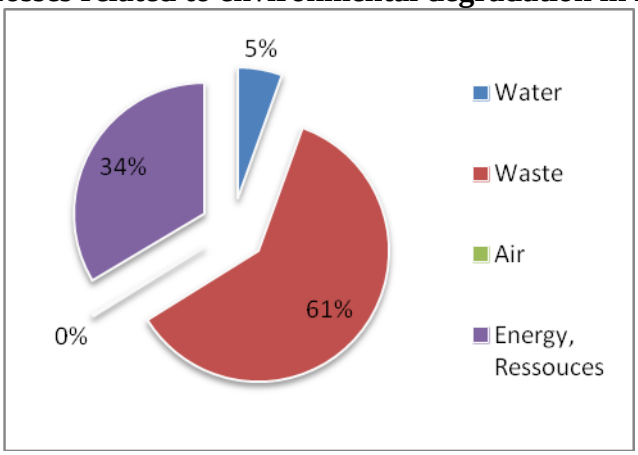
Therefore, the answers will be divided into three parts (Supply Chain, HSE and Quality) depending on the three departments each interviewee covered.

4. Results and discussion

4.1 Supply Chain part

The need to play a part in tackling climate change and reducing the depletion of natural resources - especially considering their financial and environmental impact- are one of the reasons for which Unilever has shown a great interest in limiting its negative footprint and in incorporating environmental thinking into its activity which is a pillar for a GSC.

Fig 3. Losses related to environmental degradation in Algeria

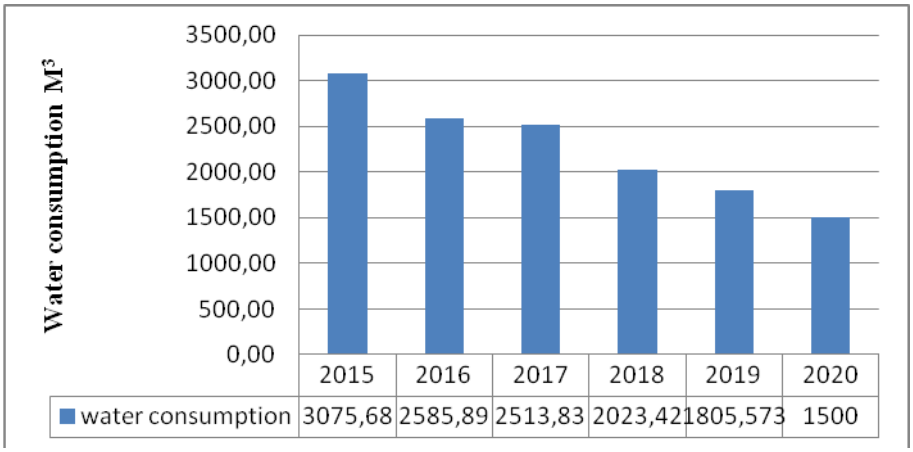


Source: MATE, 2002, p.65.

The figure represents the losses related to the environment that Algeria has been facing, mainly as a result of negligence and poor management; these losses were one of the reasons for which Unilever considered GSCM.

In order to do that several programs have been established but the most recent and efficient one is *Unilever sustainable living plan* (USLP) that aims to increase business growth while decreasing the negative environmental effects, and further accentuate Unilever's commitment and involvement in sustainability. The main focus of this plan concerning the environmental aspect would be to reduce water consumption, waste reduction and sustainable & responsible sourcing from suppliers who respect the standards delivered by Unilever. Selection is based on the number and location of suppliers; moreover the supplier sourcing criteria is a part of Unilever's approach towards respecting their ISO 14001 certification. Therefore suppliers are obliged to conform to the level of standards dictated by Unilever's environmental policy whether it comes to sourcing raw material or to the disposal of unwanted waste.

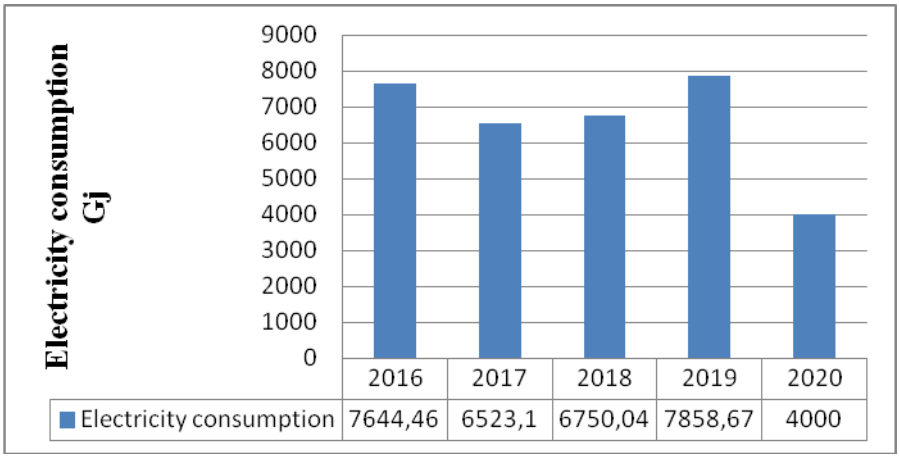
Fig 4. Water consumption at Unilever Algeria



Source: Unilever Algeria's internal DATA, obtained from Supply Chain department.

This figure accentuates Unilever Algeria's interest in one of the pillars of its USLP, which is reducing water consumption, as we can observe through the years; they have been able to reduce water consumption in their production process through creating a closed circle where the majority of water is recovered and reused after treatment. The company's goal by 2022 is to halve their water consumption.

Fig 5. Energy consumption at Unilever Algeria



Source: Unilever Algeria's internal DATA, obtained from Supply Chain department.

This figure represents Unilever's electricity consumption from 2015 until their consumption targets at 2020, the consumption reduction process has shown real progress between 2015 and 2018 where it was reduced by 11%, but has continued to grow as a result of the implementation of new projects and adopting more automated procedures during production, storage and packaging. Unilever has as a target to halve its energy consumption by 2022.

It is important to mention that one of Unilever's methods in order to optimize storage space is using High Density Storage System (HDSS): a system that optimizes the use of warehouse space by automating the operation of pallet transfer. This rack and pallet storage system automatically moves the pallet inside the rack. The shuttle is a "robot" moving in an accumulating rack structure. In this case, the carriage does not enter the structure. But simply places the pallet on the level concerned, the shuttle does the rest, allowing the driver to focus on pallets transfer.

Table 2. HDSS advantages

Financial advantages	**Environmental advantages**
- Enables the use of the FIFO management system which corresponds to Unilever's products type. - Maximum storage density (4 floors, 33 lanes and 31 pallets per lane). - Capacity increase from 1254 to 4600 pallets. - Allows managing a reference by corridor (33 corridors). - Reduced logistics costs. - Reduced handling risks. - Decrease the manual interventions, and thus better maintain the quality of the product and its packaging. - Preserve the condition of wooden pallets during storage.	- Reducing CO_2 emissions produced by diesel trucks through the use of electric trolleys and the use of electrical energy. - Reducing CO_2 emissions produced by transfers between warehouses. Little transfer required with this system. - Reducing waste resulting from non-conforming products through optimal inventory management. - Use of recyclable materials.

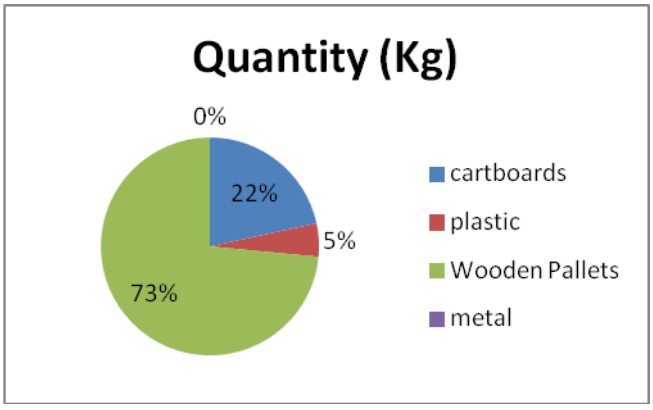
Source: Fulfilled by us based on internal data provided by supply chain department.

The adopted supply chain strategy is the "Make to Stock" depending on forecasts. That is, a production-driven "push" approach. For this reason, the Oran site is often faced with a problem of overstocking which the company faces by two actions: Replenishment & Using an Overflow.

4.2 HSE part

According to the interviewee, waste management process always starts with an evaluation of its efficiency and whether this process is still relevant enough to deal with the amount of waste generated daily all through the SC, then the following steps would be to assess the inventory of waste and analyzing the reasons for which this quantity was generated. Identifying these flows or gaps during this process is a critical factor in order to make suitable correction plans and to create in the process improvement opportunities with minimum investment. As a result the company is in fact generating 37% (MIN and GALLE, 2019) less waste than it did in 2008 in total. An important other step during this process is to assess the amount of Raw Material lost or wasted during production, and scope for any opportunity of RM recycling. Waste management process ends with applying the appropriate measure for each kind of disposable material (re-use, recycle, recover), and the waste destined to be sold is submitted to procedures aligned with Unilever's environmental standards that encourage any 3rd party to achieve environmental improvements.

Fig 6. The calculated quantity of recycled waste in 2019



Source: Unilever Algeria's internal DATA, HSE department.

Observing the figure, we can conclude that pallets represent the biggest percentage of waste but also the simplest material to deal with as a result of the multiple possibilities it can be handled with (re-used, recycled), as opposed to plastic and cardboards that require a recovering process, therefore the first option taken by the company is reducing the use of these materials.

Table 3. Nature of air emission released during detergent production

Release area	Equipment	Nature of emissions
Detergent possess (NSD: non-soapy detergent or synthetic)	The Oven	NO_X (mg/Nm^3) CO_2(mg/Nm^3)
Exterior area	Transportation Vehicles All categories	CO(mg/Nm^3) CO_2(mg/Nm^3)
Utilities	The Boiler	SO_X(mg/Nm^3) NO_X (mg/Nm^3)

Source: Unilever Algeria's internal DATA, HSE department.

The method used is based on the natural gas consumption and powder production reports. The emission generated from the chimney is calculated according to the American EPA (Environment Protection Agency) procedure using emission factors and technical data. The estimation of the quantities of pollutants released into the atmosphere, and more specifically those that fall under the UN Framework Convention on Climate Change are also calculated (PORTER and VAN DER LINDE, 1995). The results found are submitted as the environmental performance report and the quality report that contain both the results and the targets set by Unilever standards in order to measure the gaps between the two and establish corrective plans. This procedure requires permanent monitoring, evaluation and analyze.

4.3 Quality part

Unilever always considered Quality standards and ensuring excellence in operations a priority (GMP Standards, Traceability, Hygiene and HACCP), that's why it has been crucial to build quality culture within the organization through a proactive education and training system according to the detected gaps. That's one of the reasons for which this well established company has been able to obtain a delivered orders percentage estimation of 95% (with

no damage or missing/excess) in 2019 and an estimation of 2% of delivered orders followed by product return (Damaged during delivery), while a reported 0% of Market return in this same year.

In addition, Unilever has been able to adopt innovation projects in *"Do it Right the First Time"* approach and improvement projects (based on delivered quality and consumer feedback). Moreover, ensure the implementation of Quality Management System QMS according to ISO 9001 which Unilever has been able to obtain as a certification, and Implement incidents management systems (Returns, incidents simulations). In addition to respecting the standards coming with obtaining an ISO 14001 certification, that can be regarded as a practice with a high influence in terms of increasing resource efficiency, waste management and gaining a competitive advantage. And finally, ensure permanent shop inspections over the market for quality products using Unilever standards, and perform internal and external audits to ensure quality standards respect at all level all through the Supply Chain.

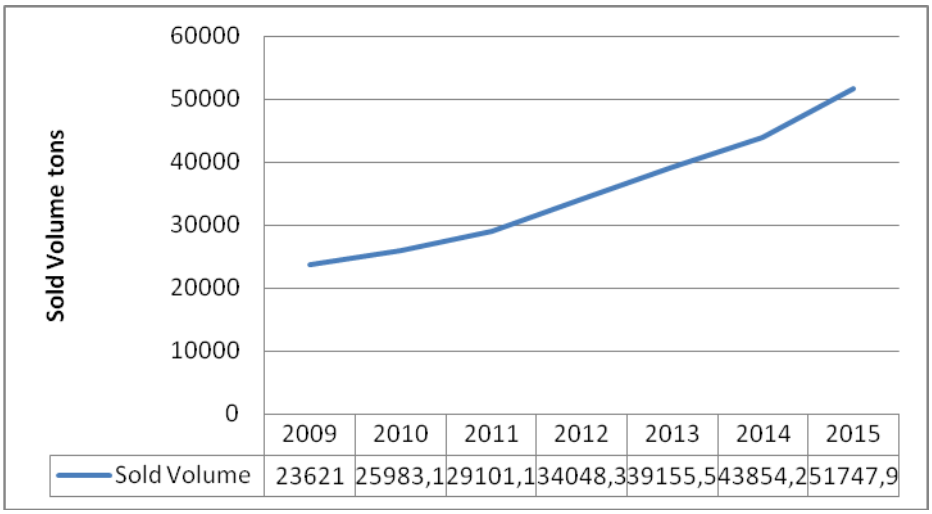
GSCM is the consideration of environmental factors, not only in its production process, but also in the daily actions of its employees, because problems such as depletion of natural resources cause losses that can potentially be avoided or minimized and these obstacles are of major effects on any country's economy and therefore on the company's performance. For a global company with Unilever's reputation and weigh, setting up an environmental strategy adapted to the country in which it operates is vital today. Because it allows the company:

- to sustain its activities in the face of resource depletion and rising energy prices.
- to control and reduce the negative environmental footprint of its activity while continuing to grow.

This is why many companies, like Unilever, consider initiatives such as greening the SC, which shows in its implication and motivation to put plans such the "USLP" at the heart of its activity. One of the major targets the company is trying to reach is to halve its natural resources consumption, reduce waste at all levels of the chain and reach a sustainable & responsible sourcing from suppliers who respect and understand the standards delivered by Unilever, which has represented a breakthrough as these practices were considered to cost more than it would benefit the company, and this

assumption has been proven wrong as a result of the major advantages related to cost, quality and brand image.

Fig 7. Quantity of sold products



Source: Unilever Algeria's internal DATA, provided by the Financial Department.

The figure represents the quantity of sold products all through these past years; we can conclude that implementing GSCM related practices hasn't affected negatively production levels as the costs saved through these actions were invested in order to raise production and increase the company's turnover in the process. Unilever has committed to a number of important practices, including 4Rs (reducing, re-using, recycling and recovering), which the company has been able to alter in order to comply with its needs and resources adding in the process a fifth R which is Refuse, i.e. avoid waste being generated in the first place, because minimizing waste at its source is a far better approach to adopt in order to enhance the environmental impact while saving costs.

Other approaches were deployed including green purchasing, minimizing the use of non-hazardous materials and reaching zero waste landfill when it comes to these materials. These practices allowed the company to:

- reduce its water consumption and reaching zero water waste;
- positioning itself as an environmentally conscious company and improving its image;
- waste reduction, and therefore costs;
- improving environmental performance.

In addition, through planning to implement a Monitoring Measurement & Tracking System, Unilever has shown its interest in reducing resources over-consumption (electricity, gas and water). Because the zero waste landfill the objective that became a reality way before its targeted schedule, has set a ground for other actions to be taken, in order to optimize the production process by minimizing quality related malfunctions, This optimization has led into financial growth. Finally, Getting certified in ISO 9001 the internationally recognized Total Quality Management System and ISO 14001 that specifies requirements for an effective environmental management system are key indicators in measuring this company's involvement in enhancing the quality of its products and the quality of the processes and procedures followed all through the Supply Chain.

We can conclude that GSCM's practices haven't been exploited to the fullest at Unilever Algeria, and there is still a large room for improvements, and adaption of other more beneficial practices. The largely applied GSCM practices within Unilever are a part of its "USLP" through its purpose oriented strategies guided by it goal to "make sustainability a commonplace". This approach is adopted in order to limit environmental effect but also ensure activity growth by multiple strategies:

- Waste reduction through adopting the 4R's approach, these actions had as a result reaching the zero waste landfill of non hazardous material.
- Efficient resource consumption, through monitoring energy and water use.

The company has been able to successfully optimize water use through creating a closed channel that recover, treat and allow water re-use, in addition to planning to halve its energy consumption especially after its storage system automation (HDSS) that has negatively impacted its plans of reduction, but has been able to gain in terms of reduction in quality related incidents (packaging damage, products damage during transportation…), as a result these incidents has been reduced and product storage optimized.

- Green sourcing, through dealing with suppliers who are environmentally conscious and are responsible and who comply with Unilever's environmental policy.

- All 3rd parties and private contractors dealing with the company – especially those responsible for waste disposal- are obliged to comply with the conditions and procedures dictated by Unilever.

All parties dealing with the company are required to undergo evaluations and audits that ensure their compliance and their procedures' accordance with the company's policy. These procedures ensure the reduction of the environmental footprint.

In addition, contrary to common believes these actions had in fact a positive effect on financial performance, through:

- Cost reduction resulting from resource efficiency.
- Waste recovery and re-use.

Ensuring in the process significant financial gain – a 32% increase in the company's turnover between 2013 and 2015.

- Having been able to get ISO 14001 and ISO 9001 certified are in fact key indicators of the positive impact Unilever's GSCM practices have been able to obtain.

In addition to other positive effects such as:

- Facilitates the implementation of corrective action plans where performance needs improvements.
- Detects opportunities and set action plans accordingly.
- Enhances resource consumption and avoid wastage.
- Enhances data quality.
- Improves supply chain audits and increases visibility.

5. CONCLUSION

In recent years, the ecological context has reached unprecedented seriousness, which risks not only upsetting social but also operational efficiency. Integrating environmental thinking all through the company's supply chain translates the need to provide a level of coordination between traditional logistical practices and environmental management practices, one of which is framed by the international certifying body ISO through ISO 14001 certification for example. Adopting green practices that promotes business sustainability as well as environmental sustainability has become a leader concern and it manifests through the growing interest in practices such waste management, green and responsible sourcing, and reducing resource consumption (KOT, 2019).

The results of our research led to confirm the initial assumptions. As a result we can say with certainty that: **GSCM is an efficient tool to enhance environmental impact and sustainability, and implementing GSCM can increase resource efficiency and lower production costs.** We can now say that this new environmental practices have brought changes in Unilever's supply chain; these changes have been associated with a rather positive outcome. Through this research we have been able to see that implementing GSCM related practices doesn't only reduce the negative environmental footprint but also improves both economic performance and offers a competitive advantage. That's why in today's economy, the strategic decision of the most capable companies would be to aim towards greener solutions and a more sustainable development oriented supply chain, keeping in mind that the advantages harvested from certain green practices within a company are not necessarily the same harvested within another one.

Having observed the major practices adopted by Unilever and the gaps residing in-between, it's convenient to propose to: the company must act considering the option of "renewable energies", as we've been able to observe, electricity reduction has faced an obstacle as a result of the automated storage system (HDSS) which made it difficult to optimize energy consumption, therefore, it seems logical to consider renewable energies especially through the use of solar panels, for the long term advantages it has to offer in spite of the investment it requires in the present. Having in mind that Algeria is a country with a significant amount of sun exposure (around 2800 exploitable hours per year); the sun would appear as the most efficient and sustainable resource to exploit.

We, therefore propose to Unilever to equip its facilities with solar panels for part of its energy consumption. Engage in partnerships with well established sustainable environmental solutions companies on monitoring and corrective measures, but they also allow prevention measures to take place, in order to avoid unnecessary resource consumption, waste generation, and reduce costs in the process. One of the major problems in adopting GSCM related practices is measuring its results and impact in terms of economic gain or loss, therefore when implementing these practices it is looked at as measures solely for environmental purposes, therefore, it seems convenient to propose to go through a process of quantifying the results obtained when using such measures by linking sustainability to a business case (CHOPRA and MEINDL, 2018). That is to

say, present a business case that identifies areas of concerns and highlights major obstacles at the same time as stating possible advantages, all while studying the amount of investment required and the forecasted quantifiable gain results from such practices throughout the years.

We, therefore, affirm based on this study that implementing a GSCM even if it's not to the fullest, has had significant positive effects whether regarding costs, resource consumption, waste reduction or competitive advantage. The GSCM practices seem to really exist and its volume is considerable, but in many forms it can be further exploited and adjusted to the company's activity.

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