

THE ISSUES OF THE IMPLEMENTATION OF AN ENVIRONMENTAL MANAGEMENT SYSTEM ISO 14001 IN THE ALGERIAN COMPANIES

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ABSTRACT. Since the 80s, the Algerian government has become more interested in the protection of the environment. By installing an institutional and legislative, remit capable of pushing the companies to take in consideration the environmental dimension by applying the ecological actions that are supposed to be organized in an environmental strategic planification framework, in compliance with the public policy and strategy. This is why the implementation of an environmental management system ISO 14001 in Algeria as reference allows decreasing the environmental impacts and the exhaustion of the natural resources. The aim of this research is to study the concerns of the implementation of an environmental management system ISO 14001 in the Algerian companies.

Key words: Strategic issues, Environmental system ISO 14001, internal issues, external issues, Algeria.

INTRODUCTION:

For thirty years, the Algerian government had taken into account the protection of the environment as a strategic issue in its public policy, and the increasing interest of the state to improve the quality of the environment was marked by the enactment of the law N° 83-03 of February 5, 1983 on the protection of the environment as an initial date to face the environmental constraints. The government wondered about the compatibility between the regulations and economic growth, the improvement of the companies' competitiveness.

Up to this date, there are more than 898 laws and decrees on the environment (Catral, 2017).

The ministry of territory and environment planning have charged the CNTPP « National Centre of clean production technologies » to execute an action plan --- national policy of protecting the environment.

The CNTPP charged of accompanying the companies in their process of applying an environmental management system « EMS » according to the international norms ISO 14001. Algeria counts nearly 102 company certified with ISO 14001 in the end of 2014, which reflects an interest of environmental approach, but it is still insufficient if we look at the number of entities concerned of the environmental approach.

The purpose of this study is to contribute and fill in the gaps of empirical researches in an Algerian context.

We tend also to analyse the issues of the implementation

of an EMS by the Algerian establishments certified by ISO 14001 and the way they incorporate it in their daily activities and the formal structures proposed by this system. This analysis allows us to evaluate the suitability of our choice to adopt the ISO 14001 standards. The chosen theoretical integration combines the new institutionalism theory and the strategic approach. We start this article by a presentation of a conceptual framework of the research before clarifying

its methodology. The results concerning the issues of the implementation of the ISO 14001 standards on an organizational plan will be developed later before being discussed.

Conceptual framework of the research.

The approaches concerning the issues of the implementation of an EMS implicate the companies commitment in an environmental approach against two other approaches, in one hand, the strategic management, and in the other hand the new institutional stream.

The strategic approach.

The new norm ISO 14001 version 2015 invite the companies to organise and formalise their environment management in the company's strategy [Point (§ 4.1)]. The entity should define the external and internal issues in comparison with its aim, which affect its capacity to reach the awaited results from the EMS. These issues must incorporate and affect the environment conditions by the entity probable to influence (ISO14001, 2015), to communicate on their environmental efficiency. It recommends "the necessities of the EMS allowing an entity to formulate a policy and objectives in consideration of the regulatory requirements and the report around the significant environment impacts (Shah *et al.*, 2017). It applies on the environment aspects that the entity may master and it is supposed to have an influence on it. (Internal and external communication 7.4) "The entity must communicate the pertinent information on the EMS, as shown by the entity communication process required by which could potentially make it easier to develop a greater capacity to improve relations with stakeholders

The ISO 14001 norm might be considered as a multifaceted tool. Image vector, the image improvements of the brand and the market (ISO 14004, 2016), the ISO 14001 is a tool of dialogue, mobilisation, and costs controller. The improvements of the control of the spending, the improvements of the

relations between the industry and the public authorities.

The strategic issues of implanting the new version (ISO 14001:2015) include the extrinsic and inner issues. The extrinsic issues bring together the improvement of the company's image, the preservation of nature, further the reinforcement of the trust of the parties involved in showing their environmental commitments. It comes from the fulfilment of a commercial opportunity, and a response to the regulation demands of the authorities.

Present among the internal issues, the structuring of environmental management practices starting from a tested reference basis and the advancement of green interest in the enterprise (Angèle, 2013). They are also mentioned in other factors such as establishing an internal integrator project (the opening up element of the company) and the fulfilment of the commitments and will of the company's directors. In a strategic approach, qualifying the ISO 14001 standards of the organizational change to understand the issues linked to such an approach in a company (El Abboubi, 2013) but in different levels.

These conclusions are also advanced by the practitioners who outside the economy of divers resources, the improvement of the scrap management and the optimization of the waste treatment, the setting up of the ISO 14001 norm has some consequences on the reduction of the charges and taxes, the insurance premium, the cost of the lack of control of the environmental impacts. The companies also notify that the implementation of the standard had had a positive effect on the internal cohesion, the employee's fidelity and the advance of administrative practices that favour the strictness and the constancy to achieve the goals (El Abboubi, 2013).

The new institutional approach

The new institutional approach tends to understand the process by which the elements are established and the role of the institutions in a company. The institutionalists support that the used mechanisms come from the coercion of the state and professionals, who have rather a normative and/or imitative influence (Zhu *et al.*, 2013). The ISO 14001 norm is an "immaterial normative institution" that contributes in the legitimacy of the organization's that integrate it according to different strategic motivations. The standard is reinforced by the "material normative institutions" (Jennifer, 2014) such as the accreditation and certification professional entities.

However, although the organisations are guided by certain isomorphism (Zhu *et al.*, 2013), there might be a divergence in the integrate of the environmental practices of different organisations (Jennifer, 2014). This divergence may set up according to many factors in accordance with the internal or the external objectives of these organisations: on the economical level rather than the environmental, it can only be produced in the long term. If the external benefits that are mainly economical or relational, the aforesaid certification can be drawn quickly, this is not the case for the internal benefits such as the reduction of the costs and the

negative environmental impacts (Ferrón Vílchez, 2017) externality.

We present four strategies of the integration of the environment in the company (ritual, stimulating, dynamic and reactive). These four strategies are defined according to the priority and the importance of the internal and external issues (Alfredo *et al.*, 2017).

In the integration strategy ritual, the ISO 14001 responds more to external issues rather than internal ones is seen more as a commercial instrument rather than an effective management tool used to protect the environment.

In the stimulating integration, the adoption of the standard responds to the external and internal needs at the same time.

It takes a strategic dimension and implicates an active leadership of the directors, who have to be convinced of the pertinence of the ISO 14001 and to communicate their convictions to their employees in order to stimulate their commitment. The dynamic integration consists of the implementation of the standard in a preventive way in response mainly to internal needs (formalisation of the company's commitment and the recognition to the employees' efforts in this domain).

As to the reactive integration, since the internal and external motivations are weak, the implementation of the standard is hard to imagine, otherwise in reaction to unexpected changes (customer demand, attitude of the authorities or the competition)

MATERIAL AND METHODS:

In order to study the internal and external issues that push the Algerian companies to the implementation of an environmental system, we have prepared a questionnaire; because Algeria still lags behind in the implementation of this system seeing the low number of the companies (102) which had been engaged and installed this system; even though it appears since 20 years till the last version in 2015.

The present questionnaire was subdivided into three parts: The first is taken by the specific questioning to analyse the approach of the certification ISO 14001. The second is about the implementation of an environmental system. At the end of the questionnaire, there is a summary of the issues, which must motivate the companies toward this system according to their importance.

Before sending it via e-mail we have chosen the companies according to the type of the activity and we targeted 76 companies, the questionnaire have been revised by two consultants in the domain of EHS management (Environment, health and safety).

The questionnaire has been sent directly to the EHS managers, took the contacts for the interview and completed the necessary information to establish the EMS according to the case studied, we have collected 18 complete answers from the 76 companies all this after many reminders via mail and phone.

This rate 23% of the answers allow us to launch the study in spite of the 77% of the cases have not answered or have not completed the required information.

RESULTS OF THE RESEARCH:

Principal descriptive results. Our sample is composed of 18 companies of different size and business line.

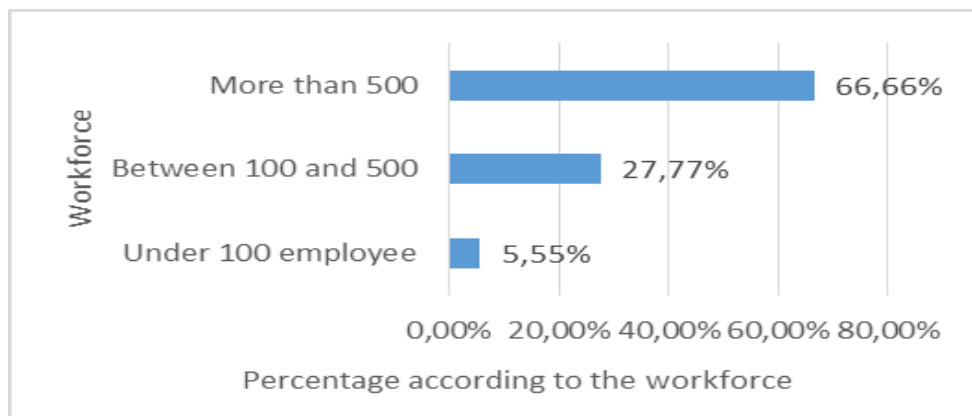


Fig.1: Repartition of companies of the sample by workforce

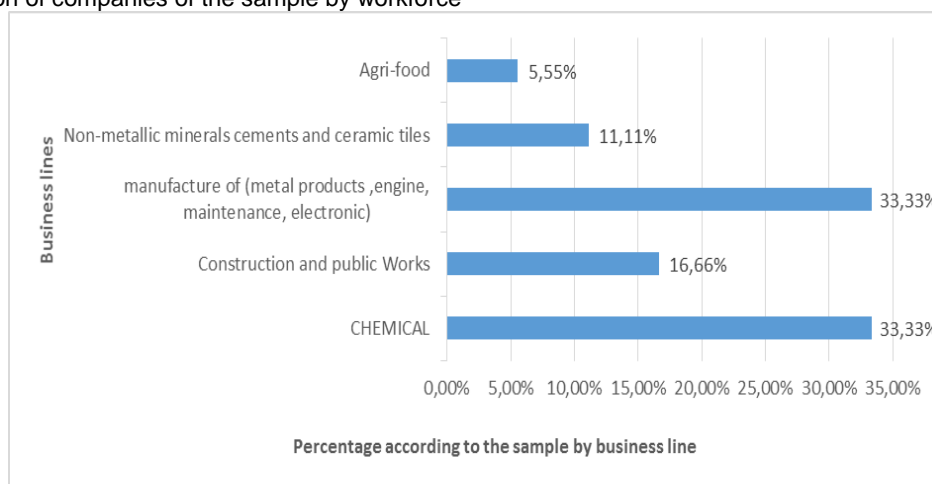


Fig.2.Repartition of the companies of the sample by business line

The answerers work in national industrial companies in different business line: chemical include(manufacture of par pharmaceutical products and personal hygiene, Care and Cosmetic Products, manufacture of thermoplastic pipelines, production of drinking water...) Represent 33.33% sector .Construction and infrastructure public works

represent 16.66%. The Sector of manufacture of (metal products, engine, maintenance, electronics) 33.33% and the sector of Non-metallic minerals cements and ceramic tiles11.11%, sector Agri-food (production of drinks and fruit juices) Represent 5.55, see Fig.2 and table.1

Tab.1. Number of company's studied by business line

The companies (cases)	Business line	Type of ISO standard	Year of the certification ISO 14001	Workforce
BUSINESS LINE : CHEMICAL				
C 01	Manufacture of parapharmaceutical products and personal hygiene	14001, 9001	2012	610
C 02	Helium production	14001, 9001	2011	900
C 03	Care and Cosmetic Products	14001, 9001	2008	272
C 04	Manufacture of thermoplastic pipelines HDPE and PVC	ISO 14001	2016	170

C 05	Desalinating and production of drinking water	14001,	2012	29
C 06	Protection of water resources and the environment	14001	2007	12000
BUSINESS LINE: Construction and public Works				
C 07	Realization of Infrastructures	14001, 9001, OHSAS 18001	2011	2500
C 08	Realization of public works	14001, 9001, OHSAS 18001	2010	460
C 09	Construction, infrastructure and public works.	14001, 9001, OHSAS 18001	2014	2560
BUSINESS LINE : manufacture of (metal products ,engine, maintenance, electronic)				
C 10	Engine manufacturing	14001 ,14001, OHSAS 18001	2009	770
C 11	Realization of industrial electrical installations	14001, 9001, OHSAS 18001	2012	260
C 12	Manufacture of metal products	14001, 9001	2007	4900
C 13	Household Appliance Industries	14001, 9001	2005	2000
C 14	Manufacturing, marketing of electronic products and appliances	14001, 9001, OHSAS 18001	2014	6 180
C 15	Specialized maintenance hydrocarbon	14001, 9001, OHSAS 18001	2011	1300
BUSINESS LINE : Non-metallic minerals cements and ceramic tiles				
C 16	Production and marketing of cements	14001, 9001, OHSAS 18001	2008	450
C 17	Ceramic tiles	14001, 9001	2009	600
BUSINESS LINE : Agri-food				
C 18	Production of drinks and fruit juices	14001, 9001, 22000 ,26000	2008	505

In the studied business lines, the responsible in charge of the environment whom have answered the questionnaire, had a superior education (academic) (75%) and those who have reinforced their previous career with EHS training, the majority of the environment responsible were in charge of the management of quality ISO 9001 (89%) (16 cases) and the rest have occupied previously a leadership posts in the company, but they hadn't took any environment specialised trainings. They have been brought to occupy this post for certification needs, and they had to follow for this reason some trainings (100% of the cases) and attended awareness sessions.

The implementation of the environmental management system was assured in most cases (85%) by a steering committee composed a management and senior managers. The management appealed an external body as a guide in this mission.

The collaboration between the structure charged of the environment and the external body guarantee the monitoring, controlling the implementation starting from the diagnostic till the audit. In studied case ; the guidance duration is between 12 and 18 months (90% of the cases).

All the companies of the sample place the environment director under a direct hierarchy of the Director-General

or the plant director (90%), only 10% (02 cases) made n exception.

In the studied companies there were two strategies in the establishment of the EMS and the decision of the ISO 14001 certification:

Total integration of environmental management system in existing management system of quality (16 cases of 18)

Total independence of the environmental management system (2 cases of 18)

The principal issues of the certification

The obtained results show that the acquisition the ISO 14001 certification appears as a decision motivated by internal reasons rather than externals among the surveyed companies. The external motivations seem to be appreciated more by the decisions. The impact of the costs reduction of the company doesn't seem to be an important objective for these companies.

The frequencies analyses allow us to classify by importance order the issues, which led to the acquisition of ISO 14001 certification into internal and external issues

Tab.2.
The issues to imply norm ISO 14001

Issues	Importance			Percentage
	Not important	Slightly important	Very important	
Internal issues				
Minimize and reduce the pollution		<input checked="" type="checkbox"/>		72.22%
Reduce the wastes cost		<input checked="" type="checkbox"/>		77.77 %
Improving the practice of environment internally			<input checked="" type="checkbox"/>	88.88 %
Additional costs reduction	<input checked="" type="checkbox"/>			22.22 %
The improvement of the company's organization		<input checked="" type="checkbox"/>		83.33 %
External issues				
The company's image			<input checked="" type="checkbox"/>	100%
Respect of the regulations			<input checked="" type="checkbox"/>	83.33%
Improving the information about the company		<input checked="" type="checkbox"/>		61.11%
Enhancement of Relationship with public Administration			<input checked="" type="checkbox"/>	88.88%
Allowing the differentiation of products	<input checked="" type="checkbox"/>			11.11%
Responding to the foreign partners demands (interested parties)		<input checked="" type="checkbox"/>		55.55%
Doing like the competitors	<input checked="" type="checkbox"/>			0%

Improving the brand image is nominated such as a very essential issue (100% of the cases) in comparison with all business lines.

Enhancement of Relationship with public Administration the rate 88.88% , facilitating the regulations respect, taking profit of the offered incentives by the lawmaker or decreasing the applicability of some regulations is considered as an important issue for these companies. Also, the institutional pressure seems to be lighter than the information about this pressure in choosing these establishments to be certified with ISO 14001. This point gives privilege to relations based on true with the environment ministry.

The most nominated internal issues Improving the practice of the environment internally rate 88.88% because the identification of regulating and legal requirements is a necessary for the ISO 14001 norm, and it improves the organization of the whole company

(83.33%). In order to minimize and reduce the pollution rate 72.22%, reduce the cost of the wastes 77.77% additional costs reduction (22.22%).

The preferred strategic motives of a certification may decline in term of the company issues, the forms of the ISO 14001 norm integration, of which the environment management practices allow to distinguish four types of environmental approaches in the companies.

- 1- Ritual : (External issues strong /internal issues weak)
- 2- Reactive:(internal issues weak/external issues weak)
- 3- Dynamic : (External issues strong /internal issues strong)
- 4- Proactive:(internal issues strong /external issues weak)

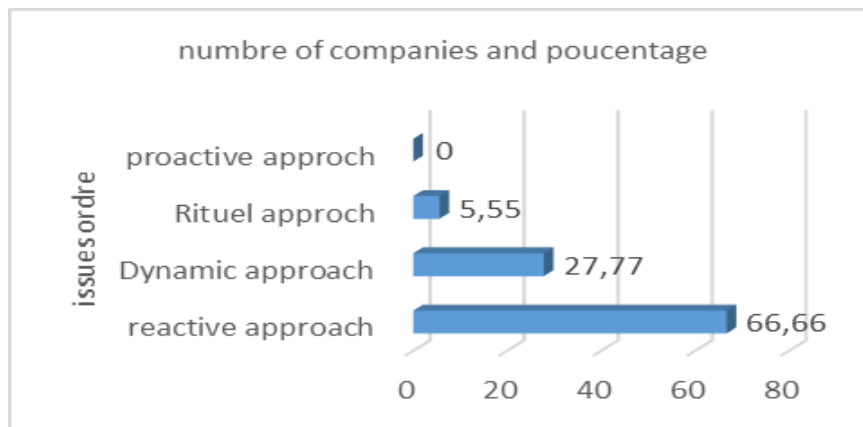


Fig. 3 .Issues order of ISO 14001 certification

Reactive approach : (internal issues weak/external issues weak): the rate 66.66%, represents the company's (12 cases) are in a standby situation and their actions in the domain of the environment protection are directed only by the environmental legislations, the evolution of the technics and the products are led by the evolution of the regulations. The companies acted for a better consideration of the environment in their production modes.

Dynamic approach: (External issues strong/internal issues strong) the rate 27.77%, represents the company's (5 cases), the environment is considered as a strategic issue for the company. To improve the practices and the internal process, the managers are engaged in a responsible and voluntary policy regarding the environment. Establishing such an approach contributes in mobilizing the whole personnel and feeding an active of internal evolution about the project, which affect all collaborators.

Ritual approach :(External issues strong /internal issues weak): the rate 5.55% represents the company's (1 case). it may be pressures or risks at the same time, for example the pressure made by some interested parties or opportunities such as the access to markets where the ISO 14001 certification permits a competitive benefit (commercial proofing).

Principle implementation of the certification

The establishment of EMS goes with the introduction of organisational changes, following the certification was the establishment of an environmental policy and communication procedures. The appearance of new hired personnel of an open-ended contract to establish and maintain the EMS in large companies, as for it, only 14 company of 18 (77%). This new post is in all cases "responsible for the environment" in response to the requirements of the standard (§ 4.4.1). In the other 4 cases (23% of the cases) a person was charged of the environment before the certification, there was no need to create new posts.

Among the behavioural changes, the interviewed responsible (77%) considered that the certification has improved the personnel awareness, internally more than externally. The employees have shown more rigorousness and implication in the respect of the standards and the procedures. They are more aware of the wastes management and the control of the energy

and as a result to that the cleanliness of the workplace and even outside the company in general. This behavioural changes is a result to the training and sensitivity sessions necessary by the ISO 14001 norm 2015 version (§ 7.3) of which the managers, experts and company's operations have benefited from it. The managers and the experts benefited from the training (100% and 85%), the company's operations have less benefited from the trainings (54% of the cases) than sensitivity actions (92% of the cases).

The influence on the company's organisation, in a deep restructuration, seen through radical changes in functioning modes was not noticeable only in 36% of the cases. The improvement of the cooperation between the functions is noticeable in 62% of the cases, but the social cohesion is not improved more than 23%.

The question about the impact of the certification on the work of the employee, the responsible (77%) is marked by a change in the functions and affected the production activities, the purchases and the maintenance. They affirm that the certification improved the working conditions (more organised work methods, cleaner work environment, ...). It changed the criteria of choosing the evaluations of thesis experiences are still young. However, the responsible (77%) estimate that the obtained results till now are identical with what have been expected in the beginning. Their internal expectations are based on wastes management level. However, it should be noticed that the improvement of the company's image is unanimously mentioned among the most important motivations not yet achieved by the company. The lack of ISO 14001 v 2004 standard requirements concerning the external communication in contrary to the 2015 version. The imposed standard on the company to increase internal communication procedures, which explains the frequent improvements in internal and external communication. The achieved objectives in the environmental management for example, wastes ratio, and the optimisation rate noticed in the companies surveyed we noticed that the large companies supposed to be more transparent than small companies because they are under a huge demand of communication.

The origin of the ISO 14001 EMS companies, the motivations .The origin, and the motivations of the

certification according to the questionnaire and the phone interview by business line (tab.1):

Chemical sector. The weakest motivation is to respond to the requirements of the public authorities. This sector is under the authority of the wilaya (state) and controlled by the public authorities in a regular way.

Construction and public works sector. In this sector, the EMS is a method of management, which allows integrating the environmental aspects in the global management of the company. Practically, as important as motivation and the research of the reduction of the environmental costs.

The access to the market and the response to the public authorities requirements play a slightly important role. The other motivations (improving the information about the company, organisation of the company) are moderately persuasive.

Manufacture of (metal products ,engine, maintenance, electronic)sector. The motivations the less mentioned are the reduction of the costs, minimizing and controlling the pollution and personal motivation.

Agri-food sector (production of drinks and fruit juices). The motivations the less important in this sector are to additional costs reduction.

Non-metallic minerals processing transformation sector. The management method, public authorities requirements, responding to the foreign partners demands (interested parties) are the principle motivations.

The commercial privilege (the company's image) all companies is a major and important motivation. Among the tactics used to establish the environment management system, the CNTPP reinforced the capacities of industrial companies by regional organisation workshops laureate in the management system of (ISO 14001, 9001), OHSAS 18001and Environment, health and safety certification.

Furthermore, the ministry of industry and ministry of land-use planning and environment , have reinforced their relations by including environmental specialists to find the way that allows to apply the environmental regulations and the environment standards in the companies.

Among the motivations points, the new structure of the standard (HLS - High Level Structure) (ISO, IEC., 2016) the universal structure of the management standards, the main common objectives are the normalisation for better effectiveness in elaborating the standards and the alignment reinforcement and the compatibility of the standards.

Organisational changes after the application of the 14001 standard .The organizational changes noticed after the application of the ISO 14001 standard in the companies surveyed concerning the rise of the consciousness of the employees and the changes in the work procedures toward the formalisation and more application strictness. These changes appear relatively limited and the integration of ISO 14001 principles of which the co-workers behaviour is partial in 69% of cases. Also, the changes relate primarily to procedural requirements of the standard and they did not lead to

anything but to reallocation of the sources without real reconsideration or deep restructuring. So we are in the case of workaroud approach. The communications about the company's engagement is most often manifested internally and verbally (meetings) and globally (displays) rather than through the regular use of modern and systematic information systems. The results obtained, despite their aspect perceived as limited, they seem to be difficult to be evaluated by the respondents. The majority of the those who have answered this question (13/18) seem to be satisfied of the results in spite of its incomplete nature, which encourage to think that the expectations were not very important and the respondents expect progressive improvements. The companies who had implanted the ISO 14001 and had obtained the certification are in their way of apprenticeship. This apprenticeship is mainly axed toward obtaining some results and not to modify their action strategies nor the guiding values of the company. It's the same with the single loop. The apprenticeship in double-loop requires a global approach of environmental engagement lead to a drastic change. It comes from values changes, but also the strategies and their paradigms. The companies are in integrative approach or "ecological problems will be integrated in the daily management of the company".

CONCLUSION :

This study allows us to conclude that the implementation of environmental management system according to ISO 14001 in the companies has a great relation with the strategic internal and external issues of the company, in these issues we distinguish 4 types of approaches (Ritual, reactive, proactive and dynamic) to practice the environmental management system.

In the studied cases, the majority of the companies 11 rate 66.66% have implanted the system according to the reactive approach, because the strategy of the company is weak between the external and internal issues. These cases, the managers are interested in improving the company's image and composed administrative documents and rules, that allow to respond to the institutional pressures by demonstrating, during the audit operations, the conformity of the company with the ISO 14001 system or the customers' demand. Is some anonymous cases even they are certified with ISO 14001 and they give good results but in reality they cause pollution without any environmental action plan, and we have noticed that implementation of the ISO 14001 system we are seeing the establishment of the ISO 14001 system only in formal requirements of the standard.

The integration of the environment as a management factor of the company, the response to public authorities requirements, then, the main motivations of the company's responsible. These two motivations, like those indicated by the need of technology innovation and to establish an image toward the orderers and the market, cannot turn into economic gains, but form the essential of the directors motivations.

For that, we recommend that the ministry of the management and sustainable development [now

Ministry of Land-use Planning and Environment] to charge the CNTPP [National Centre for Technology and Clean Production] with a mission of accompanying the company in their approach to establish the Management System.

Push or obligate the companies certified with ISO 9001 to adopt the ISO 14001 in order to accelerate the propagation of the ISO 14001 because the new versions of the standards contain the same HLS structure [High Level Structure] (ISO, IEC. 2016), in case of the slow in establishing the certification, the government determines the facilitating instruments to establish the ISO 14001 system, the likeness of the ISO 9001 norm (quality) and ISO 14000 (environment) have well provoked a transshipments of the responsible of the quality systems into environmental management system, in all industrial sectors surveyed.

In order to make the implementation of the EMS successful in the company, it must recruit specialists and experts in environmental domain.

The propagation of the management system ISO 14001 only in the industrial sectors we recommend the government to motivate the other sectors, education, services (hotel business, transport, ..) to adopt this standard.

Currently, the history of the certified sites is still young (102 certified company) (ISO: 2015) to allow a quantitate measure of the environmental effectiveness. On the other hand, across the analysis of the objectives that contains the policies and the environmental programme.

In general, the environmental management domain remains ambiguous.

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