Safety, Hygiene and Environmental (SHE) Management in African Small and Medium Companies (SME)

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Since "*Prescription without diagnosis is malpractice, whether in medicine or management*", this study aims to identify the way forward in improving the Safety, Hygiene and Environmental (SHE) management in Small and Medium size Enterprises (SME) operating in Sub-Saharan Africa. The following conclusions emerge.
Despite overall poor performances, significant improvement can be achieved with a minimum of good will and *management support*. Although small businesses often operate on the financial brink, the added expenses for *SHE prevention* are justified. It is finally necessary to prepare for necessary actions to treat SHE mishaps. The treatment equipment was often inadequate or not functioning properly and *pollution abatement* installations are a rarity. There are obviously many *possibilities of improvement.*

1. Introduction

To assess the SHE performance in West African companies, a diagnostic study and survey on applying SHE-practises was performed in a total of 242 companies.
A comprehensive questionnaire including quantitative/qualitative indicators was developed for the survey, accounting for a moderate specificity, all industrial sectors being different. The survey was not 'sector-specific' but focuses on detailed aspects of environmental practice to provide a true picture of environmental performance.
The key aspects assessed included the areas as depicted in Section 3 hereafter. Ten (10) sectors were reviewed, covering the sites visited during the survey.

2. Methodology

2.1.Procedures

The environmental survey was inspired and carried out using a safety audit "systems".
All replies were critically reviewed on-site to check the accuracy and consistencies. The on-site approach was "top-down" involving company groups in the introduction, interviews and verifications. *Management* should be informed first about the SHE

survey process and should be motivated to boost the process and to demonstrate their leadership by supporting the survey as part of the desired process of change.
*SHE Committee(*s) were told about the “how” and “why” of the survey and its relation to the SHE improvement process and the relevant legislations. *Interviewees* were selected to gather their answers to the relevant questions of the survey elements and to collect documentation and other evidence for verification. A final *compilation* of results was made, with findings, conclusions and suggestions for improvement.

2.2. Methodology of scoring and performance measurement

The system of weighting the questions is simplified. A score of 1.0, 0.5 and 0.25 is granted to a question according to the relative importance of the relevant activity. The fact of e.g. having a SHE coordinator designated in writing is worth 1 point and the fact that this person reports to the site Director is worth 0.5. Indeed, having a SHE coordinator at a given site of any size, is more important than his reporting line. Another example relates to the frequencies of executing certain activities. The organisation of SHE meetings involving all staff members once per year is worth 0.50 when doing it every 2 years or more is only worth 0.25. When it is not done at all, it scores 0.

2.2. Comparative performance

The performance results are expressed in percentage as indicated in figures presented hereafter with only four (4) levels defined in this study corresponding to *Level 1* for a total score less or equal to 25%; to *Level 2* within 25 and 50%; to *Level 3* for a total score between 50 and 75%; and the score of *Level 4* exceeds 75%. Level 4 sites are at an EMS level to comply with ISO 14001 certification.

3. Activities surveyed

3.1. Leadership and administration

Support from top-management includes the establishment of a *clear policy* on SHE. This policy should be positive to have a proper effect, should be substantiated by further support and actions, and should be communicated to all concerned by a proper assignment of coordination of the relevant activities and through periodic SHE management tours. To maintain a certain level of performance and control, set objectives that should not be limited to "no accidents” or “no environmental impact” but would normally also include such items as technical improvements.
Management activities should include *training and supervision*, for staff-functions (key operators, maintenance, purchasing…) and other personnel on a need basis.

3.2. Planned inspection and maintenance

Inspections are intended to consciously observe situations and to uncover substandard conditions or situations for correction. They can be divided in (i) *General inspections* directed mainly at housekeeping and carried out normally by the supervisor with one or more of his/her operators; (ii) *Management tours* intended to support the departmental inspections and to provide management's visual support to the SHE programme; (iii) *Inspections triggered by special circumstances* such as shut-down, construction or plant modification, start-up, permit system operation, etc.; and (iv) *Preventive maintenance*

leading to improving the plant performance and to ensure that manufacturing operations do not have negative effects on SHE. The maintenance records greatly contribute to problem solving, provided maintenance jobs are registered and periodically analyzed.

3.3. Emergency preparedness

Since accidents/incidents and environment damage can never be entirely excluded, it is necessary to prepare for actions in case of emergency, not only to immediately treat the environmental damage, fire fighting or rescuing people, but it also requires management decisions on making materials and people available for that purpose, and to train them. The overall planning of emergency actions should be coordinated on management level and all aspects of the emergency plan should be tested periodically on proper functioning, including proper training of emergency teams.

3.4. Rules and legislations

The need for environmental rules and the knowledge of legislations depends on the potential exposures. Once rules have been established, they have to be periodically reviewed and updated, to be instructed to all staff and legislations should be available on site and periodic review should take place to assure maintenance of rules knowledge of a desired level. Rules' compliance should be evaluated on a periodic basis.

3.5. Control and occupational health and hygiene

Health control obviously includes a large number of medical aspects and medical checks prior to and during employment. Control of occupational health is often associated with the handling of chemicals. While they are an important part to consider, they are not all that should be taken into account when identifying exposures to health in the workplace. Employees need to be instructed about the hazards of the work and how problems can be prevented or controlled, including items as the proper handling of chemicals, but also include such "simple" things as proper lifting and bending.

3.6. Control of incoming materials

One of the most important ways to control environmental risks (including safety and health hazards) is through proper controls of incoming materials : no hazards should be introduced through purchasing and the entire process sequence should be considered, from the ordering, the receiving and the delivery to final users. Purchasing should include SHE requirements. For all chemicals used on site, data should be present in the form of « Material Safety Data Sheets (MSDS) » or other approved formats. Quantities of all supplied chemicals should be registered and the qualities should be systematically controlled upon delivery at the plant. All chemicals and hazardous products should be handled (unloading, loading, storage) in accordance with SHE regulations.

3.7. Control of plant emissions

The site should have a procedure in place and enforced to monitor and control the main industrial emissions of liquid effluents, solid wastes and volatile organic compounds. The standard applicable to the relevant industry (local and/or international) should be available on site and the site should establish annual objectives of all emissions and appoint in writing a team (or a person) to control and monitor its realisation.

3.8. Utilities management

Managing utilities (electricity, water, steam, compressed air…) includes monitoring and optimizing the consumptions in order not only to reduce the costs, but also to mitigate the environmental impacts. Clear procedures should be established to control the utilities consumption. These procedures should include the regular consumption monitoring, the use of good measurement means, the avoidance of unnecessary uses, the avoidance of leakages, the avoidance of underground piping, etc. It is critical to train the employees as required, to better use the equipment for efficient utilities consumption.

4. Key highlights and Major findings

4.1.Generalities

Overall, the majority of companies have a poor scoring performance. It is true that SMEs need user-friendly solutions to facilitate the implementation of environmental management system. Reporting of environmental data is still non-standardised and for the most part it is voluntary resulting in poor and inaccurate data. Contrary to developed countries, there are no accurate government data in developing countries.

There is a lack of national-level policy in encouraging the scope of environmental performance reporting, which varies widely between countries, sectors and companies. While governments are beginning to encourage more measurement and reporting, the commitment to these transparency measures remains weak. Over the 2 years of investigation, we realized that certain companies do not even have fire extinguishers (thus protecting their assets) nor a simple wastewater treatment facility.

There relation between sector, management committee, EMS and performance, varied widely within the sectors. The size of the company is not related to environmental performance. Some medium size operations have poor SHE performance while some small operations are performing well and vice-versa, despite expecting large companies to have greater internal capabilities and to be under more sustained regulatory pressure. Greater clearly does not always lead to better performance. The survey reveals that very few of SMEs are aware of an environmental or quality certification process. In most of the enterprises, ISO certification is seen a “luxury” for big facilities.

Monitoring industrial emissions is not done regularly by Authorities. This lack of “pressure” also encourages carelessness. From the sample checks made by the project team, it was found that very few companies comply with the legal standards.

4.2. Overall performance

SHE management performances are *not satisfactory* in 93% of the investigated companies. All sectors combined, 62% of the sites have a score inferior than 25%, 32% of the sites have their score in the range 25-50%. Only 7% of the sites have a performance between 50% and 75%, which is considered as satisfactory. *There is no site with a score in excess of 75%*.

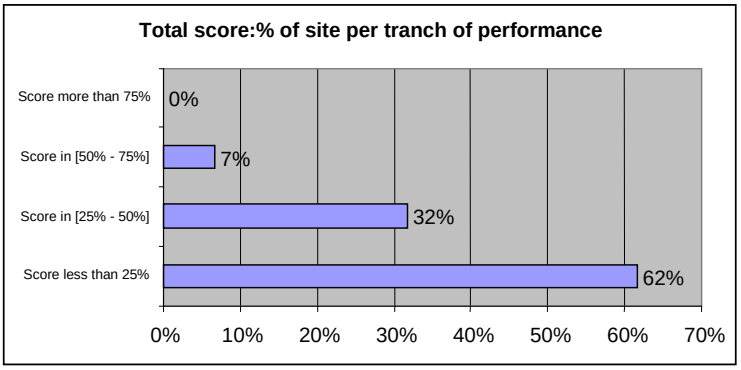

Figure 1: Total performance of the sites surveyed (% of the total points)

4.3. Industrial sector influences of performances

The study has established some links or relations between the industrial sectors of SME, and the overall environmental performances as illustrated by the following Figure 2.

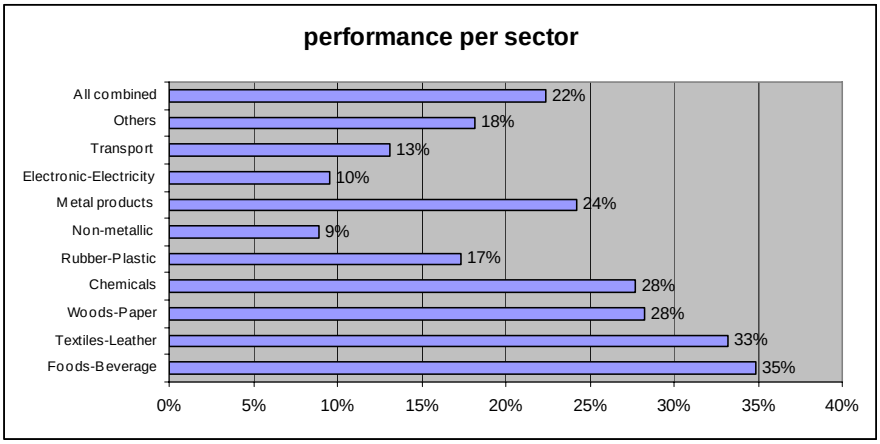

Figure 2: Performance achieved per industrial sector (% of the total points)

The level of involvement of the site management in developing and implementing a SHE management system as well as the overall environmental performance of SME vary according to the industrial sector. Its involvement affects the quality and the follow-up of the EMS. The site management support of SHE conditions their performance within a sector. The perception of high "pressure" of management yields in obtaining a particular effectiveness. The quality of the EMS conditions the total performance in the majority of the cases: sites having EMS correctly developed and applied, abstraction made of the management support, have reached acceptable performances.

4.4. Analysis per level of performance

For the 62% of the sites which have performances at level 1 (0-25%), it is critical that their management shows the goodwill to improve the performance. An analysis of the sites of this range of performance highlights the following.

For the 32% of the sites at level 2 (25%-50%), there are good bases for possible improvements. In almost all cases, few means (human and financial) would be necessary to reach the next stage. It is noted that the majority of the companies are from the "Food and beverage" sector followed by "Chemicals" sector. These 2 sectors include more than the half of the sites having level 2 performances. Moreover, the analysis of the intrinsic performances of these two sectors shows that, globally their respective performances are 35% and 28%. The sites belonging to "Metal products; metal working services" and "Chemicals" industries are also present in this segment of performance, valued at 24% and 28% respectively.
Many sectors ("Rubber and plastic", "Non-metallic mineral products", "Computer, electronic and office equipment" and "Transport") are quasi-absent of this segment.

The survey also revealed that 7% of the sites are at level 3, having acceptable performances. The great majority of these companies belong to "Food and beverages" sector (more than 56.3%) followed by "Textiles and leather" and "Chemicals". For sites having such performance, it is feasible to reach a stage of ISO 140001 certification. This should be the main objective at short or medium term timing. Last but not least none of the sites surveyed is at level 4, a performance above 75%.

4.5. Outcomes per activities surveyed

In addition to the overall performance and the relations established between some key aspects of the environmental management, it is useful to present the main trends observed in each activity surveyed, foundation of the whole exercise.

Figure 3 summarises the total performance achieved in each activity. Except for the activity "organisational rules" with a score of 54%, all the other scores are below 40%. For "organisational rules" the questionnaire was focused mainly on internal rules and regulations concerning safety and hygiene/health that are accessible and known to the workforce. Although this is compulsory in most of the countries, it was quite difficult to assess that those rules are well-known by workers. Scores were given mostly on the basis of the interviews and plant tours. Not least important is that the lack of legal SHE obligations applicable to the relevant activities is a common practice.

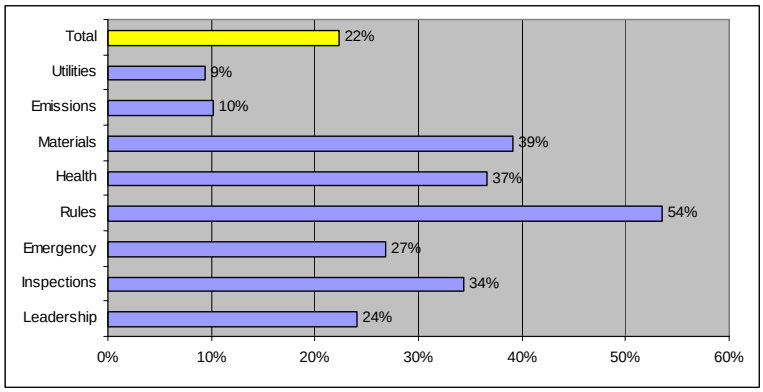

Figure 3: Total performance per activity (%)

4.6. Leadership and management

The first obstacle identified among the majority of sites investigated is the *lack of top management support* to SHE. Most managers understand neither the risks they face, nor the principles of prevention and loss. In addition, there is a misconception that good prevention is too expensive. It was claimed during the survey that the common problem throughout the small scale operations in West Africa is that just the normal day-to-day operations and problems take up virtually all the time of the managers. As result, there is “no time” for peaceful "thinking time" away from the factory floor, to put down in writing all the procedures. Some managers are quite aware that SHE aspects of the company's operation should all be written down, recorded and be formalised but it is one of these things that tends to get constantly pushed to the bottom of the huge pile of problems typically faced by SME trying to survive from one month to the next.

Another worrying point is the SHE coordinator. Typically, it could be understood that most of the SMI can not afford to employ someone just for SHE aspects of the operation; but appointing and training of a selected person (even if this person has other responsibilities) is not that difficult. The lack of SHE coordinator is quite representative of the long way to go in order to reach an acceptable level of good practices.

4.7. Planned inspections and maintenance

As result of the above situation, it is flagrant that the basis for doing the right things in the right way is totally missing. In the majority of cases the *rules* intended to guide the behaviour of people to prevent problems exist but there are no *clear performance standards* (supported by appropriate guidelines) for the selected specific activities; for example: how inspections should be done, how to investigate environment damage, etc. In many cases, there is no updated list of equipment that should be inspected yearly by regulation (such as pressure vessels) nor a planned inspection and maintenance. Those items are easy to implement, even with limited financial means and human resources.

4.8. Emergency preparedness

Overall, the emergency preparedness is more a matter of good will rather that other considerations. Only a few companies have an emergency preparedness. Basically what is required here is to prepare the facility for necessary actions in case of emergency. The minimum requirement is to appoint a coordinator to instruct the employee on what and how to do in case of emergencies. It is not understandable that Managers do not give enough attention to such important activity intended to protect their assets and staff.

4.9. Rules and legislations

The “*Rules and legislations*” performance is acceptable. The area to improve is the periodical review of the rules and ensuring that they are permanently known by staff. Such reviews could very well be a shared effort of supervision and operators. The list of all regulations and/or legal obligations applicable to the site has to be compiled and updated at least yearly.

4.10. Control of occupational heath and hygiene

Although there is a room of improvement, some good performances are observed in the health control. In most cases, all employees have health bulletin. Depending on the size,

the majority has first aid facility; few plants have a clinic on site. Another good point is that the majority of companies surveyed have a contractual medical consultant. The small size does not require in many cases, a full time medical doctor on site.

4.11. Control of incoming materials

The control of incoming materials is another source of worry, since virtually no companies have a proper management system for that important activity. The companies just blindly trust the suppliers and do not have any on-site control system for quantity, and quality as well. The absence of MSDS in almost the majority of site is unacceptable. It is important that SHE aspects are to be considered by Purchasing Department, including contractors. To do this, criteria or purchasing specifications should be set up for the purchasing function.

4.12. Control of plant emissions

In some case, there were no specific emissions. For example in small brick and tile making plant, the water discharge is limited. Nevertheless, where and when applicable, the results are far from acceptable. The survey has revealed that only 22% of companies have proper management system to control their emissions.

4.13. Utilities management

The utilities management is left behind in most of the companies. This is unacceptable, as the proper management of utilities leads also to financial saving.

5. Conclusions

The survey of SHE Practices (SHE) aimed to better understand what is going on in the SME in order to build the basis of developing well-founded and useful approach and methodology for SME in conducting SHE activities. The following conclusions emerge from the survey.

Although overall performances are poor, significant improvement can be achieved with a minimum of good will and *management support*,. Secondly, despite common financial difficulties of small businesses, the added expenses for *SHE prevention* are justified. Thirdly, it is necessary to prepare for necessary actions for treating SHE mishaps. In many cases, the treatment equipment was not adequate or was not functioning properly and *pollution abatement* installations are a rarity.

Despite the poor results, there are obviously many *possibilities of improvement*, with a little *goodwill* of the SMI managers. To reach a standard level of environmental management is a long process. And each company must develop and implement his environment management system according to its means and its structural constraints.