

Fostering Environmental Management System (EMS) among Small-Medium Enterprises (SMEs) through the Good Housekeeping

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Abstract

EMS is nowadays a must to be implemented to foster the vision of sustainable development so that the harmony and the existence between human being and its natural surroundings can be better assured. It is unfortunately a common sense that the SMEs in Indonesia have not yet comprehend EMS although EMS has to be put into practice in all companies, no matter how small their size are. It is unquestionable that implementing a sound EMS is not an easy task, in particular for the SMEs with all their limitations in know-how and funding sources that want to get ISO 14000 Certificate. One of the useful strategies that can be used by SMEs as the basis to achieve this is by executing a Good Housekeeping. This paper explores what can be done by SMEs as guidance in practicing Good Housekeeping.

1 Introduction: EMS in the World

In accordance to the vision of sustainable development, all companies, disregarding the size, be it multinational companies (MNC), or small and medium enterprises (SMEs), must conduct a sound environmental management. Although the environmental management concept was developed originally by and for large multinational enterprises, in line with the World Business Council for Sustainable Development (WBCSD) and the Commission of the European Community's "Think Small First" strategy, the environmental management concept, practices and instruments should be adapted to suit the specific situation of SMEs which make up the vast majority of world enterprises (in the USA, Europe and also in Asian). Because of their lower complexity and the strong role of the owner, SMEs often manage their societal impact in a more intuitive and informal way than large companies. In some cases, many SMEs are already implementing socially and environmentally responsible practices without being familiar with the EMS concept or communicating their activities.

These practices are often defined and understood as responsible entrepreneurship by SMEs. 50% of recently surveyed European SMEs indicate that they already carry out socially and environmentally responsible activities for the benefit of their external stakeholders.¹ Their

¹ In Indonesia, the economy is basically characterised by grass-root SMEs that make up nearly 99.95% of the total number of enterprises. There are 41 million small economic units in the overall economy (including the agricultural sector), 60,000 medium-sized enterprises and more than 2,000 large enterprises. As of 2000, small enterprises accounted for 89% of total employment and medium-sized enterprises accounted for 10.55%. Conversely, small enterprises only

community and social engagement could be characterised as being local in scope, occasional in nature, and unrelated to business strategy. The main driver would be the ethical consideration of the owner/manager, even though a significant number of SMEs also recognise business benefits such as improved relations with consumers and the local community. Furthermore, a positive correlation between SME's strategic focus and their socially responsible activities can be established: SMEs focusing on innovation, quality and growth also score higher on current or future social engagement. Lack of awareness seems to be the most significant obstacle to social engagement, especially among the smallest SMEs, followed by resource constraints. Small business associations, support organizations and networks have an important role to play in raising awareness through the provision of information, user-friendly tools and the dissemination of good practices cases.

2 Environmental Management System (EMS)

2.1 Defining an EMS

An EMS is a comprehensive approach to managing environmental issues, integrating environment-oriented thinking into every aspect of business management. An EMS ensures environmental considerations are a priority, along with other concerns such as costs, product quality, investments, PR productivity and strategic planning.

An EMS generally makes a positive impact on a company's bottom line. It increases efficiency and focuses on customer needs and market place conditions, improving both the company's financial and environmental performance.

2.2 Business Benefits of an EMS

An EMS is an important component of a company's strategy for market place success. Environmental issues and sustainable development are capturing the world's attention more than ever, and industry is often seen as a major source of environmental problems.

An EMS addresses such concerns and leads to significant environmental improvements. In addition, an EMS can improve product quality, competitiveness, and production processes; reduce expenses, liabilities, insurance premiums and waste management costs; and enhance market responsiveness. An EMS also creates a more attractive company from an employment and investment perspective.

An EMS can favorably benefit key areas for a business, including:

- **Trade Customers and Consumers** are becoming more environmentally conscious, and are selecting products that do not harm the environment. Major customers have started requiring suppliers to adopt an EMS. Customer trust is enhanced by commitment to demonstrable environmental management. Globalization has expanded markets and an EMS helps meet international consumer demand.

Consumer pressure has been shown to be an increasingly influential force demanding particular environmental standards for products.

- **Employees**, whose skills, morale and management effectiveness are enhanced by an EMS. An EMS also improves employee retention and efficiency, and can create a safer and healthier workplace. In addition, an EMS can help build employee awareness about the production process by encouraging employee involvement in identifying problem areas.
- **Investors**, whose criteria may demand strong environmental practices, thus facilitating access to capital. An EMS can also improve relationships with investment bankers, lenders, and stocks and bonds brokers.
- **Trade**, particularly the export as well as internal market advantage can benefit by a company adopting an EMS whereby many countries and economic trading blocks have introduced 'ecolabelling' schemes.
- **Local Community**. An EMS helps maintain good community relations and enhance public image, as well as fostering development through the sharing of environmental solutions. Organizations with an EMS are better able to understand the communities in which they operate. Healthier communities result from reduced exposure to hazardous wastes and chemical materials, which may be called for by an EMS. A company's networks and reputation are also strengthened by an EMS. Improved relations with local and national NGOs will also result.
- **Government**. Implementation of an EMS may help companies obtain permits and authorizations. Industry-government relations may be improved among companies with an EMS. An EMS also helps demonstrate compliance with environmental legislation. Legal and administrative costs are reduced by an EMS. An EMS can also reduce legal liability and risk of prosecution.
- **Sales and Marketing**. Companies may increase their market share by minimizing the environmental impact of their operations through better product designs and cleaner production. An EMS can serve as a valuable marketing and promotion tool, and can improve a company's competitive advantage. Companies without sound environmental practices may not be able to take advantage of new commercial opportunities, while companies with an EMS are more competitive in the global marketplace.
- **Productivity**. An EMS can reduce operation costs by using less raw materials and conserving energy. It can also reduce the costs of doing business and increase profits, since greater efficiency means using less materials, time and energy. Efficiency, environmental and business performance, and compliance with mandatory standards can also be improved by implementing an EMS.
- **Insurance**. By using an EMS, a company may be able to obtain insurance at lower cost. Companies that implement an EMS can reduce incidents that result in liability, while companies lacking sound environmental practices may be exposed to financial and environmental risk.
- **Waste Disposal**. By implementing an EMS, companies can improve pollution prevention. An EMS can minimize waste, thus lowering operating costs, as well as

eliminating waste transportation, storage and disposal costs. Costs for compliance with waste disposal regulations may also be reduced with an EMS. Additional revenues from recovery and sale of reusable wastes may be obtained by using an EMS.

2.3 Top Commitment to Implement an EMS

After the description of the benefits of EMS, the next question arises; how can a firm create an EMS and how can it implement it in an effective way?

The first step is building awareness among both management and employees, helping them re-orient their thinking about the environment to better understand its relevance and impact on the company, regardless of company size, its products or services. Here, the crucial part is defining the environmental task group. The responsibilities of the environmental task group include identifying ways for the company to improve its environmental performance, setting objectives and targets and monitoring and evaluating implementation.

The company's top management is responsible for selecting the environmental task group, which will implement the EMS. It is crucial to obtain the full commitment of top management before starting the process. It is also important to obtain employee support and share environmental values that will transform the EMS from paperwork into an effective process.

The company should explore its in-house expertise in forming the task group, as the following table suggests.

Position	Function/Task
Top Management	<ul style="list-style-type: none"> ▪ Communicate importance of EMS throughout organisation ▪ Provide necessary resources ▪ Review EMS performance
Middle Management	<ul style="list-style-type: none"> ▪ Support training for new employees
Human Resources	<ul style="list-style-type: none"> ▪ Define competency requirements and job descriptions for various EMS roles ▪ Integrate environmental management into reward, discipline and appraisal systems ▪ Organise environmental training with environmental task group
Maintenance	<ul style="list-style-type: none"> ▪ Implement preventive maintenance program for equipment
Marketing	<ul style="list-style-type: none"> ▪ Assess market/customer response and demands
Finance	<ul style="list-style-type: none"> ▪ Track data on environmental management costs ▪ Prepare budget for environmental management program ▪ Evaluate economic feasibility of projects
Engineering	<ul style="list-style-type: none"> ▪ Consider environmental impact of new or modified products and processes/manufacturing/equipment ▪ Identify pollution prevention opportunities, excessive use of raw material

Purchasing

- Monitor material purchases
 - Acquisition of hazardous material and disposal of waste
-

The number of people involved will depend on the size of the company and resources available. It is worthwhile involving staff from different departments in the planning and implementation process/task group, since a multidisciplinary approach often proves most successful.

The second step is for companies to become more proactive toward environmental issues. Once an organization develops a new environmental culture, it will constantly look for new suitable solutions to improve its operations.

In other words, two key steps which need to be implemented at the start of EMS process:

- Obtain the support of top management. Senior managers must be committed to and actively involved in the EMS process from the beginning.
- Involve all employees in the EMS. Promote the idea that environmental matters are a joint task requiring the participation of the entire company. When the EMS is ready, announce the program throughout the organization and encourage all staff to participate.

Some people in the organization may view an EMS as a bureaucratic initiative or as extra work in addition to their existing responsibilities. There may be resistance to change or uncertainty of new responsibilities. To overcome these potential obstacles, help needs to be given to employees to understand why the organization needs an effective EMS and how the EMS will help control environmental impacts in a cost-effective manner. Involving staff in the design and implementation of the EMS will demonstrate the organization's commitment to the environment and help to ensure that the EMS is realistic, practical and adds value.

Since SMEs do not draw value from their engagement in the same way as a large company, it is important to assist SMEs in adopting a more strategic approach. Collecting evidence on the business case for different types of SMEs operating in diverse cultural backgrounds is the key to a better understanding and increased SME participation. In the future, the most significant pressure on SMEs to adopt CSR practices is likely to come from their large business customers, which in return could help SMEs cope with these challenges through the provision of training, mentoring schemes and other initiatives.

To facilitate the wider adoption of responsible entrepreneurship practices by SMEs, there is a need to raise further awareness about their economic benefits and to promote them as a risk management tool, as well as to:

- work towards a better understanding of SMEs' current social and environmental engagement, including research into SME-specific aspects of CSR and the business case;

- foster the exchange and dissemination of good practices cases identified with the help of Member State and candidate countries experts, SME representative organisations, business support organisations and consumer organisations (e.g. through publications, on-line collection of good practices etc.);
- facilitate the development and dissemination of user-friendly, tailor-made tools for those SMEs that wish to engage in or further develop socially responsible actions on a voluntary basis (information material, SME-toolkit, etc.);
- bring the attention of SME associations and business support organisations to CSR issues with a view to their integration into support provision for responsible entrepreneurship initiatives in SMEs;
- facilitate co-operation between large companies and SMEs to manage their social and environmental responsibility (e.g. supply chain management, mentoring schemes etc.), in accordance with national and EU competition rules;
- raise awareness among SMEs with regard to the impact of their activities on developing countries, and promote SMEs proactive policies, in particular in the fields of core labour standards, eradication of child-labour, gender equality, education, training, health-care assistance and insurance.

3 EMS through Good Housekeeping for SMEs

Some say that EMS with ISO 14001 is merely for medium and big enterprises. In reality it is not absolutely false. Nowadays SMEs are encouraged to prepare themselves toward it and can make use of the Good Housekeeping technique as a bridge to conduct a sound EMS later on.

3.1 Concept of Good Housekeeping

What is Good Housekeeping?

Good Housekeeping is more than just sweeping the floor; it includes other factors such as orderliness and the proper arrangement of materials. Efficient production and a good working environment are complementary. But the elimination of inefficiencies and accident hazards caused by unfavourable conditions in and about the workplace is essential in getting the job done properly and safely.

Good Housekeeping techniques include awareness programs which focus on keeping processes, equipment, workplaces and work forces organized, neat, clean, standardized and disciplined. Other good housekeeping techniques relate to measures that prevent the loss of materials, minimize waste, conserve and save energy, and improve operational and organizational procedures. Good housekeeping involves every phase of industrial operations and should apply throughout the entire premises, indoors and out. It is more than mere cleanliness. It requires orderly conditions, the avoidance of congestion, and attention to such details as an orderly layout of the whole workplace, the marking of aisles, adequate storage arrangements, and suitable provision for cleaning and maintenance.

Good Housekeeping' refers to a number of practical measures based on common sense that enterprises can undertake to improve their productivity, obtain cost savings, and reduce the environmental impact of their operations.

Good Housekeeping practices relate to voluntary actions, aimed at:

- Rationalising the use of raw materials, water, and energy inputs
- Reducing the volume and/or toxicity of waste, waste water, and emissions
- related to production
- Reusing and/or recycling a maximum of primary inputs & packaging materials
- Improving working conditions and occupational safety in the company.

Why Good Housekeeping Matters?

A clean, well-ordered, attractive work environment sets the tone of your establishment. It encourages tidy work habits in employees. It helps reduce fatigue. It promotes good worker-management relations. It also gives a lift to morale, which is reflected in the quality of production and overall efficiency.

Good Housekeeping is also a good advertisement for the SMEs. In particular for SMEs who are international market-oriented. International (European) customers and clients will have more confidence in an SME where the works are carried out efficiently in clean, pleasant, well ordered surroundings. There's an even more important reason why good housekeeping matters -- it makes the undertaking a safer place to work in.

Stop Accidents through Good Housekeeping

As mentioned before, Good Housekeeping is a vital factor in preventing accidents. The great majority of all work accidents are caused during the handling of goods or materials, and by people falling, being hit by falling objects, or striking against objects in the workplace. All these causes can be reduced by good housekeeping practices -- in fact, good housekeeping is the only cure for hundreds of accidents that occur.

Here are some kinds of accidents commonly caused by bad housekeeping:

- Tripping over loose objects on floors, stairs and platforms.
- Articles dropping from above.
- Slipping on greasy, wet or dirty surfaces.
- Striking against projecting, poorly stacked, or misplaced material.
- Tearing the hands or other parts of the body on projecting nails, wire, steel strapping on bales or crates, etc.

Typical examples of poor housekeeping that lead to these accidents are:

- Excessive material, waste or chips in the working area.
- Congested aisles.
- Tools left on machines.
- Waste containers overflowing.
- Lockers and workrooms in disorder.
- Acids in open containers.

- Broken glass.
- Electric leads or air lines across aisles.
- Dirty light fittings, windows and skylights.

Good Housekeeping practices can provide a real economic asset and advantage for a company in terms of minimising waste, as well as the use of raw materials and energy. Minimising waste can enable enterprises to reduce the loss of valuable material inputs and therefore reduce operational costs.

Where housekeeping is bad, fire is a constant hazard. It can be caused by many housekeeping problems -- such as oil-soaked rags and clothing igniting from spontaneous combustion; dust collectors not being properly or frequently cleaned; or piles of paper and other packing materials being allowed to accumulate. Poor housekeeping can also lead to infestation by pests such as rodents and cockroaches and create serious health risks.



Furthermore, by adopting Good Housekeeping practices, companies can reduce the amount of pollution created in the community, thereby improving the image of the SME and its products with customers, suppliers, neighbours, and regulatory authorities. In this respect, much can be accomplished at a low cost and in ways that are easy for SMEs to implement.

3.2 Essential Factors to Implement ‘Good Housekeeping’?

There are four essential factors for a company to execute proper Good Housekeeping:

3.2.1 *Organisational Culture*

In the first instance, reducing waste is related to changing behaviour and creating a culture of productivity and waste minimisation among personnel at all levels of the company.

3.2.2 *Problem - Awareness*

In this regard, it is important for companies to draw the attention of their employees to the problem and identify opportunities for them to take action.

3.2.3 *Information Dissemination*

This process can be enhanced by ensuring that there is good dissemination of relevant information internally, and that effective ‘Good Housekeeping’ procedures are developed, followed, and integrated into the daily operations of the company.

3.2.4 Simple Actions

The adoption of 'Good Housekeeping' practices does not require major investments in cleaner technologies, which may be very costly, especially for an SME. The aim is to continuously improve the production process through a more rational use of resources and by optimising production processes.

Elements of a Good Housekeeping Campaign

The following are the basic elements of a good housekeeping campaign that need attention:

Aisles	-- Wide enough for traffic movements, marked off by floor lines from work positions and storage areas.
Space	-- Sufficient room for the individual to work.
Storage	-- Adequate and convenient space for materials and tools.
Materials Handling	-- Layout planned for materials flow, with efficient methods and equipment.
Ventilation	-- Good general ventilation plus local exhaust ventilation to remove air contaminants at the source.
Floors and Walls	-- Of construction and materials that are easy to keep clean and in good repair.
Lighting	-- Well-distributed artificial light and effective use of available daylight.
Amenities	-- Clean, up-to-date washrooms and lockers for clothing. A clean, inviting lunch room for employees to eat their meals.
Waste Removal	-- Adequate facilities to prevent congestion and disorder. Let us look at some of these elements in detail.

KEEP AISLES CLEAR:

Aisle space should be reserved for the movement of personnel, products and materials. It should be kept clean and clear and should never be used for "bottleneck" or "overflow" storage. This also applies to passageways and emergency exits. Blind corners should be eliminated or be adequately protected by warning signs. Aisle boundary markings should be drawn to show clearly the space which has been reserved for traffic. Markings should be sufficiently wide (say a minimum of 30 mm) and of a color to make them clearly visible. Paint or durable plastic strips can be used.

IMPROVE STORAGE FACILITIES:

Tidiness and order are essential in overcoming storage problems, both in storerooms and in the yard. Good storage utilises air space instead of floor space, and also saves time-wasting delays. It's important to prevent stores and scraps accumulating on the floor and around machines. Never keep more stores and materials than necessary near machines and provide proper facilities (such as bins, shelves, boxes, racks, etc.) in which to store them.

KEEP FLOORS CLEAN:

Every year thousands of work injuries are caused by people falling. Floor conditions are responsible for many of these accidents. When floors are given the right treatment they are

much easier to keep clean and hygienic. Spilt oil and other liquids should be cleaned up at once. Chips, shavings, dust, and similar wastes should never be allowed to accumulate. They should be removed frequently, or better still, be suitably trapped before they reach the floor.



PAINT THE WALLS:

Paint is one of the cheapest means of renovating walls, and a fresh coat of paint can give a boost to morale. Light-coloured walls reflect light. Dirty or dark-coloured walls absorb light. Dirty walls have a depressing effect and encourage dirty habits and sloppy attitudes. Choose suitable colours to paint walls, ceilings and working surfaces. See that the paintwork is cleaned down periodically. Colour can be harnessed to assist with safety. For example it can be used to warn of physical hazards and to mark obstructions such as pillars. Painting handrails, machine guards and other safety equipment renders them distinctive and also prevents rust. Colour can be used to highlight the hazardous parts of machinery but it can never substitute for a needed guard.

MAINTAIN THE LIGHT FITTINGS:

Attention to light fittings should be an integral part of any good housekeeping programme. Dirty lamps and shades, and lamps whose output has deteriorated with use, deprive employees of essential light. It's been found that lighting efficiency may be improved by 20 to 30 percent simply by cleaning the lamps and reflectors.

CLEAN THE WINDOWS:

Clean windows let in light; dirty ones keep it out. Insufficient light causes eye strain and leads to accidents because employees are unable to see properly. Ensure that windows are not blocked by stacked materials, equipment or articles on the ledges.



DISPOSE OF SCRAP AND PREVENT SPILLAGE:

It's a common practice to let the floor catch all the waste and then spend time and energy cleaning it up. It is obviously better to provide convenient containers for scrap and waste and educate employees to use them. Safety will benefit, expense will be saved, and the factory will be a better place in which to work. Oily floors are a common accident and fire hazard. Splash guards and drip pans should be installed wherever oil spills or drips may occur. Prevent accidents by keeping oil and grease off the floor.

GET RID OF DUST AND DIRT:

In some jobs, dust, dirt, chips, etc., are unavoidable. If they can't be collected as part of the process (e.g. by enclosure and exhaust methods) you need a way to clean them up. Vacuum cleaners are suitable for removing light dust and dirt. Industrial models have special fittings for cleaning walls, ceilings, ledges, machinery, and other hard-to-reach places where dust and dirt collect. If light dust is removed by sweeping, floors should be dampened first rather than swept dry. Oiling floors occasionally with a light oil helps to lay the dust but take care that slipping hazards do not occur. Remember, it is not only floors that need sweeping. Dust and grime also collect on ledges, shelves, piping, conduits, lamps, reflectors, windows, cupboards, lockers, and so on—and all these places need attention.

MAINTAIN A HIGH STANDARD IN MEAL ROOMS, REST ROOMS, ETC:

No housekeeping programme should ignore the facilities provided for meals, rest and sanitation, where cleanliness is essential for walls, floors, and fixtures. A light-coloured paint can work wonders in these places and set a standard to which employees will try to conform. Soap and towels should be renewed regularly and wash basins properly cleaned.

KEEP TOOLS TIDY:

Tool housekeeping is very important, whether in the tool room, on the rack, out in the yard, or on the bench. Suitable fixtures for tools are required to provide orderly arrangement, both in the tool room and near the work bench, and a regular system of inspecting, cleaning, and repairing is an essential part of any programme.



LOOK AFTER YOUR FIRST AID GEAR:

First aid facilities and equipment should be kept under spotlessly clean conditions and fully stocked so that they are always ready in the event of accidents or illness.

INSPECT FIRE-CONTROL EQUIPMENT:

It is essential to ensure that all fire-fighting equipment such as extinguishers and firehoses is regularly inspected and kept in good working order. Fire protection facilities — fire doors and exits, automatic alarms, etc.— should be in good working order. Doors and exits should always be kept clear of obstructions.



ATTEND REGULARLY TO MAINTENANCE:

Perhaps the most important element of good housekeeping is the attention paid to maintenance of buildings and equipment. If something gets broken or damaged it should be replaced or fixed as quickly as possible (e.g., defective ladders, broken handrails, steps, etc.). Apart from the possibility of causing accidents, a workplace can take on a very neglected appearance if broken windows, damaged doors, defective plumbing, leaking gutters, broken floor surfaces and the like are allowed to remain in that condition. Employees may take the hint in a neglectful attitude to their jobs. A good maintenance programme will make provision for the inspection, lubrication, upkeep and repair of tools, equipment, machines and processes.

ASSIGN RESPONSIBILITY FOR CLEANING:

Where practicable, the cleaning of the workplace should be the responsibility of a special cleaning staff and not an additional job for employees engaged in production. Where this is not possible, adequate time during working hours should be allowed for cleaning up to be done. Responsibility should be clearly assigned as to who is to do the cleaning and what area is to be cleaned. If this is not done, out-of-the way places such as shelves, yards, small buildings, sheds, cellars, basements, and boiler rooms are overlooked until they get into a deplorable state.

PREPARE A CHECK LIST:

A sound method to ensure that housekeeping is done is for management to prepare a check list to suit the requirements of the workplace. The following can serve as a guide for nearly all industries.

3.3 Integrating ‘Good Housekeeping’ into Daily Business Practices at SMEs

Building upon Good Housekeeping, companies can then move towards eco-efficiency and become even more sustainable and profitable. Eco-efficiency means taking into account the following 7 key dimensions:

1. Reducing the material intensity of goods & services
2. Reducing the energy intensity of goods & services
3. Reducing toxic emissions
4. Enhancing the recyclability of materials used
5. Maximising the sustainable use of natural resources
6. Extending product durability
7. Increasing the service intensity of goods & services

This is a process that companies should expect to engage in through subsequent steps, beginning with improvements.

Following are the checklists that will ease SMEs in practicing Good Housekeeping which are separated in 5 categories: raw material input, waste, product, water, and energy.

A. Reduce the Loss & Use of Raw Material Inputs & Supplies

Action to be taken	Individual Responsible	Priority & Timing for Action	Savings Achieved
Repair leakages in pipes and equipment <ul style="list-style-type: none"> ▪ <i>make a visual assessment within each department in order to identify problem areas</i> ▪ <i>undertake repairs using appropriate materials</i> ▪ <i>monitor to ensure leakages have been eliminated</i> 			
Prevent accidental spillage <ul style="list-style-type: none"> ▪ <i>take extra care when removing materials from storage containers for use in production</i> 			
Establish a preventive maintenance programme for equipment <ul style="list-style-type: none"> ▪ <i>prevent unexpected interruptions in production</i> ▪ <i>determine intervals & responsibilities for regular checks</i> 			
Keep the maintenance manuals provided by equipment suppliers in a convenient place <ul style="list-style-type: none"> ▪ <i>follow the recommendations given in the maintenance manuals</i> ▪ <i>undertake the necessary training of personnels</i> 			
Keep up-to-date records on equipment			

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- *make note of the location of equipment, their characteristics, and maintenance schedule*
 - *regularly check the compliance with maintenance schedule*
-

Optimise production planning

- *dedicate equipment to producing one product*
 - *maximise the number of same products manufactured; eg. work 1 day or 1 week on one process, one production line*
-

Evaluate waste volumes and products that do not meet specifications

- *identify quality problems*
 - *take corrective actions*
-

B. Reduce, Reuse, Recycle, and Dispose of Waste in an Environmentally Sound Manner

Action to be taken	Individual Responsible	Priority & Timing for Action	Savings Achieved
<p>Examine the major sources of wastes</p> <ul style="list-style-type: none"> ▪ <i>identify the places where these sources occur throughout the production process</i> 			
<p>Check the possibility to substitute toxic materials & substances by non-toxic materials</p>			
<p>Sort wastes according to their nature and toxicity, for reuse, recycling, etc.</p> <ul style="list-style-type: none"> ▪ <i>separate dangerous waste from other wastes in order to avoid contamination of other wastes</i> ▪ <i>separate liquid waste from solid waste, etc.</i> 			
<p>Place different groups of waste into different containers</p> <ul style="list-style-type: none"> ▪ <i>provide designated containers for each waste group</i> ▪ <i>instruct employees to use the different containers for collecting & storing different wastes</i> ▪ <i>check implementation regularly</i> 			
<p>Reuse / recycle different wastes</p> <ul style="list-style-type: none"> ▪ <i>identify possibilities for reusing & recycling the different wastes</i> ▪ <i>dispose of non-reusable & non-recyclable waste using appropriate methods that comply with existing regulations</i> 			
<p>Reuse / recycle materials and substances</p> <ul style="list-style-type: none"> ▪ <i>identify possibilities for reusing materials in different phases of the production</i> 			

<p><i>process</i></p> <ul style="list-style-type: none"> ▪ <i>identify possibilities for selling materials for reuse in other enterprises or production processes</i> ▪ <i>dispose of non-reusable & non-recyclable waste using appropriate methods</i>
<p>Separate the different flows of liquid waste</p> <ul style="list-style-type: none"> ▪ <i>avoid mixing together the different flows of liquid waste</i>
<p>Reuse / recycle waste water</p> <ul style="list-style-type: none"> ▪ <i>study possibilities to reuse / recycle waste water</i> ▪ <i>verify that the reuse of waste water does not harm the quality of the product</i>
<p>Separate solvents used in production processes</p> <ul style="list-style-type: none"> ▪ <i>regenerate solvents to recover valuable material for reuse in production processes</i>
<p>Reuse packaging material</p> <ul style="list-style-type: none"> ▪ <i>identify possibilities to reduce packaging material</i> ▪ <i>identify possibilities to reuse packaging material</i> ▪ <i>check possibilities for introducing a deposit system to facilitate the retrieval of packaging</i>

C. Effectively Handle, Stock, and Transfer Materials & Products

Action to be taken	Individual Responsible	Priority & Timing for Action	Savings Achieved
<p>Respect the stocking conditions recommended by the suppliers of raw materials</p> <ul style="list-style-type: none"> ▪ <i>establish stocking policies according to instructions provided by suppliers or as listed on packages, especially for toxic products</i> ▪ <i>keep security records close to where material is stocked and near the working area</i> 			
<p>Stock dangerous products in a designated and secure area</p> <ul style="list-style-type: none"> ▪ <i>in order to reduce the risk of accident</i> ▪ <i>in order to reduce the need to pay supplementary insurance costs</i> ▪ <i>train personnel to avoid accidents</i> 			
<p>Stock raw materials in compatible groups</p>			

Keep the stocking zone clean

- *visually inspect the area periodically in order to detect contamination*
 - *use stocking methodologies & devices that avoid damage during storage*
-

Verify the expiration dates for raw materials

- *do regular checks and keep records*
 - *apply the 'first-in first-out' principle (FIFO) for managing stocks of raw materials*
-

Keep stocks at levels based on actual needs

- *avoid excessive buying of raw materials*
 - *minimise loss and waste of inputs (e.g. from leaving containers open)*
-

Take appropriate safety measures in moving, transferring, and utilising dangerous products

- *wear appropriate protective clothing*
 - *use appropriate equipment*
 - *provide personnel with required training*
-

Replace dangerous products with alternatives

D. Conserve, Reuse, and Reduce Water Flows

Action to be taken	Individual Responsible	Priority & Timing for Action	Savings Achieved
Eliminate water leakages <ul style="list-style-type: none">▪ <i>replace poor seals on pipes</i>▪ <i>examine water pipes for holes and make needed repairs</i>▪ <i>monitor water tanks in production processes and prevent spillage</i>▪ <i>close running taps</i>▪ <i>install meters in areas where large amounts of water are being used</i>▪ <i>install inexpensive water-saving devices, where appropriate</i>			
Stop using sources of water that are not absolutely needed <ul style="list-style-type: none">▪ <i>remove water taps that are not being used</i>▪ <i>seal certain taps to avoid unnecessary use</i>▪ <i>install inexpensive water-saving devices, where appropriate</i>			
Regulate water pumps and pipes <ul style="list-style-type: none">▪ <i>match flow to specific production needs</i>			
Cut unnecessary flows of industrial water outside the functioning hours of the company			
Reuse rinse water <ul style="list-style-type: none">▪ <i>determine the quantities, qualities, and</i>			

<ul style="list-style-type: none"> ▪ <i>verify that the reuse of such water does not harm the quality of the end product</i>
<p>Avoid continuous rinsing with water</p> <ul style="list-style-type: none"> ▪ <i>install valves on equipment to reduce water flow</i> ▪ <i>check possibility of rinsing in still baths</i>
<p>Equip departments having high water consumption and/or savings potential with water measurement instruments</p> <ul style="list-style-type: none"> ▪ <i>verify the efficient utilisation of water, especially in high water-using processes /departments</i> ▪ <i>install inexpensive water-saving devices, where appropriate</i>

E. Conserve, Reuse, and Reduce Energy

Action to be taken	Individual Responsible	Priority & Timing for Action	Savings Achieved
<p>Maintain good insulation of hot pipes</p> <ul style="list-style-type: none"> ▪ <i>periodically check the state of insulation to avoid heat losses and repair when needed</i> 			
<p>Maintain good insulation of cold water pipes</p> <ul style="list-style-type: none"> ▪ <i>ensure cooling and air conditioning systems do not heat up unnecessarily</i> 			
<p>Maintain compressed air pressure pipes</p> <ul style="list-style-type: none"> ▪ <i>avoid the loss of pressure</i> ▪ <i>periodically check for leakages and repair when needed</i> 			
<p>Maintain energy-using equipment (e.g. heaters, boilers)</p> <ul style="list-style-type: none"> ▪ <i>optimise combustion efficiency through regular maintenance</i> ▪ <i>avoid unnecessary cold / heat losses from open doors, exhausts, etc.</i> 			
<p>Use air conditioning systems efficiently</p> <ul style="list-style-type: none"> ▪ <i>check whether air conditioning can be avoided</i> ▪ <i>ensure there is a good insulation of air conditioned rooms</i> ▪ <i>switch off air conditioning systems when not needed (e.g. at night)</i> ▪ <i>regularly adjust the air conditioning to an adequate temperature level</i> 			
<p>Recuperate/reuse energy in production process</p> <ul style="list-style-type: none"> ▪ <i>install a heat exchanger if temperatures differ more than 50°C</i> 			

-
- *clean heat-exchanging surfaces regularly to ensure the best possible transfer of heat*
-

Regulate the energy input according to the needed energy level

- *for example, if an energy input of 50°C is needed, do not provide an input of 70°C*
-

Use a temperature thermostat in processes that involve water (e.g. in rinse baths)

- *ensure the temperature does not become too hot or too cold, requiring further energy to moderate*
-

Control the dimensioning of electric compensation equipment at source

- *install a condensation battery at the transfer level*
-

Check where alternative or renewable energy sources could be used and substitute these for non-renewable energy inputs

3.4 The Good Housekeeping Checklist

The followings is the checklist that can be used by SME to conduct a good housekeeping programme.

BUILDINGS

- (1) Walls clean.
- (2) Windows clean.
- (3) Walls free of unnecessary hangings.
- (4) Proper light provided.
- (5) Platforms in good condition.
- (6) Stairs clean and well lit. Handrails and steps of sound construction and well maintained.

FLOORS

- (1) Good floor surface.
- (2) Kept clean and free of loose material. Clean in corners, behind radiators, along walls, and around pillars or columns.
- (3) Free of oil, grease, etc.
- (4) Operating floors, or work positions free of loose scrap, metal or other materials.
- (5) Free of unnecessary articles.
- (6) Bins provided for refuse.

AISLES

- (1) Free of obstructions.
- (2) Safe and free passage to fire-fighting equipment and fire exits.
- (3) Safe and free access to work positions.
- (4) Clearly defined.

MACHINERY AND EQUIPMENT

- (1) Clean and free of unnecessary material.
- (2) Free of unnecessary dripping of oil or grease.
- (3) Area around machines clean and free of rags, paper, etc.
- (4) Lockers and cupboards clean and free of unnecessary material both on top and inside.
- (5) Benches and seats clean and in good condition.
- (6) Drinking fountains clean.
- (7) Toilet facilities clean and well ventilated.
- (8) Proper guards provided and in good condition.
- (9) First-aid facilities and equipment fully stocked and in clean condition.

STOCK AND MATERIAL

- (1) Properly piled and arranged
- (2) Kept in storage areas.

TOOLS

- (1) Properly arranged in place.
- (2) Free of oil and grease.
- (3) Inspected and maintained in good order.
- (4) Tool rooms and racks in clean and orderly condition.

GROUNDS

- (1) Yard and building surrounds free of refuse such as fruit peelings, scrap, wood, Iron, etc.
- (2) Grounds kept free of weeds and overgrown vegetation.
- (3) Wastes and refuse removed frequently.

4 Conclusion

The adoption of 'Good Housekeeping' practices can considerably enhance the competitiveness of small and medium-sized enterprises by reducing the costs of production, thus protecting the financial resources of a company. At the same time, measures related to saving energy, water, and raw materials can help decrease the pressure on a country's natural capital, by reducing an individual company's resource use.

Many companies have already noticed that they can achieve significant reductions in wastes and costs by paying attention to production procedures and quality management, as well as environmental issues.

The use of the Checklists and suggested measures are intended to enable SMEs to establish a first basis for taking a step-by-step, more systematic approach to improving the economic efficiency and ecological sustainability of their enterprises. Applying Good Housekeeping practices allows companies to start with easy-to-implement actions related to improving environmental management procedures (EMS).

As a summary, a **Good Housekeeping Checklist** is very useful tool for SMEs to be able to implement EMS which is covering 5 areas:

1. Reducing the Loss/Use of Raw Materials & Supplies

- preventing unnecessary waste
- undertaking preventive maintenance
- establishing plans & effective procedures in case of emergency

2. Managing Waste Responsibly

- separating wastes into different categories
- reusing / recycling wastes as primary materials
- disposing of waste in an economically efficient and environmentally sound manner

3. Effectively Handling and Transferring Materials & Products

- ensuring proper handling and stocking
- undertaking effective inventory control
- planning & optimising production
- keeping good records

4. Saving Water

- preventing leakage / spillage
- reusing water
- monitoring water usage

5. Saving Energy

- providing for proper insulation
- monitoring energy use
- recuperating and reusing energy

Practicing good housekeeping eliminates accidents and fire hazards, saves energy, improves space management, minimizes material inventories, helps control property damage, encourages better working habits and reduces the number of janitorial clean-ups. Cutting the number of accidents attributable to poor housekeeping practices is good business. Employees who are properly trained in good housekeeping will create a more comfortable and productive work environment. This series of outlines summarise all of this plus corporate legal obligations and highlights additional benefits workers enjoy.

A Good Housekeeping programme can start only when management accepts responsibility for it. Management must plan it in the first place and then make sure it consistently enforces the measures decided upon.

Good housekeeping helps to create:

- Better working conditions
- Safer workplaces
- Greater efficiency.

It is not an unprofitable sideline. It is part of a good business. An important statistic to consider according to the United Nation Environment Programme is that **50 % of waste** can be reduced by adopting ‘Good Housekeeping’ practices and making small operational changes!

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