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### IMPLEMENTATION OF 5S SYSTEM IN THE SMALL & MEDIUM SCALE INDUSTRY

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#### Abstract

5S is the housekeeping system which focuses on shoring, arranging, cleaning the material and workspace, standardising the process in the best practice way and sustaining to focussing to continual improvement. 5S is very simple Kaizen technique which will evolve the organization to next level. Implementation of this system will allow organization to manage the work space properly. It reduces the defects and errors in the process. Cost management will allow organization to solve the capital issues. Involvement of employees with proper training and rewarding will boost and increase the self-confidence of the employees. Systematic way of implantation the 5S system is given stepwise in this article.

#### Introduction

In these days, every organization in the world is looking for business increase in the form of profit. Due to tremendous competition in the market, making margin in the product is every difficult considering increase in the risen market and customer requirement. For making profit from the product, with reduction of waste generated during manufacture of the product is very essential (Wazed M.A, 2009). Managing waste generated, reducing error or defects in the product, utilizing existing man power and making employees more productive is very essential for organization sustainability and growth. The goal can be achieved only by implementing the tools which can manage the existing work environment properly. 5S is the concept of managing work environment. World class environment can be built only by implementing the system in the organization. Organization have various department like QA, QC, manufacturing, raw material storage area, were house, engineering area, finish goods, scraps yard and administration cabins. Implementation of 5S system in the organization can bring the hug changes in the utilizing the work place properly, maintaining the work environment, employee's involvement and much more. The research has been conducted to implement the 5S system in the small and medium scale industry as mentioned by Aziz Wan et al. (2011). 5S is first implemented in the Toyota manufacturing unit located in Japan.



Figure 1: 5S system in detail



### Literature review

Present situation of small and medium scale industries affecting due to the lack of product quality (Chakraborty et al. 2011). This kind of industry doesn't have huge backup plans and don't have huge investors in the market. Organization is mainly work on capital gain during selling the products. Organization can overcome and can get benefits after reducing the cost of the product along with reducing the defects in the manufacturing units. Upadhye et al. (2010) have studied and understand the nature and concept of small scale industry in India. Small and medium scale organizations in India plays crucial role in growing the Indian capital. Contribution of small and medium scale industry in economy is very high as compare to other kind of income. These small and med-size enterprises (SMES) are contributing more in developing economy of the country and helps to construct and built the nation's economy. P. M. Rojarsra et al. (2013) has found that SMES is one of the most important sectors for generating revenue and proving jobs to people across India. The overall performance of SMES industry in India for its contribution and its advantages has been discussed in this paper. Chauhan et al. (2010) have focused and shown the problem faced by the global market in the recent period. Lean manufacturing is only the way to survive in the business in the market. This will help organization to survive and to achieve the goals as set by the organization. After implementing lean manufacturing, the overall cost of the production reduced to certain level. The kind the waste and errors in the products reduced to certain level. Employ management and time management for the process is achieved successfully. Lukas et al. (2010) has shown and mentioned the problem faced by the organization while implementing lean manufacturing in the organization. The selection of tools by keeping the view of organization needs and kind of organization is discussed in the paper. Proper selection of tools is very important as wrong selection of tools without proper knowledge will end with ruining the organization output. Kumar and Kumar (2010) has studied and represented the keys of 5S system. The way of implementing 5S in the organization and steps taken by the organization is mentioned properly. The benefits of 5S and its advantages on normal culture are mentioned properly. Gheorghe (2008) has described the improvement in the manufacturing unit after implementation of 5S system. Significant changes in the organization after implementation is mentioned here. The step wise pre and post implementation is given in proper way. Khedkar et al. (2012) has given the idea of implementation of 5S in the industry. The proper use of tool and its advantages are explained. Changes organization faced after 5S implementation is discussed here.

### Company background

This company is one of the leading companies in India in the field of biopharmaceuticals. The company is mainly focusing on manufacturing of the biological drugs which are used to cure the disease. 80% of the company business is thorough export and only 20% is distributed in local markets. So keeping the view of market requirement and customer need, the implementation of 5S is essential act to manage the work environment and to maintain accordingly. Implementation is mainly focused in engineering area.

### Problem statement

As organization is leading in the production and distribution of bio-pharmaceutical products to maintain its standard and to sustain in the market it's very important to manage internal environment. Problem observed during the activity required too much time to search the material during performing activity. Required and non-required materials are not sorted properly. Work space is not properly organized.

### Implementation methodology

#### Seiri

Seiri is the first stage of the concept 5S. It involves with the sorting of items in one work area. The teams are set which are responsible for removing all the items from the area in one place. The material which do not required for any of the process have to remove from the area. The materials are classified as required and not required material. This can help the operator to identify the material which is required and are important. Further materials are classified as required a not required material. This can help the operator to identify the material which is important and required. Later materials are classified as frequently used material and not frequently used items. Non-frequently used items are placed far away from the operator. This will help operator to find the right items at right time. This will save time spend in searching and work place remains clean.



***Benefits of seiri***

1. Improves work place
2. Cost saving
3. Problem solving
4. Proper organization of work space
5. Elimination of waste

**Seiton**

This is the process of setting the sorted items in order. After removal of unwanted material, the wanted and required materials are set in order or arrange as per process compatibility. Sorted material is organized properly which can be easy for the operator to find the material, use it and again place in the proper place. Efficiency of the process can be increased by this technique. The focus of this activity is to save the precious time of work and focus more on their operations. Use of proper material which can visualize properly. Proper marking of floor will helps to identify the area. Proper colour coding of machines, equipment's, and instruments are also incorporated

***Benefits of seiton***

1. Save time of searching material
2. Easily identified of material
3. Increase efficiency of work
4. Controls inventory

**Seiso**

This is the process for cleaning the sorted items. All the required material shall be clean to shine and have to look new. Cleaning should be done from all the areas which reduce non-compliance of the material. The errors in the machine like leakage, rusting, chipping, dent, bending, breakage can be identified and can be controlled. Regularly cleaning of the work environment will increase efficiency. Cleaning should be daily habit of the employees and should be clean on regular interval of time. Regular cleaning will help them to identify the defects and elimination of breakdown.

***Benefits of seiso***

1. Work place will remain clean
2. Efficacy of machine increases
3. Elimination of errors and defects
4. Elimination of accidents and incidents
5. Motivations to the employees as area is clean
6. Increase life of machine
7. Environment become safe
8. Reduction of waste

**Seiketu**

This is the process to ensure all the 3S have been properly implemented and now it's standard. The processes which are followed in one area shall be followed by entire organization. Colour code given to specific kind of files should be uniform to entire organization to avoid confusion. This process ensure that first 3S has been implemented successfully.

***Benefits of Seiketu***

1. Standard process aligned to the entire department
2. Proper and classified work environment
3. Reduced breakdown
4. Improve work area visually

**Shitsuke**

This is the final stage of 5S. This is the process of sustaining all the 4S and check whether all the 4S have been followed or not. Continual improvements of the system are achieved. Maintaining the cleanliness and conducting the audit of 4S. Proper training to the employees about 4S.



## Benefits Shitsuke

1. Involvement of employees helps to boost the moral value of employee.
2. Positive work environment
3. Proper organized work culture

## Results

The overall productivity of the organization has been increase due to implementation of 5S system. Employees and operations time is saved which was spent in searching the material. Due to proper arrangement of workspace, lots of space is saved and area becomes specious. Detrition of inventory is reduced to certain level due to timely cleaning and visual inspection of material. Due to unorganized area, required material was not getting in time so lots of new materials were procured unwantedly. Proper organization leads to monitory save. Involvement of top management and employees from the ground level has built up the commination channel and boosted their moral values. Changes after implementation of 5S are as follows.



Figure 2: Before and after implementation of 5S, Place 1



Figure 3: Before and after implementation of 5S, Place 2

## Conclusion

The aim of the research is to implement the 5S system in the organization. After implementation, it is concluded that 5S housekeeping tools proved to be very effective. This tool has managed the work space in proper organized way. Lots of time were reduced and saved which were spending in searching the items due to proper organization. Procurement of unwanted material reduces upto certain limit. Proper clearing reduce the material defects and appropriate corrective and preventive action is initiated within the time. Moral values increased due to involvement of employees and rewarding.



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