

# Food Safety Practices and 5s Implementation in Storage Area of Foods Industry : A Case Study

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## ABSTRACT

The paper represents Food Safety Practices and the implementation of 5S Workplace Management System in the Storage Area of Foods Industry, Bikanervala Foods Pvt Ltd, Golf Course Road, Gurugram, Haryana, India, which is known for the manufacturing of Indian traditional Sweets, Snacks and Foods. The aim was to implement all the food safety compliances and 5S in the storage area so as to simplify work processes, maintaining hygiene and safety standards in the zone. Store is the backbone of every organization. It is a place where things like raw material, packaging material, consumable items and engineering materials are kept for future use. Food borne illnesses can easily be spread when employees are not trained in how to receive and store food. Therefore, it must be kept clean, hazardous free and all the food materials to be stored in a sanitary manner to prevent food borne infections and diseases. Post 5S Implementation not only the store section but the whole organization including the employees gained both tangible and intangible benefits like improved hygiene and safety, quality and improved economy.

**Keywords:** 5S, Food Safety and Hygiene, Quality, Tangible and Intangible benefits.

## I. INTRODUCTION

Store is the backbone of every organization. It is a place where things like raw material, packaging material, consumable items and engineering materials are kept for future use. The task of storekeeping not only restricted to safe custody and preservation of the materials stocked but also extended to their receipts, issue and accounting.

The objective is to efficiently and economically provide the right materials at the time when it is required and in the condition in which it is required (10). Food borne illnesses can easily be spread when employees are not trained in how to receive and store food. Therefore, it must be kept clean, hazardous free and all the food materials to be stored in a sanitary manner to prevent food borne infections and diseases(4). Bikanervala an established food brand decided to implement widely accepted 5S concept in storekeeping area which doesn't add any value to the product rather it adds cost i.e. the organization has to spend money on space and the cost to maintain the inventory etc. All of these get added to the organizational overheads and finally which get reflected in the costing of the finished product. This basic reason has propelled the implementation of 5S workplace management system in stores to reduce hidden costs and wastages. Also, implementing all the Food Safety and Hygiene Standards designed by Food Safety Standards Authority of India ( FSSAI) in the Zone will assure quality of food items which will be safe and wholesome for human consumption. 5S represents Japanese words that describe the steps to be followed in a workplace. The 5S methodology helps a workplace to remove items that are no longer needed (sort), organizing the required items to optimize efficiency (straighten), cleaning the area with meaning in order to easily identify problems (shine), implementing color coding and labels for easy understanding by everybody (standardize) and developing cultures that keep the workplace organized over the long term (sustain)(3).

### **1.1 5 S Origin**

'5S' is one of the Japanese techniques and has its origin in The Toyota Production System and was introduced by Takashi Osada in the early 1980s(9).It is well recognized that the organizations which implement 5S Systems in their workplaces results in safer, more efficient and more productive units. 5S is the acronym for five Japanese words. They are:-

- a. Seiri (sort)
- b. Seiton (set in order)
- c. Seiso (shine)
- d. Seiketsu (standardize)
- e. Shitsuke (sustain)

Osada refers to the 5S as the five keys to a total quality environment(9). The Japanese have been widely practicing 5S technique and believe it can help in all aspects of life. This is an effective technique which can improve housekeeping, environmental performance and health and safety standards in an integrated holistic view. The 5S System, or simply 5S, is a Japanese philosophy that means cleanliness and orderliness to bring maximum productivity and quality. 5S is used by industrial plants and manufacturers, service providers, educational institutions, and government agencies. This structured system is the first step toward implementing all other lean manufacturing techniques. 5S also is an important tool in Total Quality Management (TQM). Over the last century, the Japanese have formalized this technique and named it as 5S Practice. The 5S practice is a technique used to establish maintain quality environment in an organization effectively and promise the employees to be more self-discipline (2).

### **1.2 Organization Introduction**

Bikanervala foods Pvt Ltd, New Delhi (India), is a well known registered leading brand and has been originated from a city called Bikaner, Rajasthan, India. They manufacture traditional Indian foods, Sweets and Snacks and are rejoicing the world with their wonderful delicacies. Thus, Proud Journey from an Era of India Making to

Make in India. MD Shyam Sundar Aggarwal - A Great Visionary behind, carries a vision of spreading the Flavors of India “All Across the Globe with Product Reach in Every Household”. Today, they are having 70 flagship stores located not only in India but also have its penetration into countries like USA, Singapore, Nepal, and Dubai, New Zealand. It is also accredited by FSSAI, HALAL, HACCP, SQF 2000 and ISO 22000 -2005. The other registered brands are BIKANO, Bikano's Restaurant and Aangan. BIKANO is a brain child of Bikanervala Foods Pvt Ltd.It brought a revolution in packaged Sweets , Namkeens and Savories and making it available across India and in more than 40 countries across the Globe , like EUROPE , UK ,USA ,CANADA, Australia, UK UAE,NEPAL,SINGAPORE etc. They have three operational facilities in three different locations of India Like Rai ( Haryana), Greater Noida ( Uttar Pradesh) and New Delhi with the total production capacity of 71820 Tons/ annum with the commitment towards quality and safe deliveries .

## II. PROBLEM STATEMENT

The issues existed before the implementation of 5S in the Zone Bakery:

- 1.Excess inventory
- 2.No FIFO was followed properly
- 3.Poor Safety and Security Standards
- 4.Increased expiries and huge pilferages
- 5.Not Effective space utilization

## III. METHODOLOGY

The Project Location was Bikanervala Foods Pvt Ltd, Golf Course Road, Sec 54, Gurugram , Haryana, India. The Project was initiated in the month of June 2017 2017 & continued up to Nov 2017. The following 20 steps were adopted to implement the project which were based on modi . Cycle

( Figure 1)[8]:

- Step 1- Involvement of Top Management
- Step 2- Gap Analysis
- Step 3- 2 Hours Awareness Programme
- Step 4- Policy and Objectives
- Step 5- Make Zone
- Step 6- 5S Pledge for Daily Practice
- Step 7- Create a Red Tag Zone and Disposal Plan
- Step 8- How Quickly Items Are Disposed Off
- Step 9- Visual Management
- Step 10-Create 5S Gallery
- Step 11-Create Clutter Free Work Environment
- Step 12- Inspection Check List
- Step 13- Standardization
- Step 14- Closing Post Audit Points
- Step 15- Visit Best In Class 5s Companies (Exposure)
- Step 16- Prepare Kaizen and Document All of Them

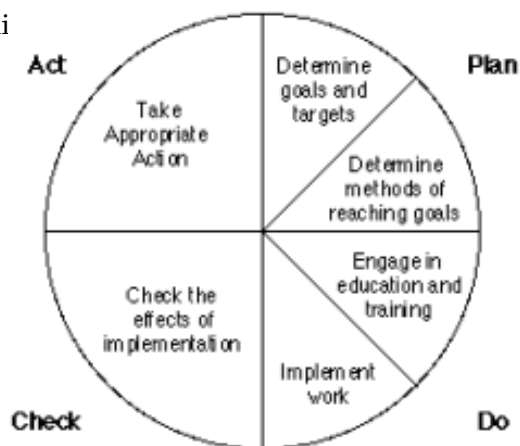
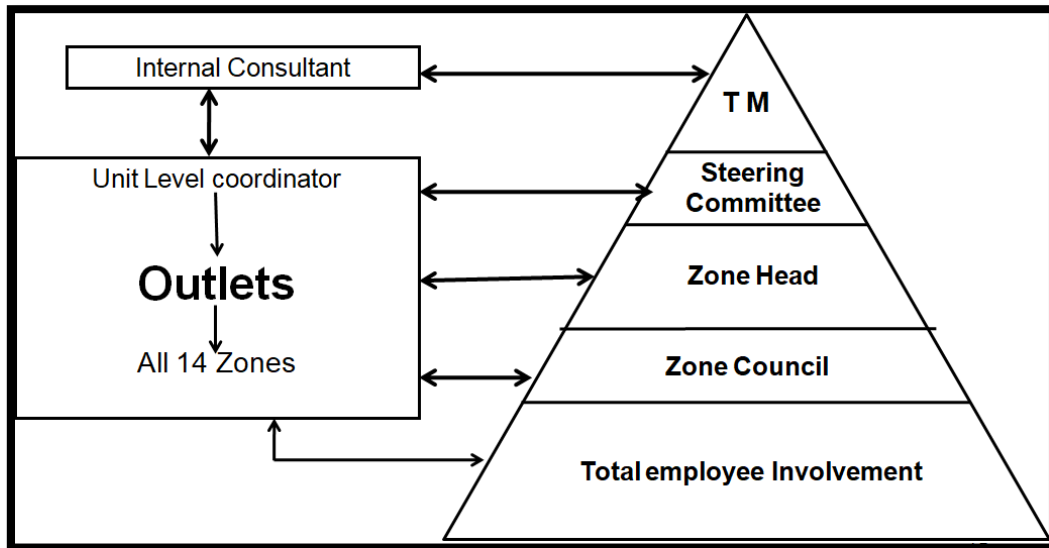


Figure 1. Modified Version of Deming Wheel

- Step 17- Inter Zone Competition
- Step 18- Arrange Audit by External Experts
- Step 19- Participate In Excellence and Sustenance Award
- Step 20- Achieve Model 55 Competition Status

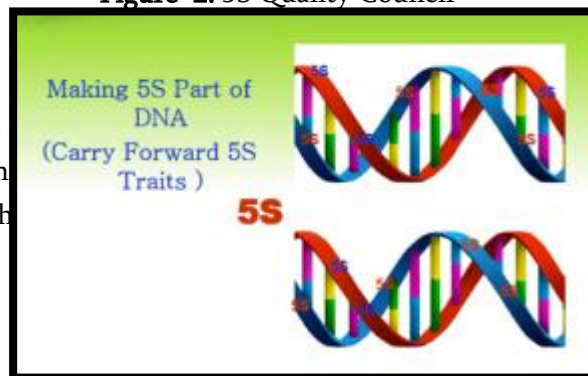
**Step 1.** Steering Committee Was Made Involving Top Management And The Pyramid Was Made ( Figure 2) Showing Formal And Informal Interactions.



**Figure 2.** 5S Quality Council

**PURPOSE**

- To co-ordinate activities, set and when we practice one the Vision statement carried in th



etime job. It is every day job ops in building culture. The 5S

**Figure 3,** Making 5S part of DNA

**Step 2: Gap Analysis Was Done**

The 5S quality Council along with Zone Owner performed the gap analysis. It involved the comparison of actual performance with the desired performance. Also, if an organization does not make the best use of current

or available resources than it may produce or perform below its potential. Thus, it helped us in identifying gaps between the optimized allocation and integration of all the available resources. This further helped in revealing areas that can be improved and determining the differences between business requirements and current capabilities. Through this activity, the **TO DO LIST (Figure 4a)** was created which helped in formulating the road map of the project along with the allocation of job responsibilities , material procurement ,if any, including completion dates.

Left Hand side page of register				Right hand side page of register			
S. No	Date	Action to be taken / Job to be done	WC/ OC	Responsibility	Time of completion		Remarks
					Target	Actual	

**Figure 4a.** To Do List Format

### Step 3: Two Hours Awareness Programme Was Executed On Regular Basis

Unit Coordinator along with Zone owner was given responsibility to execute internal 5S training programs within the establishment as per the 5S Training planner and manual. Trainings on 5S Zone Standards were also executed. All the training documents including planner, attendance sheets and manual (Figure 5a) were maintained and made available during internal/external audits. This activity helped in clearing the doubts among the employees working at grass root level. They were the one who know not only their problems but solutions too. Through trainings, the organization got the dual benefits, cost reductions at the shop floor and sense of belongingness among employees. Thus, created a win win situation.



**Figure 5a.** 5S Internal Standard Training Manual

### Step 4: Policy And Objectives Were Developed

Policies were framed so as to facilitate the ability of an organization to reach the predetermined objectives. The following objectives were kept in mind while executing the project in the Zone. The objectives are the end to a plan whereas policy is the mode and manner used to reach each objective. Each Objective covered one or the other S

1. To designate zone owner for the storage section (S5).
2. To assess the requirements in terms of hygiene & safety to regulate pilferages & thefts.( S3, S4, S5)

3. To build store standards as per FSSAI legislation.(S4)
4. To identify the actions to be followed on receipt of raw material by the store keeper.( S4,S5)
5. To optimize the retrieval process of store items.(S2,S5)
6. To maintain FIFO in order to protect material from losses.
7. To determine the disposal plan of expired and rejected items(S1,S5)
8. To maintain and sustain 5S in the zone. (S5)

S1: Seiri ( Sorting) S2: Seiton ( Set in Order), S3: Seiso ( Shining) S4: Seiketsu ( Standards), S5: Shitsuke ( Sustain.

#### Step 5: Zones And Subzones Were Made For Work Simplification

As the establishment consists of various departments so it was simplified into Major Zones & Sub -zones as depicted in Figure 5b below. The present case study is focused on subzone number 7. The Store Section. The zone owner was identified and given responsibilities to organize the work station as per the 5S standards guidelines & trainings on the subject matter.

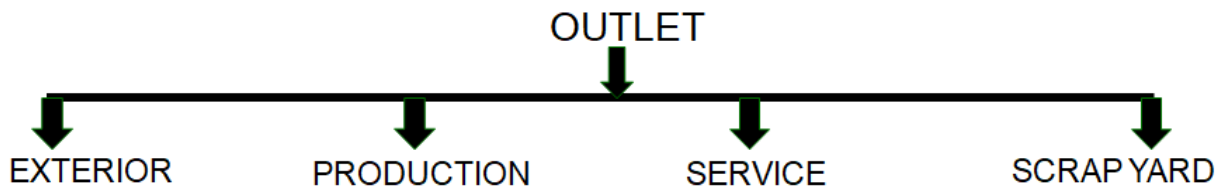


Figure 5b. Outlet Major Zones

#### S.No. SUBZONES

- 1) Exterior Front & Backend Area
- 2) Cash Counter
- 3) All Counter ( Sweet, snacks, Chat & bakery)
- 4) Restaurant Counter.
- 5) Ice Cream Counter.
- 6) Receiving Doc Area.
- 7) Store (RM & PM)
- 8) Production
- 9) FSR Kitchen
- 10) Maintenance
- 11) House Keeping
- 12) Staff Cafeteria

- 13) Showroom
- 14) Washroom

Figure 5b. Outlet 14 Sub - Zones

**STEP 6- 5S PLEDGE FORMS WERE SIGNED BY ZONE MEMBERS FOR DAILY 5S PRACTICE**

The pledge system introduced to sustain the results and commitment from the employees which included:

- ✓ I pledge to participate in 5S Promotional Schemes, Competition etc
- ✓ I pledge to practice 5S on daily basis and would impart training to my subordinates.
- ✓ I pledge to use office resources with conservative approach and would turn off buttons/taps if electricity /water are being misused.
- ✓ I pledge to follow the standard practices
- ✓ I pledge to practice 5S not only at office but also at home.

Pledge forms were also signed by all the 14 Subzone owners as shown in Figure 6.



Figure 6. Pledge forms signed by Subzone own

Step 7: Create Monthly Ser  
Monthly Ser  
planned and  
to the emplo  
Figure 7c.



and Initiated Monthly Red Tag Camp  
anned with the purpose to maintain  
en displayed in various location whi  
7a and 7b. The tangible gain was also



ivities were  
s reminders  
as shown in



Figure 7a. Monthly Activity Sunboard

Figure 7b. Clutter Ready for Disposal

S.NO	SCRAP SOURCE	TYPE OF SCRAP	SCRAP QUANTITY	COST PER KG	VALUE INR
1	PAPERS	BIODEGRADABLE	25	10	250
2	ALUMINIUM TINS	NON BIODEGRADABLE	35	15	525
3	IRON	NON BIODEGRADABLE	40	14	560
4	STEEL	NON BIODEGRADABLE	20	80	1600
5	PLASTIC	NON BIODEGRADABLE	25	10	250
	<b>Total</b>		<b>145</b>		<b>3185</b>

Figure 7c. Calculating tangible gain due to monthly seiri activity.

**Step 8: Scrap Identification And Disposal Plan Was Created**

The complete disposal plan had been formulated for all the zones by segregating scrap into Biodegradable and Non Biodegradable items (refer Figure 8a).

SCRAP IDENTIFICATION AND DISPOSAL PLAN: MONTHLY					
S.No	SCRAP SOURCE	EXAMPLES	TYPE OF SCRAP: BIODEGRADABLE / NON BIODEGRADABLE	SELLABLE SCRAP	DISPOSAL PLAN
1	GENERAL REFUSE	OFFICE LITTER		NON SELLABLE	DAILY
		PRINTER CARTRIDGES	NON BIODEGRADABLE	REFILL & REUSED	AS REQUIRED
		PAPERS	BIODEGRADABLE	SELLABLE SCRAP	WEEKLY
		PEN	NON BIODEGRADABLE	NON SELLABLE	DAILY
		BROKEN STAPLER	NON BIODEGRADABLE	NON SELLABLE	DAILY
		BROKEN SCLAES	NON BIODEGRADABLE	NON SELLABLE	DAILY
		BROKEN TAPE DISPENSOR	NON BIODEGRADABLE	NON SELLABLE	DAILY
2	PAPER AND PAPER PRODUCTS	NEWSPAPER	BIODEGRADABLE	SELLABLE SCRAP	WEEKLY
		PRINTING PAPERS	BIODEGRADABLE	SELLABLE SCRAP	WEEKLY
		CARDBOARD BOXES	BIODEGRADABLE	SELLABLE SCRAP	WEEKLY
		BUTTER PAPER	BIODEGRADABLE	SELLABLE SCRAP	WEEKLY
		SWEET BOXES	BIODEGRADABLE	SELLABLE SCRAP	WEEKLY
		PAPER PLATES	BIODEGRADABLE	SELLABLE SCRAP	WEEKLY
		TISSUE PAPERS	BIODEGRADABLE	NON SELLABLE	DAILY
3	PRODUCTION SCRAP	ALUMINIUM TINS	NON BIODEGRADABLE	SELLABLE SCRAP	WEEKLY
		FRUITS CAN	NON BIODEGRADABLE	SELLABLE SCRAP	WEEKLY
		GULABJAL CANS	NON BIODEGRADABLE	SELLABLE SCRAP	WEEKLY
		FOOD LEFTOVER	BIODEGRADABLE	NON SELLABLE	DAILY
		GLOVES	NON BIODEGRADABLE	NON SELLABLE	DAILY
		CAPS	BIODEGRADABLE	NON SELLABLE	DAILY
		USED COOKING OIL	BIODEGRADABLE	SELLABLE SCRAP	WEEKLY
		CASHEW TINS	NON BIODEGRADABLE	NON SELLABLE	DAILY
		CAKE BASE	BIODEGRADABLE	NON SELLABLE	DAILY
		4	KITCHEN WASTE & DISHWASHING AREA	VEGATABLE PEELS	BIODEGRADABLE
TORN WIPING CLOTHES	BIODEGRADABLE			NON SELLABLE	DAILY
CUSTOMER LEFTOVER FOOD	BIODEGRADABLE			NON SELLABLE	DAILY

Figure 8a. Scrap Identification and Disposal Plan

**Step 9: Visual Management Was Done**

Visual Management was also practiced in the Zone as one picture is worth 1000 words and the language is understood by everybody irrespective of cast, creed and culture. Visual created for standard practices to be expected from all the employees. Similarly visuals were created for reorder levels to control inventory in the



zone and making the inventory count free. Thus it improved efficiency. Figures 9c and 9d show the visuals developed in the zone.



**Figure 9c.** Standard practices expected from employees **Figure 9d.** Standard practices expected from employees

### Step 10: Created 5s Gallery

Sun boards were designed to make 5S Gallery. Five boards (One board dedicated for one S, Fig 10 right picture) in both Hindi and English language were created and displayed in the prominent locations so that the employees could read it, understand it while moving from one location to another. Also, it always served as a soft reminder of practicing the 5S daily at the workplace. Similarly, 5S Corner (Fig 10 left picture) had also been created. This communication board was used to display trend charts of internal audits, any competition announcements, before and after 5S Improvement pictures etc.



**Figure 10.** 5S Gallery and 5S Corner

### Step 11: Created Clutter Free Work Environment In The Zone

1. Excess material and unwanted materials were removed. Housekeeping material and personal belongings removed from the zones and stored in designated locations (Refer Fig 11a, 11b and 11c). Thus, avoiding clutter in the zone, work environment improved and safety enhanced.

### Personal Belongings Rejected Material And Housekeeping Materials Kept Away From Food Zones



Figure 11a. Before 5S Process



Figure 11b. After 5S Process



Figure 11c. Designated Housekeeping Chemical Area (Left) and Rejected Material Area (Right)

2. Allergens Were Segregated And Stocked In Their Designated Areas Like Peanuts, Soya And Dairy Items. Similarly, New Stock Segregated From Old Stock To Promote Hygiene And Safe Practices.



Figure 11d. Designated area to keep allergens and new stock

**Step 12- Inspection Check List Was Created For The Zone.**

Internal Auditors were trained to promote ownership among employees as per the designed standard process ( Refer Figure 12a).The standard audit check sheets were also created to improve the observation power of the employees ( Figure 12b).

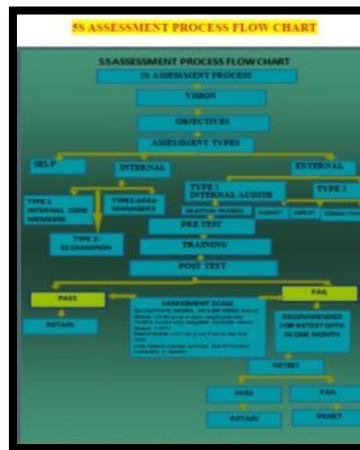


Figure 12a. 5S Internal Audit Process Flow Chart

	STORE AREA	YES/ NO/NA
1)	Zone Owner identified and displayed.	YES
2)	No raw material on the floor.	YES
3)	Bulk raw material stacked properly on pallets.	YES
4)	No cleaning chemicals kept open in the store.	YES
5)	Food Storage Containers are kept clean.	YES
6)	Food Storage Containers are properly labeled.	YES
7)	Labeling of each & every raw material on the racks.	YES
8)	Packed Food Items stored in Crates.	YES
9)	Clay cups stored in Crates.	YES
10)	All personal belongings are placed at its designated location.	YES
11)	Ghee/Oil Tins placed in designated Tarona Stand.	YES
12)	Displaying minimum and maximum quantity on weighing Balance.	YES
13)	White Board to place SOP and Order slips.	YES
14)	Ordering & Inventory Display on White Board: Green : Above the Par Stock, Yellow: Reordering Level Red: Danger Level.	YES
15)	All loose wires both electrical and computer are intact.	YES
16)	Walkways and Passage to be in Use.	YES
	<b>PACKING STORE( DABBA SECTION) AREA</b>	
1)	Zone Owner identified and displayed	YES
2)	Area Well stacked properly.	YES
3)	All boxes kept on Pallets( Not in direct touch with Floor)	YES
4)	Area well Labeling.	YES
5)	Retrieval of Boxes in 30 sec.	YES
6)	Ordering & Inventory Display on White Board: Green : Above the Par Stock, Yellow: Reordering Level Red: Danger Level.	YES
7)	Walkways and Passage to be in Use.	YES

Figure 12b. 5S Internal Audit Check sheet of store

**Step 13: Store Issue Processes Were Standardized**

The store issue process was standardized and total 20 internal standards were developed and vital few were selected for the present paper which had the maximum effect (Refer Fig 13c)



Figure 13a. Store Timings



Figure 13b. Standards for Food Grade Packing Containers

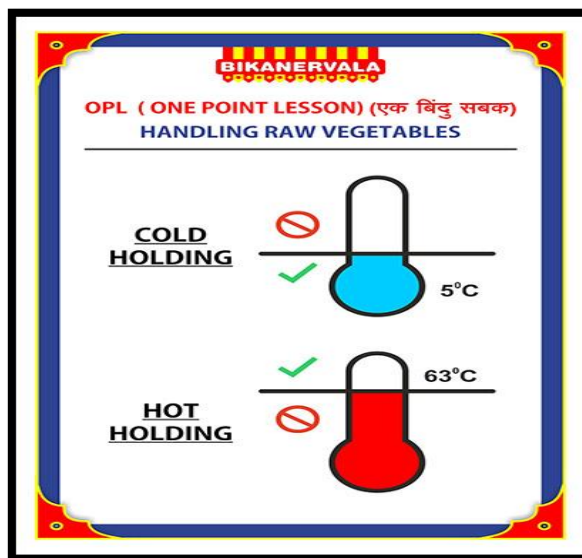


Figure 13c. Temperature Danger Zone pictorial standards for holding food items

**Step 14: Closing Post Audit Points**

Standards were also developed to close the audit points by internal review meetings with the Unit head, 5S Corporate Team and Steering Committee. The central vendor list (Refer Fig 14) had also been created so as to get the uniform supply of all the materials every time. This is the major problem generally been discussed in the steering committee.



Sl. No.	Item	Material	Supplier	Contact No.	Email	
<b>STAINLESS STEEL (UTENSILS)</b>						
70	a)	S.S. containers (1/2/ 1/2kg)	Stainless Steel	Mr. Shiv Shankar	9811456612	prakashsinghania@vsnl.com
71	b)	S.S. skewers	Stainless Steel	Mr. Shiv Shankar	9811456612	prakashsinghania@vsnl.com
72	c)	Air Tight Containers	Stainless Steel	Mr. Shiv Shankar	9811456612	prakashsinghania@vsnl.com
<b>CLEANING CHEMICALS &amp; EQUIPMENTS</b>						
74	a)	Cleaning Chemicals	Diversey / Quartz	Mr. Abhishek / Mr. Manoj	9716148818/ 9873009056/9873009056 818/	abhishek.datt@vseledar.com/ab
75	b)	Wet Mop System	Diversey / Quartz	Mr. Abhishek / Mr. Manoj	9716148818/ 9873009056/9873009056 818/	abhishek.datt@vseledar.com/ab
76	c)	Dry Mop System	Diversey / Quartz	Mr. Abhishek / Mr. Manoj	9716148818/ 9873009056/9873009056 818/	abhishek.datt@vseledar.com/ab

Figure 14. Central Vendor List

### Step 15: Exposure Visits Along With External Experts Were Called For Enhancing 5s Knowledge And Fssai Standards

The exposure visits along with external trainings were also arranged in best class organizations like ITC Maurya Hotels, Gabriel Group, Sandhar Group and Experts from Confederation of Indian Industries (CII) and Quality Circle Forum of India (QCFI) were invited for polishing the employees. This proved to produce positive effects and promoted lateral thinking. This actually helped employees to gain insights of their roles in improvement projects.



Figure 15a. Maurya ITC Visit



Figure 15 b. Experts Invited from QCFI, CII and FSSAI



### Step 16: Prepared The Staff About Documenting All Improvements In Kaizen Sheets

**Kaizen** is the Japanese word for "improvement". In business, kaizen refers to activities that continuously improve all functions and involve all employees from the CEO to the assembly line workers. By improving standardized programmes and processes, kaizen aims to eliminate waste (1). One of the most notable features of kaizen is that time. Fig 16 refers to Kaizen implemented in cleaning Zones. Before Kaizen, the Housekeeping staff was using Newspaper to clean the glasses which makes their hands dirty and the ink is bad for the health as its ink has multiple bioactive materials with known negative health effects. Newspapers were not only removed from Cleaning Zones but also from the kitchen. As per FSSAI, foods are not to be wrapped in the newspaper because of its negative effect on the health [5, 6].



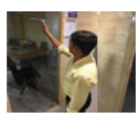
Kaizen Sheet			
		Kaizen	
Company: Dept. : BIKANERVALA FOODS PVT LTD		Month of Report AUG- 2017	
Result : Safety Improved & Productivity increase			
Subject PROMOTING HEALTHY PRACTICES		Process : CLEANING METHOD OF GLASS	
Problem / HANDS TURN BLACK WHEN USING	Present Status GLASS WIPERS WERE REPLACED WITH NEWSPAPER	Productivity	
		Quality	
Before	After	Cost	
		Delivery	
		Safety	
		Morale	
		Environment	
Root Cause Analysis HAVE BEEN USING NEWSPAPER TO CLEAN GLASSES SINCE THEY STARTED WORKING		Others: OLD DEEPROOTED PRACTICES WERE CHANGED	
Action Taken as per Root Cause: ALTERNATIVE METHODS LIKE		Cost Saving / year is--	
Horizontal Deployment		Date of Implementation : AUG 2017,15	
		Suggested By: *****	
		Approved By : STEERING COMMITTEE	
6. WE CERTIFY THAT GLASS WILL BE CLEANED USING WIPERS RATHER NEWSPAPER OR CLOTHES.			
(If you are competing under MSME stream, Please certify your status as MSME)			
Company Authorization			
We certify that the contents of the kaizen are factually correct and we agree to sponsor our team to make a final presentation at the 51st National Convention of Quality Concepts at Mysore, 2017, dec 1-4 in case this entry is short listed for final evaluation for the award			
Name	Designation	Signature	Date

Figure 16. Kaizen Documentation in the standard sheet

### Step 17: Inter Zone Competitions Were Organized

Various Inter-departmental Competitions were organized like Hygiene Champion, My Zone My Pride Competitions, Best Suggestion competition & 5S competition on quarter basis with a vision of 100% employee involvement ( refer Figure 17a, 17b and 17c).



Figure 17a. Suggestion Schemes      Figure 17b. Hygiene Champion      Figure 17c. My Zone My Pride

### Step 18: Arranged Audit By External Experts

Regularly, the outlet participates in the 5S Excellence Awards organized by CII and QCFI. Their experts conduct external audits .Cross functional teams were also involved in auditing the unit.

### Step 19: Participated In 5s Excellence And Sustainance Award

The outlet had presented their case studies at conventions conducted by CII and QCFI both at State and National Level. This year, the outlets received Second Position in the CII National 5S Excellence Award Held at

India Habitat Center, New Delhi on 25<sup>th</sup> October 2017 and Received Gold Award and Par Excellence Award at State and National Level Quality Conventions respectively (Refer fig 19a and 19b) organized by Quality Circle forum of India, in the month of October 17 and December 17 respectively.



**Figure 19a.** Gold Award at State Level



**Figure 19b.** Second Position at National Level



**Figure 19c.** Received Par Excellence Award at National Convention of Quality Concepts at Mysore in December, 1-4, 2017

#### **Step 20: Achieve Model 5S Competition Status**

At the time of publication the catering establishment was preparing for the International Recognition which would held this year in Singapore in October, 2018.

### **IV. RESULTS & DISCUSSION**

The project was initiated in the leading Catering Establishment Bikanervala Foods Pvt Ltd, in the month of June 2017 and was continued up to Novemebr 2017. It brought turn around changes and improvements in the establishment. Safety Standards, Practices & Policies were developed and implemented which not only enhanced the overall efficiency of the employee but also simplified the work processes. The internal communication channel had improved, thus, helped in resolving problems which were being neglected since years in the establishment. The project 5S created a culture which is not man dependent rather it built a harmonious system which is easy to follow and sustain .The results are presented below showcasing the success of implementing 5S standards in the store section of catering establishment . The problem statements discussed



in the beginning of the paper were resolved with team efforts and in the end feeling of pride and ownership were prevailing. The effects are explained below:

1. Organization Structure Was Made And Displayed Along With Zone Owners Roles And Responsibilities: This Point Covers S1 (Seiri/Sorting) As Seen In Fig 20a, 20b And 210.

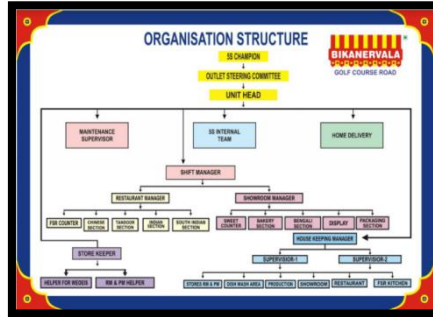


Figure 20a. Organization Structure

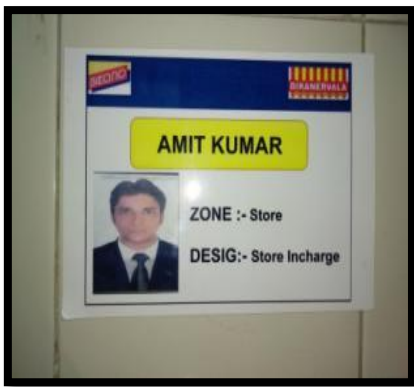


Figure 20b. Store Zone Owner

- सारा सामान उसकी निर्धारित जगह पर होना चाहिए
- जोन में 5S के नियमों के हिसाब से कार्य करना
- रखरखाव व साफ सफाई का ध्यान रखना
- कार्य करते समय FSSAI के नियमों

Figure 20c. Zone Owner Roles and Responsibilities

2. Personal Grooming, Hygiene, Cleaning And Sanitation Standards Were Improved: Cleaning is a frame of mind and should not be considered as a Job. Thus, it is to clean to inspect to detect to correct to perfect. Cleaning schedules of three types were developed including Macro (General Cleaning)), Individual (Item wise cleaning) and micro (Deep Cleaning).The Figure 21a, 21b, 21c and 21d clearly defines stringent cleaning and safety standards being followed in the establishment.



Figure 21a. Grooming Poster



Figure 21b. Caddy Basket for Cleaning Chemicals



Figure 21c. Janitor Station

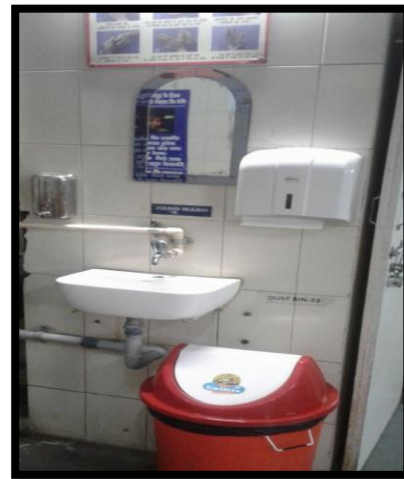


Figure 21d. Hand washing Station with all the facilities

3 Food Grade Building Standards Implemented As Per Fssai As Shown In (Fig 22).

- PVC Strips.



- No false ceiling & no leakages



- Regular pest control



### RODA BOX DESIGNATED LOCATION

INDEX OF RODA BOX	
RODA BOX NO.	LOCATION
1	cash counter
2	bengali counter
3	sweet counter
4	ghewar counter
5	main store
6	main store
7	store
8	store

Figure 22. Food Grade Building Standards as Per FSSAI Norms.

4 FIFO Standards Were Implemented And Followed As Shown In The Below Figure 23a & 23b. As per FIFO, all the new stock will be stacked behind the front bottles. The front stock is sent first and the same are replaced with the bottles stacked behind. This point covers S4 (Seiketsu/Standardization). Similarly, standards were also developed to keep all glass bottles at the bottom of shelf. Similarly, all heavy and big containers will also be stored at the bottom shelf or the lower most shelves.



Figure 23a and 23 b. All front bottles are sent first to maintain FIFO

5. Standards Were Developed To Improve Efficiency In The System. Keeping All The Food Items 6 Inches Above The Floor. All The Walkways Were Kept Obstruction Free. Also, All The Packaging Materials Will Be Stored In Their Original Cover.



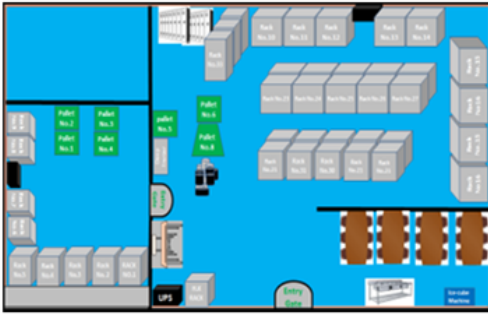
Figure 24a. All the Packaging material stored in their original cover Fig24b Walkways Obstruction Free

6. Employee Engagement Initiated To Generate Awareness And Promote Ownership .This Brought Good Improvements In The System .Many Internal Competitions Were Promoted Along With Activities As Shown In Fig 26a,26b And 26c.

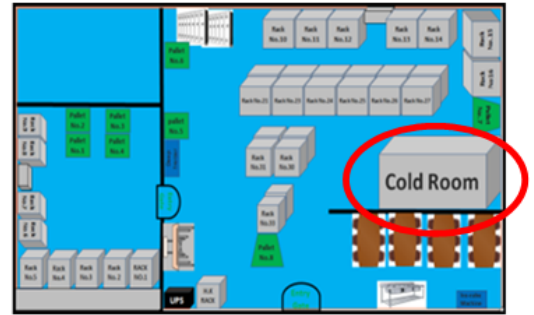


Figure 26. Employee Engagement Activities





**Before: Without Cold Room(earlier chillers were being used, being over crowded and more movements involved)**



**After:With Cold Room(place for everything)**

Cold room was built in the same space which was impossible before implementing 5S. After 5S Implementation, 48 Square foot (5.322 Sq/yard) Space Created... of worth Rs 8.78 lac (Rs 165000\*5.322= Rs 165000/sq/yard, Industrial circle rate in Haryana.

## V. ACHIEVEMENTS

Everybody in the establishment was quiet excited being part of revolution and improving standards and developing cultures. Both intangible and tangible gains were observed. The most important thing, the feeling of pride and ownership was well visible .Internal Audit Scores, Productivity and Efficiency improved drastically due to well organized space management and total employee involvement. Normal and abnormal wastages were controlled. Accident free working environment developed due to well defined gangways and fire evacuation plans along with fire assembly point. Morale of the workers was at peak due to their total engagement in the project. Their valuable suggestions were reviewed; implemented and net gains were recognized by the management and were suitably rewarded as per internal reward and award policy framework. The team had also participated in National CII 5S Excellence Award under FMCG sector and presented their work in summit held at India Habitat Center, New Delhi on 27<sup>th</sup> Oct 2017 and bagged the second position ( Fig19a) leaving behind their competitors with their smart work. Similarly, they presented their work at Quality Circle Forum of India both at State and National Level in October 2017 and December

2017 respectively. The team achieved Gold Award at State Level (Fig 19b) and Par Excellence Award at National Level (Fig 19c). The State level award was held at Munjal University, Daruheda, Haryana on October 7<sup>th</sup>, 2017 and National Convention on Quality Concept was held at JSS University, Mysuru from 1<sup>st</sup> to 4<sup>th</sup> Dec 2017.Their positive actions combined with positive thinking resulted in achieving fruits of success.

## VI. CONCLUSIONS

The case study aimed at implementing food safety compliances and 5S in Stores section of the establishments in the leading organization, Bikanervala Foods Pvt Ltd, Golf Course Outlet, Gurugram, Haryana, India. The project resulted in improved hygiene, greater safety, productivity, efficiency, and a better professional reputation. Since, 5S is the foundation of improvement and is the gateway to Total Quality Management [1]. The good 5S condition in the organization reflects the attitude of employees towards quality.

## VII. REFERENCES

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