

5s Implementation & Standardizing the Bakery Processes In A Leading Catering Establishment : A Case Study

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ABSTRACT

The paper represents the implementation of 5S Workplace Management System in the Bakery Sub Zone, in one of the leading Catering Establishments, Bikanervala Food Pvt. Ltd. which is known for the manufacturing and serving of Indian traditional Sweets, Snacks and Foods. 5S is the gateway to Total Quality Management and is the most effective way of implementing grass root level improvement programmes which brings a visible change in the workplace. The aim was to standardize all the bakery processes, work simplification, hygiene, safety and reduced inventory. The need for 5S implementation came into existence due to cluttered workstations, excessive scrap accumulation and stress which is generated due to larger search time for the retrieval of tools. Post 5S implementation, there was a feeling of pride among employees along with the higher work satisfaction.

Keywords : 5S, Workplace Management, Bakery, Safety, Total Quality Management

I. INTRODUCTION

In India, Bakery is one such industry which is growing as never before. Bakery is a traditional activity and occupies an important place in food processing industry. The bakery manufacturers in India can be differentiated into the three broad segments of bread, biscuits and cake. About 1.3 million tones of the bakery products industry in India is in the organized sector out of 3 millions tones, while the balance comprises of unorganized, small-scale local manufacturers[4]. In spite of many challenges faced by the bakery segment, they are growing steadily and continuously. 5S is a widely adopted Japanese technique and is the real secret to Success. 5S

principles can be utilized in countless ways to improve and standardize the bakery processes. By implementing 5S, the work can be performed efficiently, effectively, and safely. This system focuses on PEEP model[8] "PLACE FOR EVERYTHING AND EVERYTHING IN ITS PLACE" and hence keeping the cleaner workplaces which helps people to do their jobs without wasting time or risking injury. 5S, the foundation of improvement, had been well adopted by Bikanervala and implemented the 5S standards in the whole unit and created a clean clutter free workplace that talks to visitors. But, the present case study is restricted to its Bakery Segment.

1.1 Origins of 5S

'5S' is one of the Japanese techniques which was introduced by Takashi Osada in the early 1980s. It is basically a workplace management methodology which helps for improving working environment, human capabilities and thereby productivity [2]. The 5S concept affects the day to day life of employees at workplace where they spend majority of the time as compared to home. It is not a voluntarily activity rather mandatory for everyone and the 5S concept needs to be practiced right from Chairman to Doorman. Each S represents one part of a five-step process that can improve the overall function of a business. Business is a very much team effort. Each of 5S words is simple enough in itself, yet each has a depth of meaning and significance for the workplace[8].

- ✓ Seiri ,Seiton ,Seiso , Seiketsu , Shitsuke (Japanese Words)
- ✓ Sort ,Set in order ,Shine ,Standardize ,Sustain (English Translation)

1.2 Organization Introduction

Bikanervala foods Pvt Ltd, New Delhi (India), is a 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 is accredited by FSSAI, HALAL, HACCP, SQF 2000 and ISO 22000 -2005. The other registered brands are BIKANO, Bikano's Restaurant and Aangan. BIKANO brought a revolution in packaged Sweets ,Nankeens 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.Bakery Trays and Trolleys Dumped here and there
- 2.No Classification of Tools
- 3.Poor Safety and Security
- 4.Increased breakdowns
- 5.Not Effective space utilization
- 6.Search time was very large
- 7.Man Dependent

III. METHODOLOGY

The Project Location was Bikanervala Foods Pvt Ltd, RDC Ghaziabad, Uttar Pradesh, India. The Project was initiated in the month of June 2017 & continued up to September 2017. The following 20 steps were adopted to implement the project which were based on modified version of Deming's wheel (Figure 3)[7]:

- 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
- Step 17- Inter Zone Competition
- Step 18- Arrange Audit by External Experts
- Step 19- Participate In Excellence and Sustenance Award
- Step 20- Achieve Model 5S Competition Status

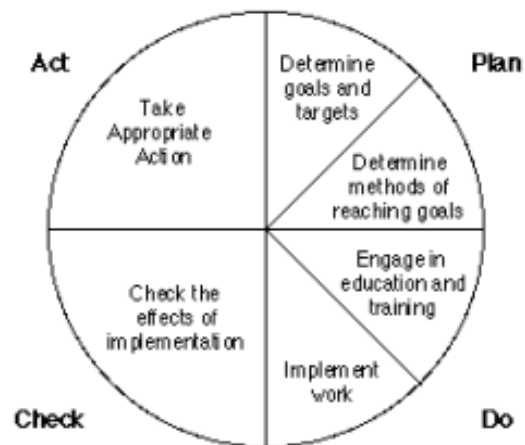


Figure 1. Modified Version of Deming Wheel

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

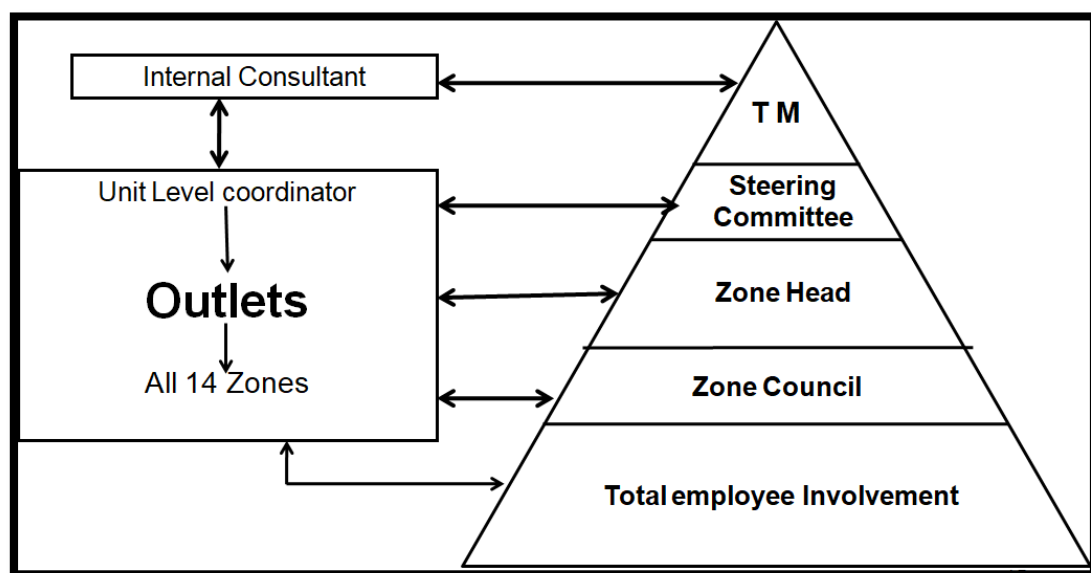


Figure 2. 5S Quality Council

PURPOSE

To co-ordinate activities, set policies & sustain the program as 5S is not a onetime job. It is every day job and when we practice one thing 21 times, it becomes a culture. Thus, 5S helps in building culture. The 5S Vision statement carried in the organization is (Figure 4)

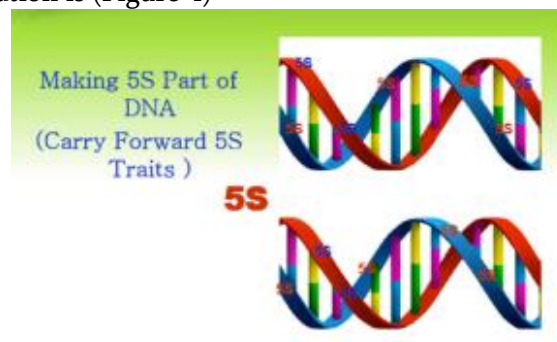


Figure 3. Making 5S part of DNA

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&b) 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 4b. Filled To Do List Color Coded Format

To-Do List for Bakery					
			Allocation		
S.N.O.	Action to be taken	WC/OC	Responsibility	Time Of Completion	Remarks
1	Bin cart require for Bakery store.	WC	Sohan Lal	Pending	
2	All tools to be arranged properly	WC	Sohan Lal	Done	
3	Frequency of Scrap to be worked upon from the entire Bakery	WC	Praveen/Sohan	continuous in process	Cleaning checklist to be revised
4	Temperature indicator missing , therefore, need to be installed.	WC	Srikant/Satish	done	
5	Printing area should be arranged & separated.	WC	Praveen Ranjha	Done	
6	White board required for order slip display	WC	Praveen Ranjha	Done	
7	Tarona stand required for keeping ghee & oil.	WC	Praveen Ranjha	after approval	Need 8 tarona and approval from management , mailed
8	Work instruction for machine to be displayed	WC	Praveen Ranjha	5th june	
9	Loose wiring need to be covered to promote safety	WC	Srikant	Done	
1	Done 24 out of 29	82.75%			
2	In Process 3 out of 29	10.40%			
3	Pendig 2 out of 29	6.85%			

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 Training and Audit Manuals

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 Bakery 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 bakery section (S5).
2. To assess the requirements in terms of security & safety.(S3, S4, S5)
3. To establish bakery standards as per FSSAI legislation. (S4)
4. To identify the actions to be followed on receipt of raw material by the food handlers.(S4,S5)
5. To optimize the retrieval process of tools.(S2,S5)
6. To determine the destruction process of old tools and rejected items(S1,S5)
7. 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 Were Made For Work Simplification

As the establishment consists of various departments so it was simplified into 4 Major zones & 14 Sub -zones as depicted in Figure 5 below. The present case study is focused on subzone number 9. - The Bakery Segment. The zone owners were identified and given responsibilities to organize their work stations as per the 5S standards guidelines & training on the subject matter. Thus, the total team involvement was initiated from the beginning of the project.

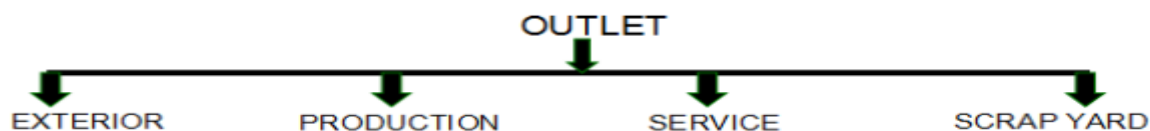


Figure 5b. Outlet Major Zones

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 & FSR Kitchen**
- 9) Bakery**
- 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 a. 6b and 6c



Figure 6a. Pledge forms signed by Subzone own owners



Figure 6b. Pledge forms signed by Subzone



Figure 6c. Pledge forms signed by Subzone owners

Step 7: Created A Red Tag Zone And Initiated Monthly Red Tag Campaign

Monthly Seri Activity has been planned with the purpose to maintain Zones Clutter free. Three activities were planned and the same had also been displayed in various location which would serve as unconscious reminders to the employees as shown in Figure 7a and 7b. The tangible gain was also calculated on monthly basis as shown in Figure 7c.



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
	Total		145		3185

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 Fig 8a) .Besides, Papers were disposed off in shredder machines (Fig 8b and 8c) which was alternative to burning as the later causes environmental pollution . Thus they were recycled, reduced and reused for packing goods in the organization.

SCRAP IDENTIFICATION AND DISPOSAL PLAN: MONTHLY					
S. No	SCRAP SOURCE	EXAMPLES	TYPE OF SCRAP:	SELLABLE SCRAP	DISPOSAL PLAN
1	GENERAL REFUSE	OFFICE LITTER	BIODEGRADABLE / NON BIODEGRADABLE	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	NON SELLABLE	DAILY
		TORN WIPING CLOTHES	BIODEGRADABLE	NON SELLABLE	DAILY
		CUSTOMER LEFTOVER FOOD	BIODEGRADABLE	NON SELLABLE	DAILY

Figure 8a. Scrap Identification and Disposal Plan



Figure 8b. Shredder Machine for papers



Figure 8c. Paper reduced in the shredder machine

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 .Refer Fig 9a, 9b, 9c and 9d for the visuals developed in the zone.



Figure 9a. Interpretation of the color coding



Figure 9b. Visual Standards for Raw Material 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 10a and 10b) 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 10c) 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 10a. 5S Gallery (Three Boards)



Figure 10b. 5S Gallery (Two boards)



Figure 10c. 5S Corner

Step 11: Created Clutter Free Work Environment In The Zone

1. Housekeeping material removed from the food zones and stored in designated almirah (Refer Figure 11a and 11b).Thus, avoiding clutter in the zone, work environment improved and safety enhanced.



Figure 11 a. Before 5S Process



Figure 11 a. After 5S Process

2.Shadow boards for keeping tools were created, thus, preventing clutter in the cabinets (refer Fig 11c and 11d).Extra and unwanted items were also removed from the zone. Also followed the Principle of POUS (Point of Use Storage).The following POUS rules were followed[8]:

1. Don't move your wrist when work can be done by your finger.
2. Don't move your elbow when work can be done by your wrist.
3. Don't move your shoulder when work can be done by your elbow.
4. Don't move your body when work can be done by your shoulder.
5. Don't walk when work can be done just moving your body (Staying in same position)



Figure 11c. Before 5S Process



Figure 11d. After 5S Process

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).

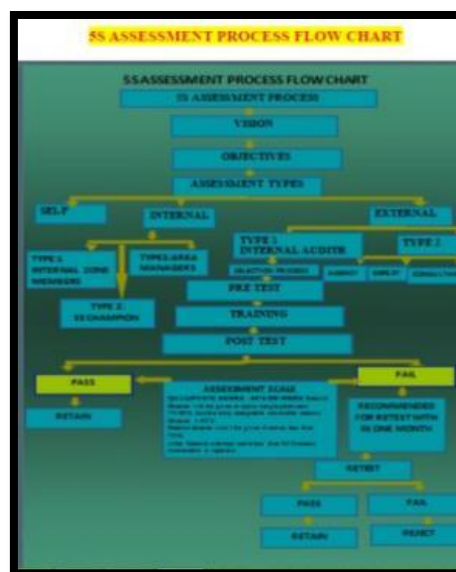


Figure 12a. 5S Internal Audit Process Flow Chart

Bakery Internal audit check sheet 2017													
S.No	Control Point	Item	Location	Standard	Observed	17-Jan	17-Feb	17-Mar	17-Apr	17-May	17-Jun	17-Jul	17-Aug
1	Baking Freshness	Open Cakes	At entrance	Single layer to be used for display case.	YES								
2	Baking Freshness	Pastry, Biscuits & Cookies	At entrance	Regulate Paste	YES								
3	Baking Freshness	Read Indicator	At entrance	If available, must be every 15 sec. rotation.	YES								
4	Baking Freshness	Bakery Logos	Flour, Sugar, Eggs, Milk, Baking Powder, Baking Soda & Baking Soda	Flour: must be in original bags, sealed in low spots. Milk: should be without water or sugar. Baking Powder: Must be in original bags, sealed in low spots. Baking Soda: Must be in original bags, sealed in low spots.	YES								
5	Baking Freshness	Pastry, Biscuits & Cookies	At entrance	Pastry, Biscuits & Cookies	YES								
6	Baking Freshness	Bakery Logos	Bakery	Baking - Flour: must be in original bags, sealed in low spots. Baking Powder: Must be in original bags, sealed in low spots. Baking Soda: Must be in original bags, sealed in low spots.	YES								
7	Baking Freshness	At Entrance to Bakery	Bakery	Pastry, Biscuits & Cookies	YES								
8	Baking Freshness	Pastry, Biscuits & Cookies	Bakery	Pastry, Biscuits & Cookies	YES								

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

Step 13: Bakery Processes Were Standardized

The Bakery processes were standardized and total 94 internal standards were developed and vital fews were selected for the present paper which had the maximum effects on the results (Refer Figure 13a, 13b and 13c)

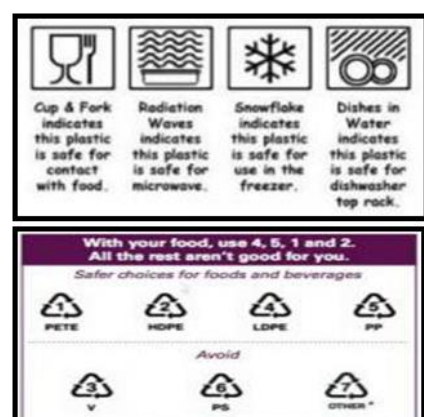


Figure 13a. Flour Sifter Wire Mesh Standards Figure 13b. Standards for packing Bakery items in Food Grade Plastic Containers



Figure 12c. Filled Trays pictorial standards for snacks and Biscuits

Step 14: Closing Post Audit Points

Standards were also developed to close the audit points by internal review meetings (Refer Figure 14) with the Unit head, 5S Corporate Team and Steering Committee.



Figure 14. Closing meeting of Post Audit Points after reviewing with the steering committee and 5S Core Committee. The Vendors were also invited to resolve the issue of uniform supply of Raw Material which affects the final outcome of the baked items.

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

The exposure visits along with external trainings were also arranged in best class organizations like Maurya ITC 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 and understood their role 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 (see lean manufacturing). 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	Horizontal Deployment	Cost Saving / year is---	
		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 audits besides these experts from industry and 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 award ceremonies conducted by CII and QCFI both at State and National Level. This year, the outlets received First Position in the CII National 5S Excellence Award Held at India Habitat Center, New Delhi on 25th October 2017 and Received Gold Award and Par Excellence Award at State Level and National Level Quality Conventions respectively organized by Quality Circle forum of India, this year in the month of October and December respectively.



Figure 19a. Gold Award at State Level



Figure 19b. First 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 hold next 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 September 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 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 21a, 21b And 21c.

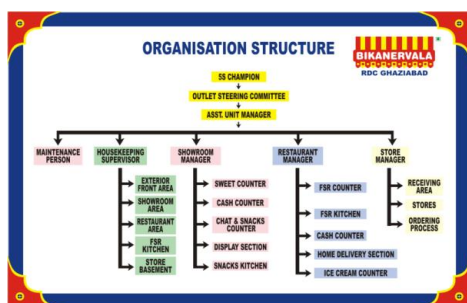


Figure 21a. Organization Structure



Figure 21b. Bakery Zone Owner

- सारा सामान उसकी निर्धारित जगह पर होना चाहिए
- जोन में 5S के नियमों के हिसाब से कार्य करना
- रखरखाव व माफ़ सफाई

Figure 21c. 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 22a, 22b, 22c and 22d clearly defines stringent cleaning standards



Figure 22a. Grooming Poster

WEEKLY 2017				
Location Area	WEEKLY	Application	Area	TYPE OF CLEANING
MR. Kitchen, Production and Chat Kitchen	MON	Drainage and Pests Flies, PVC strips	Outer and Inner	Deep Cleaning with Hard foam & Washing
Heat Counter, Sweet Counter, FSR Counter and Ice cream Counter	TUE	Drainage and Pests Flies	Outer and Inner	Deep Cleaning with Hard foam & Washing
Unwrapping and Barbecue Waiting area and Men	WED	Drainage	Outer and Inner	Deep Cleaning
Entrance and Restaurant Entrance Area	THU	Drainage and Pests Flies, Table, Chairs	Outer and Inner	Deep Cleaning
Dispatch, Packing Area, Stores	FRI	Drainage and Pests Flies	Outer and Inner	Deep Cleaning
Old Rooms, Air Rooms, Offices	SAT	Drainage and PVC strips	Outer and Inner	Deep Cleaning
Bakery and RO Water Area and other areas from both Gate	SUN	Drainage and	Outer and	Deep Cleaning

Figure 22b. Weekly Cleaning Schedule



Figure 22c. Janitor Station

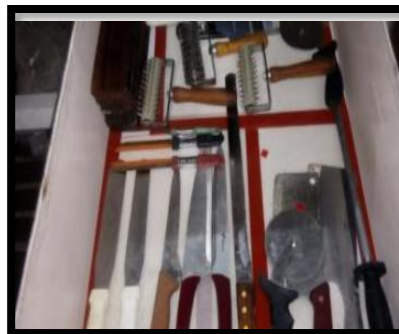


Figure 22d. Cleaning Brush Station

3. Bakery Tools Sorted And Arranged Properly As Shown In Before And After Pictures (Figure 23).



Before



Before



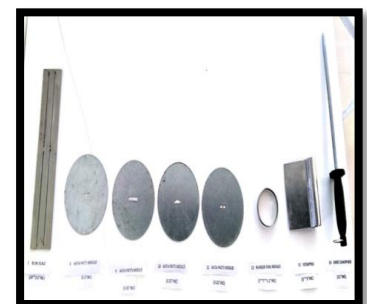
Before



After



After



After

Figure 23. Bakery Tools Sorted and Arranged Properly.

4 fifo visuals standards were developed to identify the product manufacturing day and date: day wise color stickers had been developed for easy implementation of the process .this point covers s4 (seiketsu/standardization)

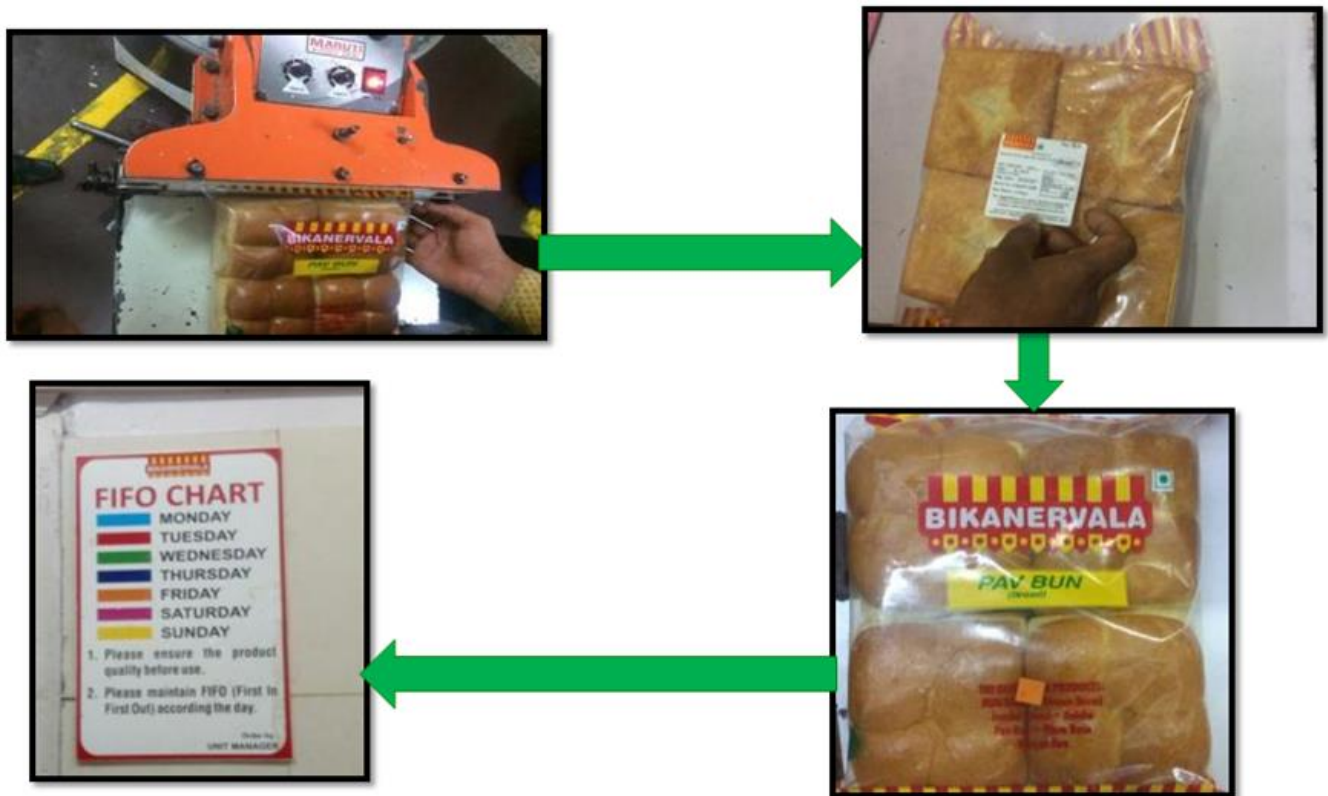


Figure 24. FIFO Color Coding System Developed

5. Bakery Standards Developed To Improve Efficiency In The System.

Oven Minimum And Maximum Loading Standards Were Defined And Similarly Bread Slicing Standards Were Defined And Displayed.



- MAXIMUM CAPACITY
- Bread : 10 Trays/18 Loaves.
- Bun:10 Trays/50 pkts.
- Biscuit:34

Figure 25a. Oven Loading Standards



- **SLICING CAPACITY**
- 1. Jumbo bread(2kg) :32 Slices
- 2. Milk bread(350gm) :16 Slices
- 3. Daliya Bread (350gm): 16 Slices
- 4. Multi grain bread(350gm) :16 Slices
- 5. Bran bread(350gm):16 Slices
- 6. Wheat bread(350gm) :16 Slices
- 7. Brown bread(350gm) :16 Slices
- 8. Sweet bread(350gm): 16 Slices
- **NOTE:- One slice extra each for top & bottom. No slicing for garlic bread.**

Figure 25b: Bread Slicing Standards

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

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 27th Oct 2017 and bagged the first 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 7th, 2017 and National Convention on Quality Concept was held at JSS University, Mysuru from 1st to 4th Dec 2017. Their positive actions combined with positive thinking resulted in achieving fruits of success.

VI. CONCLUSIONS

The case study aimed at designing and implementing Bakery Standards in the leading organization, Bikanervala Foods Pvt Ltd, RDC, Ghaziabad, 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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