Wipro- A Introduction….

Wipro Consumer Care is a part of **Wipro Enterprises (P) Ltd.**, a diversified business headquartered in Bengaluru.

Wipro Ltd.

- US $ 7.7 B (FY 17) multinational company
- 1,80,000 + employees from 100 nationalities
- 1300+ active global clients
- Present in 6 continents
- Part of NYSE TMT index

Information Technology

Wipro Enterprises (P) Ltd.

1.2 billion dollar multinational company

- Consumer Care & Lighting
- Infrastructure Engineering
- Wipro-GE Medical Systems

Journey so far...

Wipro Lighting established
Baby soft products launched

1990s

Establishment of **oil crushing unit** in Maharashtra, India

1940s

Manufacturing of hydrogenated cooking medium (Vanaspati) at Amalner, India.
Introduced flexi packs.
Santoor launched

1970s, 1980s

Indian Acquisitions: Chandrika, North-West Switches, Glucovita.
International Acquisitions : Unza, Yardley (India & Middle east)
Launch : Safewash liquid detergent and Furniture business

2000s

Recent Acquisition in **China** Zhongshan Ma Er **2016**

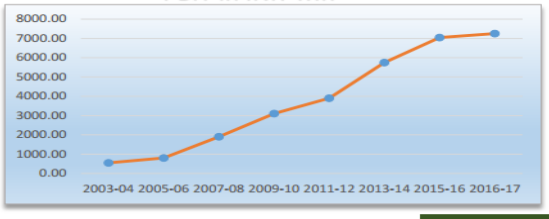
Indian Acquisitions:
Aramusk, Cleanray.
International Acquisitions:
LD Waxson's group & Yardley (UK & Europe)

2010s

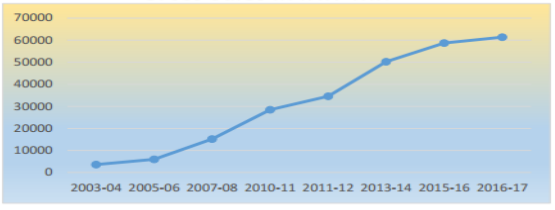
Our Facilities : 09 in India, 03 in Malaysia, 02 in China, 01 each in Indonesia & Vietnam

Wipro Consumer Care - Today

PBIT in INR Mn



Gross Sales in INR Mn



22 Nationalities

Presence in 60+ countries

16 Manufacturing facilities across the 5 Countries

20 x Growth in 14 Years

USD 911 million turnover for the FY 16 - 17

Harnessing over 30 leading brands

Global workforce of 10000+ with offices in 19 countries

51% of business generated outside India and 49% in India.

59% of workforce consists of women employees

Santoor

Ranked among the **Top 20** Personal Care products*

Ranked **#1** in West and South India and **#3** in Market Share Soap in the country

Launch: 1986

Countries Present In: India, Middle East

Product Range: Soaps, Talcum powder, hand wash, hand and body lotion, face wash, deodorants

Natural ingredients for youthful skin

Vision for Excellence

Wipro Leadership has given **vision of cost and quality leadership** to the organization & Six sigma will help to do so by means of

- Creating a **sustainable change** that would make Wipro **world class organization**.
- **Significant improvement** is delivering the **value** to its **customers** in terms of **features, price and time**.
- Achieve **cost leadership** and **best in class efficiency**.

Leadership role and Involvement in driving six sigma

Structure was created to drive, guide and remove the roadblocks by means of formation of Quality council

The Quality Council is formed at 3 levels

Chaired by Chairman, Wipro Corporation meet every quarter

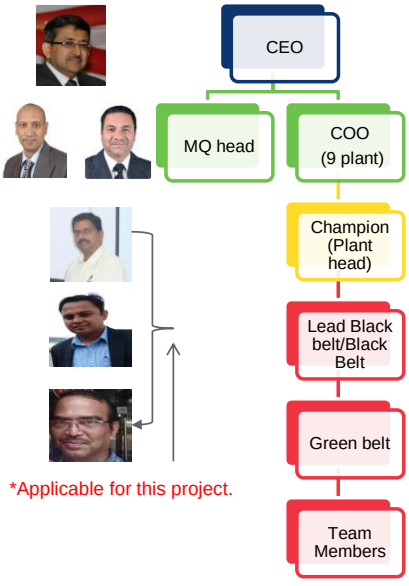
Chaired by business Unit head meets every month

Chaired by Division head, meet every month

The role and responsibilities of the Quality Council are :

- Review Six Sigma projects in the Business Unit / Division
- Remove obstacles/provide resources to projects at the initiative of the Champion
- Take stock of Financial Savings of Six Sigma projects
- Identify best practices and carry them across

Six Sigma structure



*Applicable for this project.

Role

- MQ head: Align business with six sigma, mentors Black Belts & is a guide for projects & source for technical competence. An accelerator for change.
- Champion: Accountable for all Quality initiatives , systems & Six Sigma projects in his/her BU / Division. Most are MBB/BB.
- LBB/BB: Attached to BU, trainer, facilitates in project selection, review & closure.
- GB is project leader and domain expert

.

Mission Quality: An umbrella covering all improvement initiative

Leadership created vision for the Mission Quality

Business and Customer Leadership:

- 15% of PBIT Saving should be coming from Six Sigma
- Cost Leadership- We should be cost competitive in market.
- All new products to be introduced using Six Sigma methodology and with a minimum Sigma

Process Leadersh

- Overall OEE sh

People Leadershi

- Achieve employ

Brand Leadership

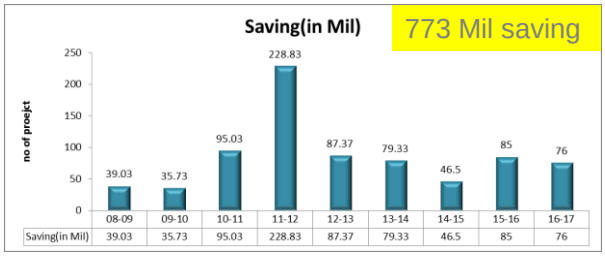
- Thought leader

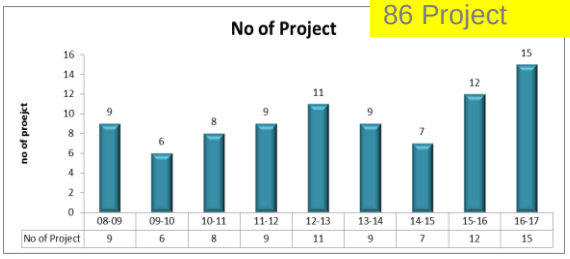
Cascading of MQ target at business unit level

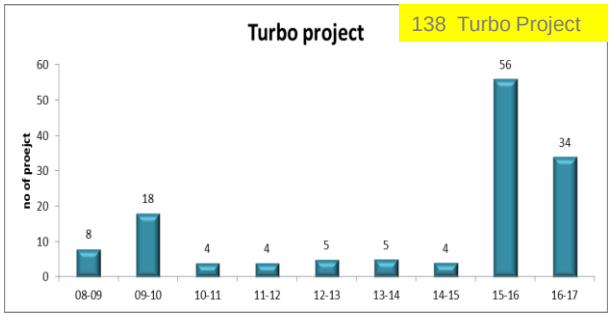
Sr.	Department	Responsibility	Fin Saving (Mn)	Innovations /Kaizen	BKPT	Six Sigma	Turbo
1	HR	Arvind Chauhan	0.00	6	3	0	1
2	Accounts	Puneet Wadhwa	0.50	6	3	0	1
3	Production - Switches	Virender Negi	1.00	20	10	1	3
4	Production - PCP/SW/GV/Bolt	Rishabh Kumar	8.00	40	20	2	6
5	Production - TSP/CSP	Parag Panvelkar	35.00	48	24	3	7
6	Production - FAGP	Ghulam Ghaus	30.00	40	20	1	4
7	Quality - EWD/CC	Kalpana/Anusuya	0.00	30	15	4	3
8	Plant Maintenance	Pardeep Kumar	12.50	60	30	3	7
9	Utility	I B Bhargava	8.00	40	20	1	5
10	Materials	Gourav Kataria	25.00	10	5	2	3
Plant Target			120.00	300.00	150.00	17.00	40.00

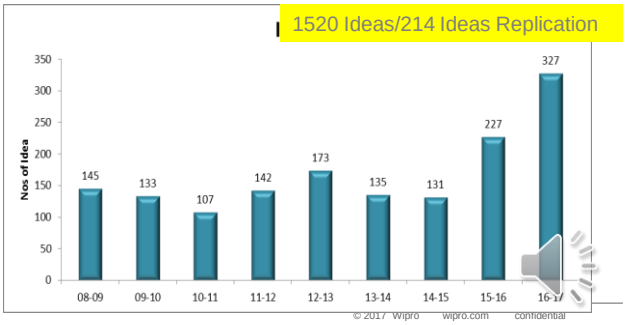
MQ target than cascaded to Department & Individual Level.

Six sigma at BADDI Consumer Care- Over the year









Reward & Recognition

Developing Right reward & recognition was another step toward internalization

- Recognition at **Quality Council** level by Top management.
- Good project sent for **external competition**.
- **Certification** after successful completion of the project.
- We also promote black belts to more **senior positions** such as factory managers etc.
- Most of department heads are green belts. So, just knowing that they have a **good career prospects** by being a black belt is good incentive for them to do well.

To Improve the performance of CSP plant to exceed the Internal customer expectation.

Project no.-LSSP.BCC1.1516.03

Methodology: DMAIC

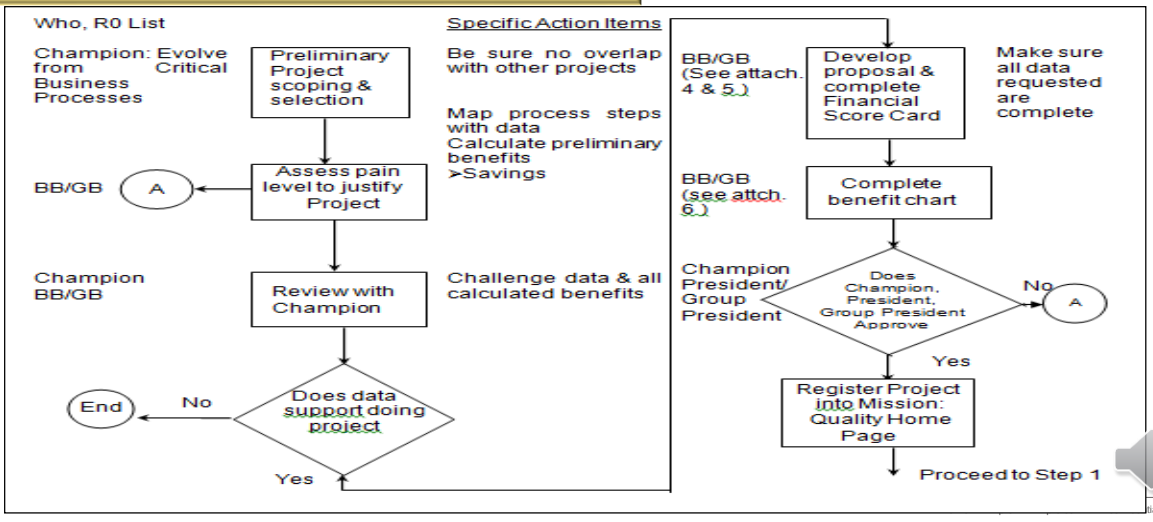
Business: Baddi Consumer Care and lighting

Green Belt: Venkatesaiah Gurram
Team Members: Omprakash, Ashwani Sharma, Jaswinder Sehgal, Dinesh Singh,Suresh P,Vikram Sharma
Black Belt: Sanjeev Kumar
MBB: Suresh Kaushal
Champion: Kalyanpur Raghunath

1.1.0 Understanding the context for project selection

1.1.0.1 : Who was responsible for selecting the project??

Project selection & approval Process



1.1.0 Understanding the context for project selection

1.1.0.1 : Who was responsible for selecting the project?? (stakeholder Role)

Role	Green Belt	Champion	Black Belt	Master Black Belt	President / Group President
Designation	Manager	Chief Executive or Location Head	-	-	President / Group President
Appointment of Green Belt	-	✓	✓	-	-
Appointment of Black Belt	-	✓	-	✓	✓
Selection of Critical Business Processes	-	✓	-	-	✓
Project selection	-	✓	✓	-	✓
Goal Line definition	✓	✓	✓	-	-
Project review	Weekly	Twice in a month	Twice in a month	once in a Quarter	Once in Quarter
Review methodology	Continuous involvement with detail	Focuses on steps of the process (Step 1-Step 6) and implementation	Continuous involvement with detail	Solves difficult problems with advanced tools	Reviews Goal Line set by Champion, and checks status key of project for last 3 months. Checks for financial and customer benefits.
Project closure	✓	✓	✓	✓	✓

1.1.0 Understanding the context for project selection

1.1.0.1 : What background information on the company or those who selected the project was provided to better understand the context of the project?

VOC + VOB + P&L + Customer complaint = Tentative Project list

Trend Chart

PC 12 :Ended on 31-03-2014
WCCLG, BADDI FACTORY
TREND CHART - TOILET SOAP

Page - 1

PRODUCTION		PC-01	PC-02	PC-03	PC-04	PC-05	PC-06	PC-07	PC-08	PC-09	PC-10	PC-11	PC-12	CUM
Santoor - 1st line	MT	587	612	784	643	616	759	580	583	735	624	656	693	7,872
Santoor - 2nd line	MT	1,028	1,410	1,433	1,365	1,426	1,003	1,145	1,093	1,417	1,169	1,333	1,410	15,232
Santoor - 3rd line		1,354	1,340	1,504	1,418	1,359	1,149	1,265	1,258	1,157	1,153	880	1,395	15,232
Total - Santoor Line Wise	MT	2,969	3,362	3,721	3,426	3,402	2,910	2,990	2,934	3,310	2,946	2,869	3,497	38,336
Santoor 50g X 4	MT	-	14.46	-	-	-	-	-	-	-	-	-	-	14.46
Santoor 50g Free Talc Offer'	MT		38.00	-	-	-	-	-	-	-	-	-	-	38.00
Santoor 55g X 4	MT	799.37	101.30	-	-	-	-	-	-	-	-	-	-	900.66
Santoor 55g - Single	MT	-	-	-	-	-	-	-	-	-	-	-	-	-
Santoor 50g+7G	MT												682.33	682.33
Santoor 50g+10gX4	MT		458.01	784.07	643.31	616.38	758.95	580.26	583.16	735.24	623.59	656.22	10.31	6,449.49
Santoor 100g	MT	1,952.03	2,537.01	2,496.65	1,993.11	1,557.56	1,771.10	1,970.06	2,255.28	1,500.02	1,845.96	1,781.75	2,232.53	23,893.03
Santoor 100g Super Saver	MT	85.05	66.50	77.17	99.10	83.46	95.46	63.82	95.62	76.38	61.24	70.44	73.02	947.26
Santoor 125g	MT	132.26	146.88	363.35	690.75	1,144.22	284.87	375.84	-	571.49	415.44	360.86	499.11	4,985.04
Santoor 100g x3	MT									426.51	-	-	-	426.51
Total - Santoor weight wise	MT	2,968.69	3,362.15	3,721.23	3,426.27	3,401.61	2,910.37	2,989.98	2,934.05	3,309.62	2,946.24	2,869.27	3,497.31	38,336.78

Page 1

1.2.0 Project Selection Process

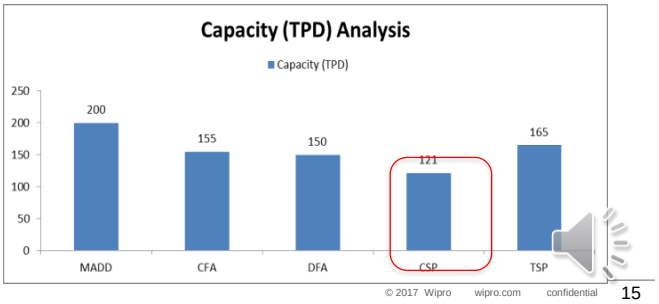
1.2.1.1 : How was the gap or opportunity brought to the attention of the project identification group?

P&L

Capacity Analysis

Who is the customer	What Customer need	What customer meant			
		What is the Need	Where is the need felt	why is the need felt	How is the situation handled now
TSF line	quality Soap noodles at minimal cost	Cost competitive	Comparing Costing of Soap noodles	Cost of noodles is higher compared to other locations	Production at High Cost

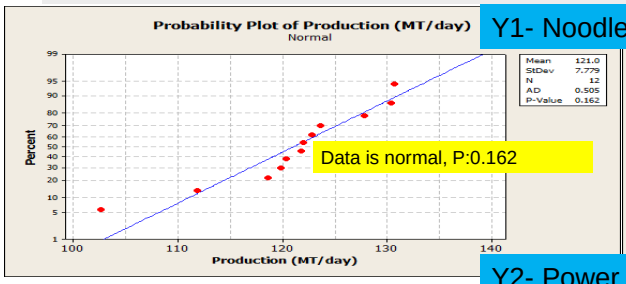
With the change in fiscal benefits The cost of production of the Soap noodles (SFG) for the Santoor Soap manufactured at Baddi unit has gone up by Rs 1500/MT (52.97 mil)

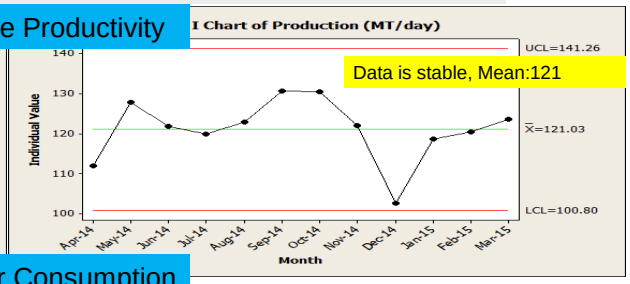


1.2.0 Project Selection Process

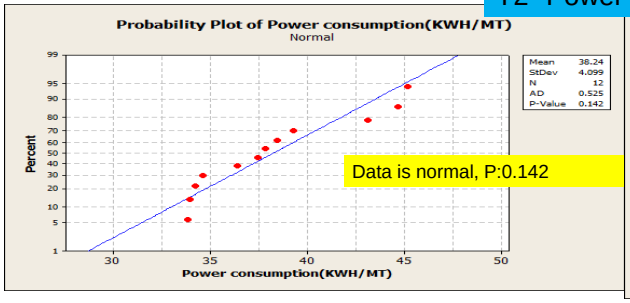
1.2.1.2 : What was the gap(problem Solving)??

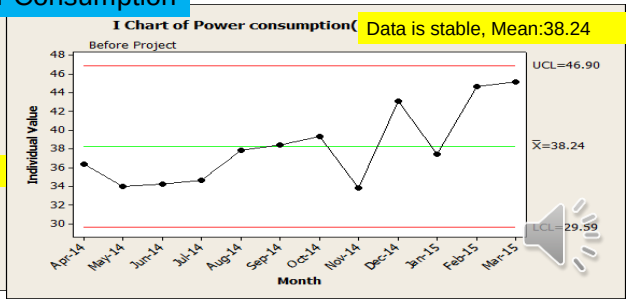
Y1- Noodle Productivity





Y2- Power Consumption

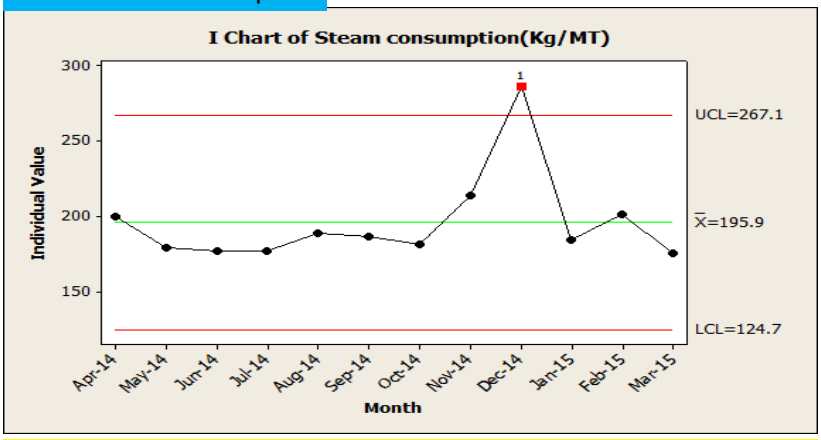




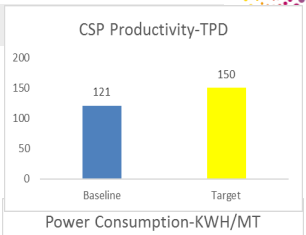
1.2.0 Project Selection Process

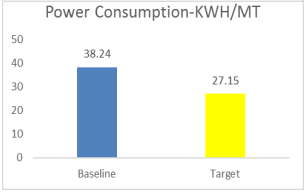
1.2.1.2 : What was the gap(problem Solving)??

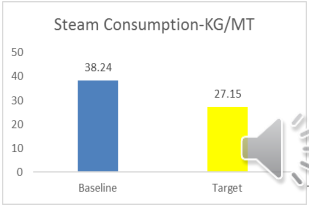
Y3- Steam Consumption



Due to high rework during month of Dec'14, the steam consumption was very high

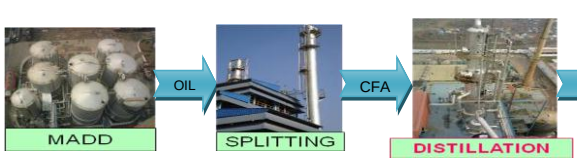




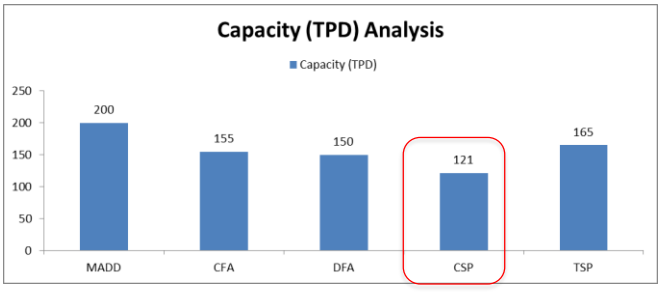


1.1.0 Understanding the context for project selection

1.1.1.2 : What area of the organization had the gap or opportunity??



CFA – Crude Fatty Acid
DFA – Distilled Fatty Acid
CSP – Continuous Saponification Plant
Noodle – Soap Noodles



1.2.0 Project Selection Process

1.2.2.1 : What data was generated to help select the project?

What is the source (Measurement System) for collecting the Data?

- Production Report
- Power consumption report
- Steam consumption report

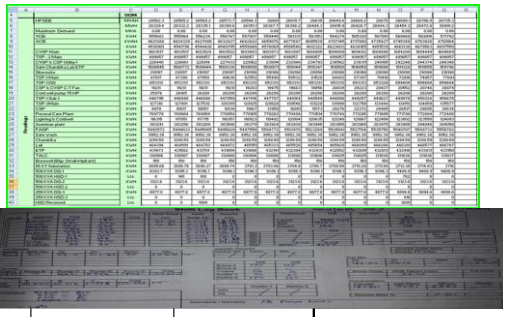
How many Data points are Required

- 01 Nos. for a Day

Which period data is collected?

- Apr'14 to Mar'15

Financial reporting



DATED	CSP Noodle Production (MT)	Total Noodle Production (MT)	CSP Power Consumption (KWH)	CSP+CVSP Utility (Power Consumption) (KWH)	Total Power Consumption (kwh)	PER MT POWER CONSUMPTION KWH/MT(Noodle)	Base line KWH/MT(Noodle)	%AGE VARIATION AS PER STD. For Noodle
24-Nov-15	113	113	1413	2068	3605	32	27	-17
25-Nov-15	143	143	1922	2295	4326	30	27	-11
26-Nov-15	84	84	1118	1750	2963	35	27	-30
5-Dec-15	50	103	1168	2461	4670	45	27	-67
6-Dec-15	113	146	1612	2353	5753	40	27	-45
7-Dec-15	135	135	1612	2353	3839	28	27	-5
8-Dec-15	146	146	1612	2353	3966	27	27	0

Illustrative

1.2.0 Project Selection Process

1.2.2.2 : What methods and/or Tools were used to assess or prioritize the need for the project?

Project evaluation criteria

Sl	Project name	Impact: Customer	Profitability	Revenue	Internal customer	Strategic	Total	Rank
1	To achieve FO in TP-15 as per standard	2	3	1	1	3	2	6
2	Reduction in steam consumption in SWEP	2		1	2	2	1.75	7
3	Increase the Noodle productivity in CSP	3	5	4	5	5	4.4	1
4	Increase the soap production in TSP 1	3	5	5	4	4	4.2	2
5	To achieve steam consumption in MADD as per standard.	2	3	1	2	2	2	6
6	To achieve FO in ST-20 as per standard	2	3	1	2	2	2	6
7	To reduce power consumption by 5 % in FAGP	2	3	1	2	2	2	6
8	To reduce RM expenses (Rs in Lac-Total Baddi CC)	2	3	2	2	2	2.2	5
9	To use Pitch in Boiler	1	4	3	3	4	3	4
10	Reduce the DPMO on TSP line	5	3	3	4	5	4	3

Rating 1-5
where
1- low
5- high

1.2.0 Project Selection Process

1.2.2.3 : Why were these methods and/or tools used to select the project?

Tool	Why?
Brainstorming	To Identify the pain of the people
VOC/VOB	To understand the internal/external customer pain & Impact on the business.
Pareto chart	To identified the priority
Trend chart	To identified the trend & losses against standard

1.2.0 Project Selection Process

1.2.3.1 : What goals(organizational and/or local),performance measures, and/or strategies where the project expected to impact?

Business and Customer Leadership:

- 15% of PBIT Saving should be coming from Six Sigma
- Cost Leadership- We should be cost competitive in market.
- All new products to be introduced using Six Sigma methodology and with a minimum Sigma value of “5”

Process Leadership:

- Overall OEE should be greater than 85.

People Leadership:

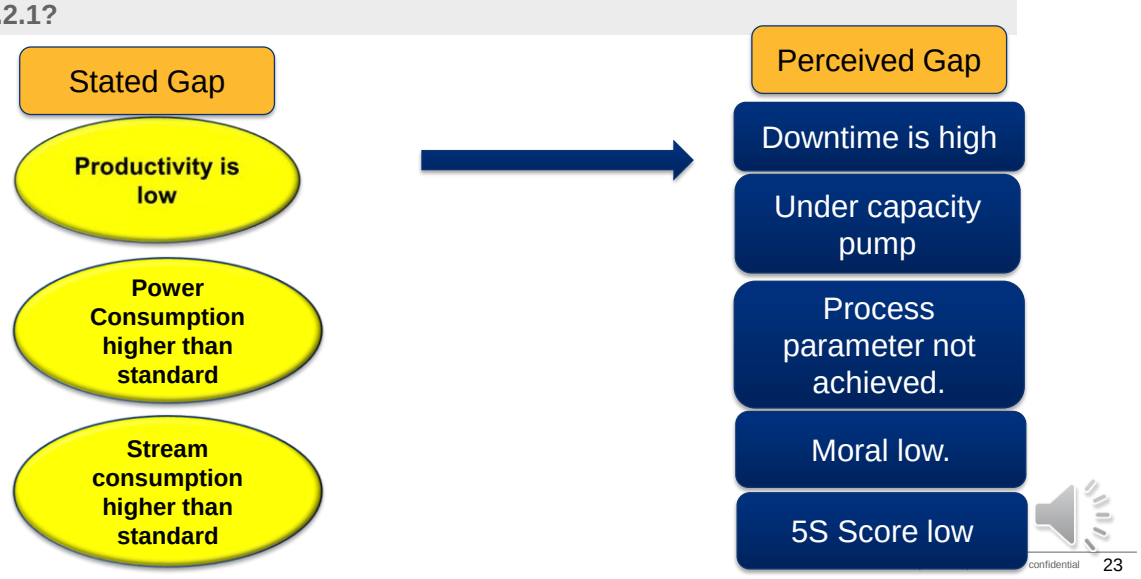
- Achieve employee satisfaction by EPS showing overall satisfaction of 85

Brand Leadership:

- Thought leader in Quality. Wipro to be synonymous with Six Sigma

1.2.0 Project Selection Process

1.2.3.2 : What was the relations between the stated measures and perceived gap in 1.2.1?



1.2.0 Project Selection Process

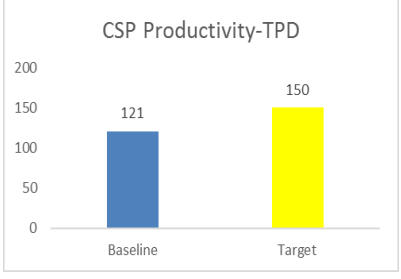
1.2.3.3 : What was the problem/project objective statement that expresses where the organization wanted to be at the end of the project?

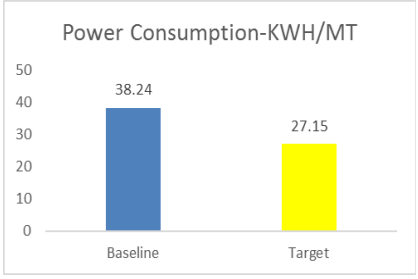
Primary Metrics & Objective:

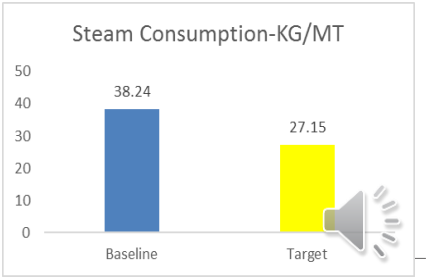
Y1: Increase the productivity from 121 TPD to 150 TPD

Y2 : Reduce the power cons. from 38.5 kwh/ton to 27.15 kwh/ton

Y3: Reduce the Steam cons from 196 kg/ton to 175 kg/ton

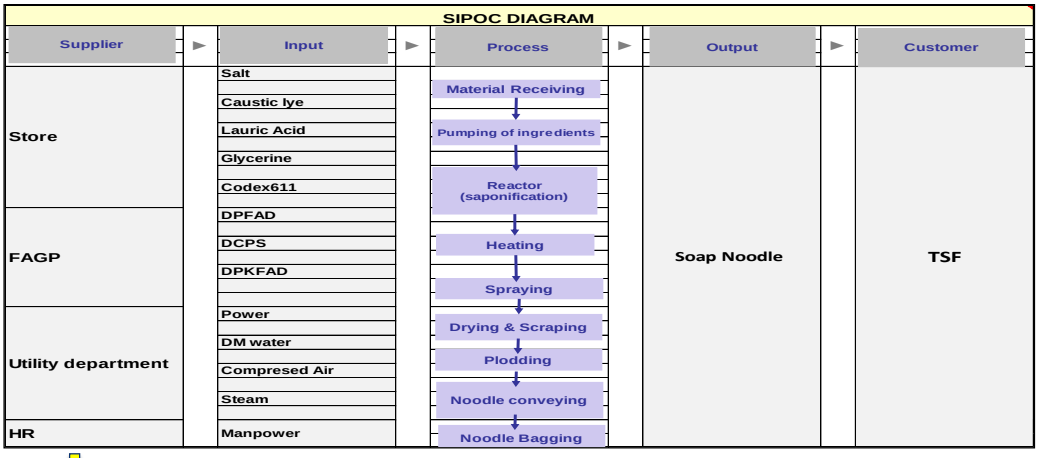






1.3.0 Team Selection and Preparation

1.3.1.1 : How were the stakeholder groups identified?



+ President+ COO+ Mission Quality Head+ Location Head

1.3.0 Team Selection and Preparation

1.3.1.2 : What or who were the stakeholder groups?

- Factory Head(project Champion)
- BB(Project Facilitator)
- GB- Project Leader
- Project team
- MQ Head (MBB)
- BU team (President & COO)

1.3.0 Team Selection and Preparation

1.3.2.1 : What Knowledge or skill sets were determined to be necessary for successful completion of the project?

Stake Holder	Skill Set
Factory Head(project Champion)	Analytical skill
BB(Project Faclitator)	Problem Solving skill
GB- Project Leader	Team building
Project team	Communication Skill
MQ Head (MBB)	Technical Skill
BU team (President & COO)	Process Knowledge
	Product Knowledge

1.3.0 Team Selection and Preparation

1.3.2.2 : To what extend did the existing stakeholder groups have the required knowledge or skills?

Stake Holder	Skill Set	Required	AS IS
Factory Head(project Champion)	Analytical skill	H	H
BB(Project Facilitator)	Problem Solving skill	H	M
GB- Project Leader	Team building	H	M
Project Member	Communication Skill	H	M
MQ Head (MBB)	Technical Skill	H	H
BU team (President & COO)	Process Knowledge	H	M
	Product Knowledge	M	M

H: High; M:Medium;L:Low

1.3.0 Team Selection and Preparation

1.3.2.3 : What additional knowledge or skills were brought in to make project successful?

Stake Holder	Skill Set	Additional Skill Set
Factory Head(project Champion)	Analytical skill	Process CSP
BB(Project Faclitator)	Problem Solving skill	Soap chemistry
GB- Project Leader	Team building	Six sigma tools
Project team	Communication Skill	
MQ Head (MBB)	Technical Skill	
BU team (President & COO)	Process Knowledge	
	Product Knowledge	

1.3.0 Team Selection and Preparation

1.3.3.1 : Before the project started, what specific training was done?

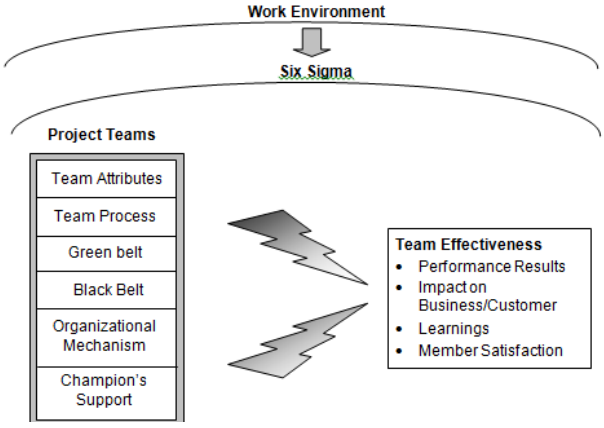
1. GB training (3 days)
2. Process training.
3. Teaming training.

1.3.0 Team Selection and Preparation

1.3.3.2 : Before the project started, what was done to prepare the team to work together as a team?

Teaming training done

An Effectiveness Framework for Team



Roles in Team Meetings

Team Role	Focus	Duties
Leader (usually Green Belt)	Balance; progress on task; attention to process	• Use facilitative behaviors • Poll for consensus • Guide without dominating • Encourage participation • Monitor the process • Close issues, focus on results • Assign responsibilities • Measure effectiveness of process • Ensure team discipline
Facilitator (usually Black Belt)	Team interaction process	• Use facilitative behaviors • Call attention to process • Negotiate roles • Stay out of content except when methodology inputs are needed • Be a Coach and Mentor • Ensure the team is on track-process and method wise • Guide and support the GB • Give candid feedback to team on how its doing • Do not do what team can

1.3.0 Team Selection and Preparation

1.3.4.1 : What Roles and expectations were determined ahead of the project?

Team	Roles	Expectation
Project Leader	Leads the project & coordinate with members	Coordinate the team & Delivered the result
BB	Training plan & facilitate the team	Develop the team for execution
Process team	Improve the process parameter	Working on daily continual improvement
Maintenance team	Uptime of machine	Fix the machine, implement the new method/way.
Project Sponsor	Role in project /GB selection, Review &support , Removing Roadblock.	Remove the road block
BU team	Review of status, financial saving, approval for investment.	Approval for investment & change

1.3.0 Team Selection and Preparation

1.3.4.2 : What deadlines and deliverables did the team have to consider ahead of actually starting the project?

Who	Deliverables	Deadline
Team Leader	Project charter	15th Apr'15
BB	GB workshop	7th Apr'15
CHRD	Team building	07th May'15
Team Members	Training on process	10th Apr'15

1.3.0 Team Selection and Preparation

1.3.4.3 : Before the project started, what team routines, including communication, were established?

Team Meeting	Weekly (11:00 AM- 12:00 PM)
Review -Factory Head/BB	Biweekly
Review -MQ head	Quaterly
Status Review - COO	Quaterly
Status Review - President	Quarterly

Communication Plan			
Particular	**Target**	**frequency**	**Media**
Review MoM-Factory Head/BB	Factory head, MQ head & team	Biweekly	Mail/Meeting
Project status & Finanical Saving report	Factory head, MQ head & team	Monthly	Mail
Review -MQ head -MoM	BO,Factory head, all managers & team	Quaterly	Mail/Meeting
Status Review - COO- MoM	BO,Factory head, all managers & team	Quaterly	Mail/Meeting
Status Review - President	BO,Factory head, all managers & team	Quaterly	Mail/Meeting

2.1.0 Key Measures Expected of the Project

2.1.1.1 : What Specific goals and/or measures was the team trying to achieve with the project?

₹

Primary Metrics & Objective:

Y1: Increase the productivity from 121 TPD to 150 TPD

Y2 : Reduce the power cons. from 38.5 kwh/ton to 27.15 kwh/ton

Y3: Reduce the Steam cons from 196 kg/ton to 175 kg/ton

Potential Financial saving:

- FY15-16- 9 mil
- FY16-17-13 mil

2.1.0 Key Measures Expected of the Project

2.1.1.2 : What additional potential benefits, other that the specific goals and/or measures, was the project expected to impact?

- Commitment of team to achieve the goal
- Team moral will be lifted to challenge our own benchmark
- Improve the 5S of the area.
- Working condition will be improve .
- Bring the can do attitude
- Survival of the factory
- Environmental concern

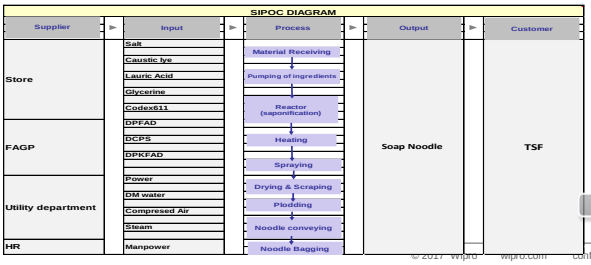
2.2.0 Possible Root Caused/Improvement Opportunities

2.2.1.1 : What Methods and/or tools were used to identify possible root caused/improvement opportunities?

Method: DMAIC		
Step 0 Step 1	Establish CTQ Characteristics Define a Project	D
Step 2 Step 3	Establish Performance Parameters Validate Measurement System for 'Y'	M
Step 4 Step 5 Step 6	Establish Process Baseline Define Performance Goals Identify Variation Sources	A
Step 7 Step 8 Step 9	Explore Potential Causes Establish Variable Relationship Design Operating Limits	I
Step 10 Step 11 Step 12	Validate Measurement System for 'X' Verify Process Improvement Institutionalize New Capability	C

Tool

- ❑ High Level SIPOC
- ❑ Brainstorming
- ❑ Fishbone diagram
- ❑ Parato Chart
- ❑ Loss Measurement



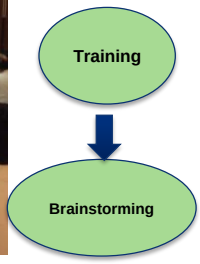
2.2.0 Possible Root Caused/Improvement Opportunities

2.2.1.2 : Why were these methods and/or tools selected [to identify possible root caused/improvement opportunities]?

Tools Used	Why Tools Used
High Level SIPOC	To understand the input variable & possible cause.
Brainstorming	Identify the causes from experience
Fishbone diagram	Identify the causes from 5M & 1E
Parato Chart	To Prioritize the high opportunity area for further analysis
Loss Measurement	To identify the downtime/frequency losses

2.2.0 Possible Root Caused/Improvement Opportunities

2.2.1.3 : How was the team prepared to use these methods and/or tools[to identify possible root caused/improvement opportunities]?



Reason for plant stoppage	Freqeuncy
High reactor pressure	13
Strainer chocking	11
Low Feed rate of pump	9
Pipeline chocking	6
scrapper load high	4
Roatary jamming	3
Gasket rapture	2
Silo full	2
Noodle line chocking	1

Issues- June'15	Downtime (mins)
Noodle conveying problem	977
Vacuum Pump problem	968
Mesh cleaning	760
Chiller Problem	735
Caustic Deviation	654
Barometric water temp high	371
No space in silo	249
Lauric deviation	223
Steam Pressure low	222
Noodle bagging issue	145
Coldwell pump trip	71
Lauric feedline gasket broken	45

2.2.0 Possible Root Caused/Improvement Opportunities

2.2.2.1 : What data was generated and how was the data analyzed to identify the possible root cause/improvement opportunities?

Downtime & frequency analysis

Fishbone for potential cause

Process data for regression analysis

Issues- June'15	Downtime (mins)
Noodle conveying problem	977
Vacuum Pump problem	968
Mesh cleaning	760
Chiller Problem	735
Caustic Deviation	654
Barometric water temp high	371
No space in silo	249
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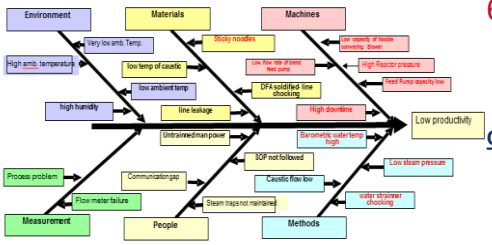
Steam Pressure low	222
Noodle bagging issue	145
Coldwell pump trip	71
Lauric feedline gasket broken	45

PHE O/L Caustic Temp	PHE O/L P	Reactor Te	T1 Temp	T2 Temp	T3 Temp	T4 Temp	T5 Temp	T8 Temp	T9 Temp	Soap O/L	CT wtr pla	Booster O/		Ejector cn	Reactor Pr	Reactor O	Heat exch
40.9	40.9	106.6	67.0	43.3	51.2	65.7	65.6	56.7	49.8	103.9	32.7	36.2	10.4	39.4	1.6	100.0	3.4
40.6	40.7	106.4	66.9	43.2	51.0	65.5	65.4	56.7	49.5	104.5	32.9	36.6	12.3	39.7	1.5	100.0	3.4
40.3	40.6	106.4	66.3	43.2	50.9	65.4	66.0	56.5	49.9	104.3	33.1	36.8	10.2	40.0	1.5	100.0	3.5
40.1	40.5	106.5	66.1	43.2	50.8	65.6	66.4	56.6	49.8	104.0	33.3	36.9	9.6	40.3	1.6	100.0	3.5
40.1	40.5	113.0	66.8	44.3	50.7	65.8	66.7	57.3	49.7	106.7	34.3	37.4	12.2	41.1	1.5	100.0	3.3
40.5	41.0	106.9	66.7	44.2	50.6	65.9	66.1	57.8	49.7	105.3	34.2	38.2	12.8	41.4	1.4	100.0	3.5
40.9	41.3	106.8	66.8	44.0	50.5	65.8	66.0	57.6	49.7	104.8	35.0	38.6	15.9	42.1	1.6	100.0	3.5
41.6	41.9	106.5	66.7	43.9	50.4	65.8	65.8	57.5	49.6	103.1	34.7	38.2	15.9	41.7	1.6	100.0	3.5
42.1	42.3	106.7	66.5	43.9	50.3	65.8	65.7	57.3	49.4	103.9	35.3	38.8	14.4	41.9	1.5	100.0	3.5
42.6	42.6	114.7	66.4	44.4	50.3	65.5	65.5	57.1	49.6	102.6	33.7	36.7	17.7	40.3	1.4	100.0	3.3
42.9	42.6	106.5	66.3	45.4	50.2	65.6	65.2	56.9	63.0	104.0	34.0	37.7	11.6	41.0	1.3	100.0	3.5
43.3	42.8	109.6	66.2	45.3	50.1	65.5	65.1	57.8	64.8	103.5	34.4	37.9	13.2	41.3	1.1	100.0	3.5
43.6	42.9	107.0	66.2	45.1	50.0	65.6	66.0	57.7	64.1	103.6	35.5	38.9	14.4	42.5	1.7	100.0	3.5
43.7	42.9	107.4	66.2	45.1	51.5	65.5	66.2	57.8	63.9	103.8	34.8	38.4	15.3	42.1	1.7	100.0	3.5
43.4	42.5	105.9	65.5	44.9	52.3	65.5	66.1	57.7	63.5	103.5	34.1	37.6	12.1	41.4	1.5	100.0	3.4
43.2	42.5	106.5	65.1	44.8	52.7	65.5	66.0	57.6	63.1	102.7	33.8	37.2	10.0	41.0	1.8	100.0	3.5
43.0	42.5	107.2	64.9	44.6	53.1	65.4	65.8	57.4	62.7	102.8	33.6	37.4	10.9	40.9	1.7	100.0	3.5
42.8	42.5	107.1	64.7	44.5	53.3	65.3	66.2	57.3	62.4	104.2	33.7	37.4	10.1	40.9	1.9	100.0	3.6
42.5	42.4	106.1	64.6	49.4	53.5	65.1	66.2	54.5	62.0	104.2	33.7	37.5	9.2	40.9	1.9	100.0	3.5
42.2	42.2	105.8	64.2	46.8	53.6	65.0	66.0	54.0	61.6	104.3	33.7	37.3	11.7	41.0	1.9	100.0	3.5
42.0	42.1	106.3	64.2	46.0	53.6	65.0	65.9	53.9	61.2	103.7	33.8	37.3	14.0	41.0	1.8	100.0	3.5
41.7	42.1	105.9	64.3	44.9	53.7	64.9	65.8	52.8	60.9	103.5	33.9	37.2	10.8	41.1	2.0	100.0	3.5
41.3	41.7	106.2	64.0	42.5	53.7	64.8	65.6	52.4	60.4	103.7	34.1	37.6	11.4	41.3	1.9	100.0	3.5
40.8	41.4	105.8	63.9	41.0	53.7	64.8	65.5	52.3	60.0	103.7	34.3	37.7	9.7	41.5	1.8	100.0	3.5

2.2.0 Possible Root Caused/Improvement Opportunities

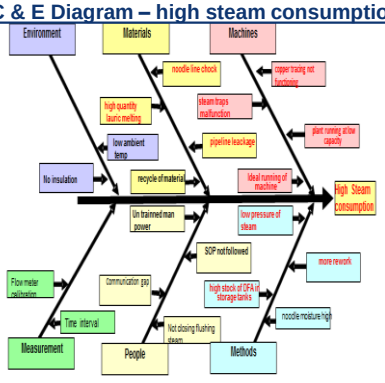
2.2.2.2 : What were the possible root cause/improvement opportunities?

C & E Diagram – Low Productivity

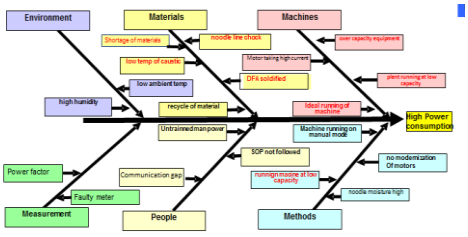


63 Possible cause identified

C & E Diagram – high steam consumption



Fish Bone Diagram – High Power consumption

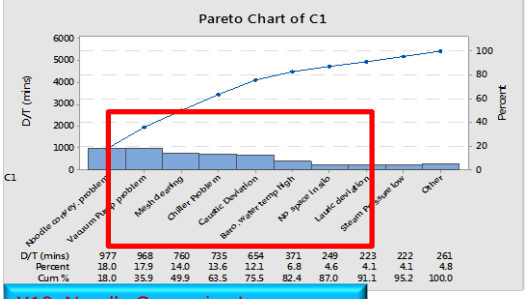


Y	X's	Causes
Y1: Low Producitivity	X1	Vacuum Problem
	X2	Soap O/L temp from H/E
	X3	Chiller problem
	X4	Caustic deviation
	X5	Barometric Water temp high
	X6	Steam pressure low
	X7	Pipeline chocking
	X8	Low Feed rate of pump
	X9	High reactor pressure
	X10	Noodle Conveying issue
Y2:High Power consumption	X11	Over capacity pump
	X12	Idle Running
	X10	Noodle conveying issue
	Y1	Low Productivity
Y3:High steam consumption	X7	Pipeline chocking
	X13	Line leakage
	X14	More rework
	X15	higher stock of DFA in storage tanks
	X16	steam traps malfunction
	X17	Copper tracing damaged

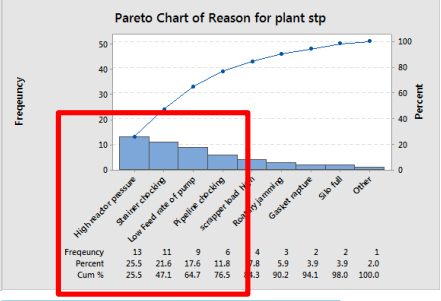
2.3.0 Final Root cause(s)/Improvement Opportunity(ies)

2.3.1.1 : What methods and/or tools were used to identify the final root cause(s)/improvement opportunity(ies)?

Parato Analysis



X10: Noodle Conveying Issue
X1: Vacuum Pump Problem
X2:Chiller problem
X3:Caustic Deviation
X4: Barometric water temp high
X5:Steam Pressure low

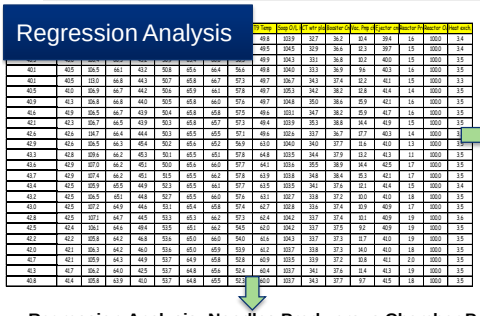


X6: High reactor Pressure
X7:Strainer Chocking
X8:Low feed rate of pump
X9:Pipeline Choking

2.3.0 Final Root cause(s)/Improvement Opportunity(ies)

2.3.1.1 : What methods and/or tools were used to identify the final root cause(s)/improvement opportunity(ies)?

Regression Analysis



Regression Analysis: Vacuum Chamb versus Soap O/L Hea, CT wtr plant, ...

```
The regression equation is
Vacuum Chamber Pressure = - 76.0 + 0.366 Soap O/L Heat Exch. Temp
                          + 1.29 CT wtr plant I/L Temp
                          + 3.09 Booster Cnd. wtr Temp
                          - 1.26 Ejector cnd. wtr Temp
                          - 2.75 Heat exch. steam pressure
                          - 0.788 Steam pressure to Vacuum sys.
                          - 0.00039 MP STEAM FLOW TSP

Predictor                          Coef    SE Coef       T      P
Constant                        -75.97      22.56   -3.37  0.001
Soap O/L Heat Exch. Temp         0.3657     0.1953    1.87  0.065
CT wtr plant I/L Temp            1.2940     0.6705    1.93  0.047
Booster Cnd. wtr Temp            3.0948     0.3323    9.31  0.000
Ejector cnd. wtr Temp           -1.2622     0.5568   -2.27  0.026
Heat exch. steam pressure       -2.7471     0.7234   -3.80  0.000
Steam pressure to Vacuum sys.   -0.7882     0.7401   -1.07  0.290
MP STEAM FLOW TSP             -0.000393   0.001014   -0.39  0.699

S = 2.02481    R-Sq = 83.6%    R-Sq(adj) = 82.2%
```

Regression Analysis: Noodles Prod versus Chamber Pres, Soap O/L Hea, ...

```
The regression equation is
Noodles Production_1 = - 2539 - 116 Chamber Pressure
                       + 126 Soap O/L Heat Exch. Temp_1 + 12.1 Reactor Temp

Predictor                        Coef  SE Coef      T      P
Constant                        -2539     5518  -0.46  0.647
Chamber Pressure              -115.91    12.85  -9.02  0.000
Soap O/L Heat Exch. Temp_1     125.60    39.76   3.16  0.002
Reactor Temp                    12.07    20.69   0.58  0.562

S = 455.305    R-Sq = 58.6%    R-Sq(adj) = 56.9%
```

X2:Vaccum chamber Pressure
X2: Soap O/L heat exch temp

X2:CT water temp
X6: Steam pressure

2.3.0 Final Root cause(s)/Improvement Opportunity(ies)

2.3.1.2 : Why were these methods and/or tools selected [to identify the final root cause(s)/improvement opportunity(ies)]?

Y	X's	Causes	Validation Method	Why ?
Y1: Low Producitivity	X1	Vacuum Problem	Downtime & regression analysis	1. Downtime Parato used to identify major downtime. 2. Regression was used to identify the Critical factor.
	X2	Soap O/L temp from H/E	regression analysis	
	X3	Chiller problem	Downtime Pareto Analysis	
	X4	Caustic deviation	Downtime Pareto Analysis	
	X5	Barometric Water temp high	Downtime Pareto Analysis	
	X6	Steam pressure low	Downtime & regression analysis	
	X7	Pipeline chocking	Freq. Pareto Analysis	
	X8	Low Feed rate of pump	Freq. Pareto Analysis	
	X9	High reactor pressure	Freq. Pareto Analysis	.
	X10	Noodle Conveying issue	Gemba & Downtime Pareto Analysis	
Y2:High Power consumption	X11	Over capacity pump	during motor load test, it was taking less current	To identify the actual power load.
	X12	Idle Running	Gemba	
	X10	Noodle conveying issue	Pareto Analysis	
	Y1	Low Productivity	Production trend	Low productivity will affect the power consumption ratio
Y3:High steam consumption	X7	Pipeline chocking	Why why analysis	
	X13	Line leakage	Maintenance report	Line leakage was found to be regular issue mainly during the winter.
	X14	More rework	Production trend	High rework is causing higher steam & power consumption as well as low productivity.
	X15	higher stock of DFA in storage tanks	Fat stock report	due to planning mistakes, DFA which is raw material for the Noodle plant is storage for long time which needs steam for heating
	X16	steam traps malfunction	Maintenance report	during the inspection it was found steam traps are malfunctioning.
	X17	Copper tracing damaged	Maintenance report	Cu tracing is used to heat the fat mix , if it is damaged it will lead to more stream consumption.

2.3.0 Final Root cause(s)/Improvement Opportunity(ies)

2.3.1.3 : How was the team prepared to use these methods and/or tools[to identify possible root caused/improvement opportunities]?

- GB training- 3 days
- DOE training- 0.6 day
- Regression & Parato training- 0.5 day
- Energy Audit
- Steam Audit

2.3.0 Final Root cause(s)/Improvement Opportunity(ies)

2.3.2.1 : What data was generated and how was the data analyzed to identify the final root cause(s)/improvement opportunity(ies)?
2.3.2.2 : What are specific examples of data analysis that lead to the final root cause?

Process parameter of CSP

PHE O/L Caustic Temp	PHE O/L F	Reactor Te	T1 Temp	T2 Temp	T3 Temp	T4 Temp	T5 Temp	T8 Temp	T9 Temp	Soap O/L H	CT wtr pla	Booster Cn	Vac. Pmp ch	Ejector cn	Reactor Pr	Reactor O/	Heat exch.
40.9	40.9	106.6	67.0	43.3	51.2	65.7	65.6	56.7	49.8	103.9	32.7	36.2	10.4	39.4	1.6	100.0	3.4
40.6	40.7	106.4	66.9	43.2	51.0	65.5	65.4	56.7	49.5	104.5	32.9	36.6	12.3	39.7	1.5	100.0	3.4
40.3	40.6	106.4	66.3									36.8	10.2	40.0	1.5	100.0	3.5
40.1	40.5	106.5	66.1									36.9	9.6	40.3	1.6	100.0	3.5
40.1	40.5	113.0	66.8									37.4	12.2	41.1	1.5	100.0	3.3
											34.2	38.2	12.8	41.4	1.4	100.0	3.5
											35.0	38.6	15.9	42.1	1.6	100.0	3.5
											34.7	38.2	15.9	41.7	1.6	100.0	3.5
											35.3	38.8	14.4	41.9	1.5	100.0	3.5
											33.7	36.7	17.7	40.3	1.4	100.0	3.3
											34.0	37.7	11.6	41.0	1.3	100.0	3.5
											34.4	37.9	13.2	41.3	1.1	100.0	3.5
											35.5	38.9	14.4	42.5	1.7	100.0	3.5
											34.8	38.4	15.3	42.1	1.7	100.0	3.5
											34.1	37.6	12.1	41.4	1.5	100.0	3.4
												37.7	9.7	41.5	1.8	100.0	3.5

Regression Analysis: Vacuum Chamb versus Soap O/L Hea, CT wtr plant, ...

The regression equation is

Vacuum Chamber Pressure = - 76.0 + 0.366 Soap O/L Heat Exch. Temp
+ 1.29 CT wtr plant I/L Temp
+ 3.09 Booster Cnd. wtr Temp
- 1.26 Ejector cnd. wtr Temp
- 2.75 Heat exch. steam pressure
- 0.788 Steam pressure to Vacuum sys.
- 0.00039 MP STEAM FLOW TSP

Predictor	Coef	SE Coef	T	P
Constant	-75.97	22.56	-3.37	0.001

Regression Analysis: Noodles Prod versus Chamber Pres, Soap O/L Hea, ...

The regression equation is

Noodles Production_1 = - 2539 - 116 Chamber Pressure
+ 126 Soap O/L Heat Exch. Temp_1 + 12.1 Reactor Temp

R-Predictor	Coef	SE Coef	T	P
Constant	-2539	5518	-0.46	0.647
Chamber Pressure	-115.91	12.85	-9.02	0.000
Soap O/L Heat Exch. Temp_1	125.60	39.76	3.16	0.002
Reactor Temp	12.07	20.69	0.58	0.562

S = 455.305 R-Sq = 58.6% R-Sq(adj) = 56.9%

Chamber Pressure & O/L Heat exchanger temp is critical for production

2.3.0 Final Root cause(s)/Improvement Opportunity(ies)

2.3.2.3 : What was (were)the final root cause(s)/Improvement opportunity(ies)?
2.3.3.1 : How was(were) the final root cause(s)/Improvement opportunity(ies) validated?
2.3.3.2 : What evidence showed that the final root cause(s)/Improvement opportunity(ies)were validated prior to solution development

Y	X's	Causes	Validation Method	Out Come
Y1: Low Productivity	X1	Vacuum Problem	Downtime & regression analysis	During the downtime analysis X1 to X9 came out as major cause of failure which is affecting the productivity. Also, regression anlysis was done to validiate the some of the crtical factor.
	X2	Soap O/L temp from H/E	regression analysis	
	X3	Chiller problem	Downtime Pareto Analysis	
	X4	Caustic deviation	Downtime Pareto Analysis	
	X5	Barometric Water temp high	Downtime Pareto Analysis	
	X6	Steam pressure low	Downtime & regression analysis	
	X7	Pipeline chocking	Freq. Pareto Analysis	During the why why analysis line chocking/ strainer chocking came out as reason for less producitivity.
	X8	Low Feed rate of pump	Freq. Pareto Analysis	
	X9	High reactor pressure	Freq. Pareto Analysis	high reactor pressure is also a reason for low productivity.
	X10	Noodle Conveying issue	Gemba & Downtime Pareto Analysis	
Y2:High Power consumption	X11	Over capacity pump	during motor load test, it was taking less current	chiller pump was found to be high capacity.
	X12	Idle Running	Gemba	
	X10	Noodle conveying issue	Pareto Analysis	same as X1
	Y1	Low Productivity	Production trend	Low productivity will affect the power consumption ratio
Y3:High steam consumption	X7	Pipeline chocking	Why why analysis	
	X13	Line leakage	Maintenance report	Line leakage was found to be regular issue mainly during the winter.
	X14	More rework	Production trend	High rework is causing higher steam & power consumption as well as low productivity.
	X15	higher stock of DFA in storage tanks	Fat stock report	due to planning mistakes, DFA which is raw material for the Noodle plant is storage for long time which needs steam for heating
	X16	steam traps malfunction	Maintenance report	during the inspection it was found steam traps are malfunctioning.
	X17	Copper tracing damaged	Maintenance report	during the inspection it was found cu tracing are getting damaged..

2.4.0 Project Management update

2.4.1.1 : How was the correctness of the initial project scope, deliverables, and timing confirmed (or, what changes were made)?

Problem Statement: **With the change in fiscal benefits The cost of production of the Soap noodles (SFG) for the** Santoor Soap manufactured at Baddi unit has gone up by Rs 1500/MT. We need to deliver the good quality noodle at low cost to the TSF lines.

Defects and Metrics:

Business Metric: Cost & Quality

Primary Metrics & Objective:

Y1: Increase the productivity from 121 TPD to 144 TPD

Y2 : Reduce the power cons. from 38.5 kwh/ton to 27.15 kwh/ton

Y3: Reduce the Steam cons from 196 kg/ton to 175 kg/ton

Financial Impact:

89 Lacs(FY15-16);

222 lacs(FY16-17); 31 lacs (YTD17-18)

Project Scope

Process starts With	:	Tank yard
Process ends With	:	Packed soap noodles
In scope	:	CSP Plant
Out scope	:	trial run

Sponsor: Mr. Kalyanpur Raghunath
BB: Mr. Sanjeev Kumar
MBB: Mr. Suresh Kaushal
Process Owner(GB): Mr. Venkatesaiah Gurram
Team Members: M/s Omprakash, Vikram sharma, Ashwani Sharma, jaswinder Sehgal, Suresh Pal, Dinesh Singh.

Project Timeline :

Start Date : 01-04-2015

Target Completion Date : 30-09-2015

STEP	Estimated Date	Actual Signoff
Define	22/04/2015	25/04/2015
Measure	22/05/2015	30/05/2015
Analyze	30/06/2015	15/07/2015
Improve	15/08/2015	31/01/2016
Control	30/09/2015	31/03/2016

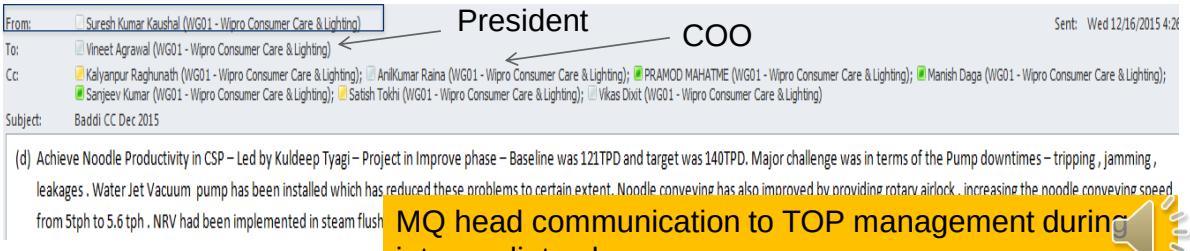
Delayed due to IR issue

2.4.0 Project Management update

2.4.1.2 : How were stakeholders involved and/or communicated with during the root cause/improvement opportunity phase of the project?

Communication

Particular	Target	frequency	Media
Review MoM-Factory Head/BB	Factory head, MQ head & team	Biweekly	Mail/Meeting
Project status & Finanical Saving report	Factory head, MQ head & team	Monthly	Mail
Review -MQ head -MoM	BO,Factory head, all managers & team	Quaterly	Mail/Meeting
Status Review - COO- MoM	BO,Factory head, all managers & team	Quaterly	Mail/Meeting
Status Review - President	BO,Factory head, all managers & team	Quaterly	Mail/Meeting



MQ head communication to TOP management during intermediate phase.

2.4.0 Project Management update

2.4.1.3 : What stakeholder resistance was identified and/or addressed in this phase of the project?

Factory Head(project Champion)	We need to be fast in Implementation	
BB(Project Facilitator)	None	
GB- Project Leader	Why Validation when we know root cause?	Counselling done by MBB
Project team	Target is challenging	Buying taken by explaining why this project is critical for business
MQ Head (MBB)	None	
BU team (President & COO)	None	

2.4.0 Project Management update

2.4.1.4 : How was the appropriateness of the initial team membership and management routines confirmed(or, what changes were made)?

Sponsor: Mr. Kalyanpur Raghunath
BB: Mr. Sanjeev Kumar
MBB: Mr. Suresh Kaushal
Process Owner(GB): Mr. Venkatesaiah Gurram
Team Members: M/s Omprakash, Vikram sharma, Ashwani Sharma, jaswinder Sehgal, Suresh Pal, Dinesh Singh.

+ HR team

The weekly meeting disturbed due to IR issue. It was enforced again.

3.1.0 Possible Solutions or Improvements

3.1.1.2 : Why were these methods and/or tools selected [to identify the possible solutions/improvements]?
3.1.1.3 : How was the team prepared to use these methods and/or tools[to identify possible solution/improvement]?

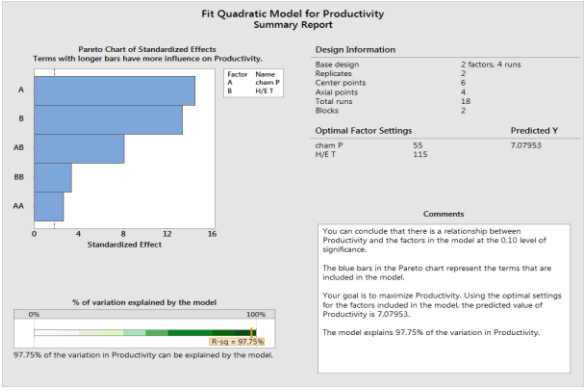
Tool/Method	Why	How
DMAIC- DOE	Optimized the Process parameter	0.6 day DOE training
Process Training	Understand the process in depth	OEM training (0.5 day)
Kaizen	To find out better solution	0.5 day training
Steam Leakage	To Identify & rectify the losses	0.5 day training

3.1.0 Possible Solutions or Improvements

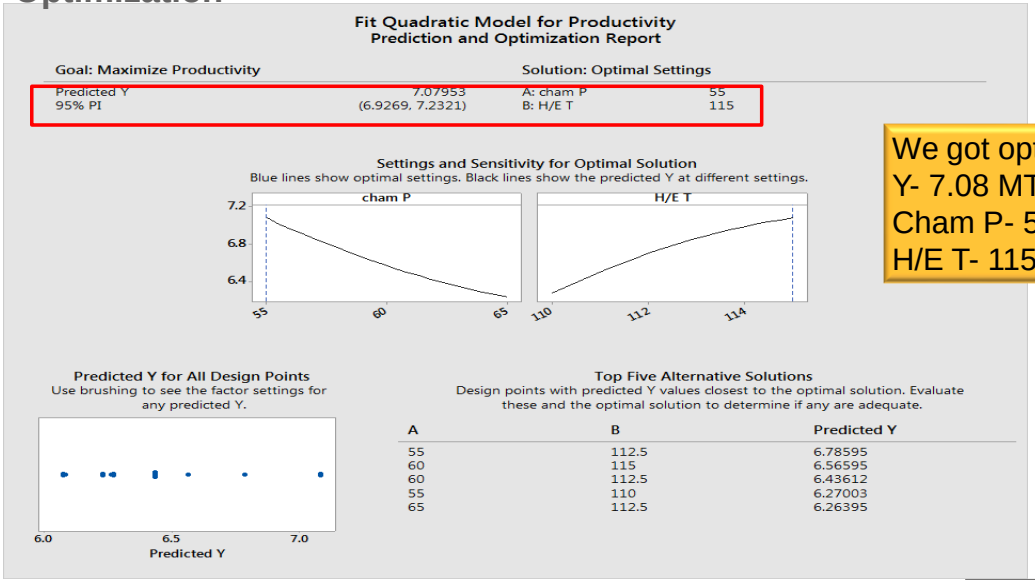
3.1.2.1 : What data was generated and how was the data analyzed to determine the possible solutions/improvements?

X2 : DOE for chamber pressure & Heat exchanger Temp Optimization

C1	C2	C3	C4	C5	C6	C7
StdOrder	RunOrder	CenterPt	Blocks	cham P	H/E T	Productivity
7	1	1	1	55	115.0	7.01
10	2	0	1	60	112.5	6.40
5	3	1	1	55	110.0	6.20
3	4	1	1	55	115.0	7.10
1	5	1	1	55	110.0	6.25
8	6	1	1	65	115.0	6.20
9	7	0	1	60	112.5	6.40
2	8	1	1	65	110.0	6.00
4	9	1	1	65	115.0	6.15
11	10	0	1	60	112.5	6.45
6	11	1	1	65	110.0	6.00



X2 : DOE for chamber pressue & Heat exchanger Temp Optimization



We got optimum output
Y- 7.08 MT/Hr
Cham P- 55
H/E T- 115 C

3.1.0 Possible Solutions or Improvements

3.1.2.2 : What are the possible solutions/improvements?

X's	Causes	Solution Identified
X1	Noodle conveyer issue	Pneumatic conveying system consisting of Air blower with Rotary Air Lock Valve is replaced with belt Conveying System to convey noodles up to Silo
X2	CSP Vacuum pump downtime	RO water is given to csp vacuum pump .
X2	Downtime high due to vacuum pump tripping & low steam pressure	Water jet vacuum system installed to avoid vacuum pump tripping and low steam pressure problems.
X4	Caustic flow low during winter	steam jacket provided on suction line
X4	Downtime due to caustic pump	Stand by Caustic pump.
X4	Caustic header Leakage	Caustic header replaced with new
X5	Barometric Water temp high	both cooling tower serviced
X6	Low Steam Pressure	Plant Operator need to communicate to utility person to correct low steam pressure situation.
X7	Pipeline chocking	Electrical heat tracing provided on the fat lines.
X8	Strainer chocking	cleaning frequency defined in log book and water pressure indication for control. operator trained.
X9	Lauric Pump not given requisite flow	Lauric pump repaired.
X9	Low flow rate of blend feed pump	Blend feed pump-3 replaced & T4 pump repaired with changed in part.
X10	High reactor Pressure	Heat exchangers caustic cleaning done
X11	Over capacity pump	11KW chilled water pump replaced with 5.5KW
X12	Idle running	Interlocking of hot well fan & pump with temp controller
X13	line chocking	Providing Electrical Heat Tracing to pipe lines.
X14	line leakage/Cu Tracing damaged	Copper tracing repaired
X15	Open steam pipeline chocking by FAT.	NRV Provided in flushing steam lines to avoid line choking by fat
X16	higher stock of DFA in storage tanks	Sync planning along with FAGP department to ensure lower stock of DFA in storage tank
X17	steam traps malfunction	Lauric melting tank steam trap replaced with a new float type trap

3.1.0 Possible Solutions or Improvements

3.1.2.3 : What evidence showed that the solutions/improvements identified were possible instead of final?

X2	CSP Vacuum pump downtime	RO water is given to csp vacuum pump .
X2	Downtime high due to vacuum pump tripping & low steam pressure	Water jet vacuum system installed to avoid vacuum pump tripping and low steam pressure problems.

There was high down time due to vacuum issue. After investigation we found It was happening due to scale formation due to DM water. RO water was given to CSP Vacuum pump. It reduced the downtime due to scaling, however other problem persist. So, we developed reengineering solution by using water jet vacuum system.

Before

After

3.2.0 Final Solutions or Improvements

3.2.1.1 : What methods and/or tools were used to identify the final Solution(s)/Improvement (s)?
3.2.1.2 : Why were these methods and/or tools selected [to identify the final solution(s)/Improvement(s)]?
3.2.1.3 : How was the team prepared to use these methods and/or tools [to identify the final solution(s)/Improvement(s)]

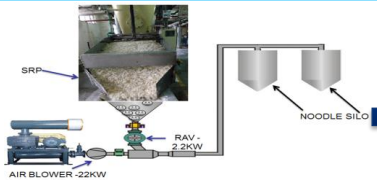
Method/Tools	Why?	Team Preparedness
Cost benefit analysis for Water jet & conveying system	Cost effective solution	Training given to do payback calculation.
DOE (Process parameter optimization)	To choose the optimum solution	Doe Training (0.6 day)
Reengineering for conveying noodle & vacuum system	New solution is more effective for reducing power & steam as well as increasing output.	Training given by OEM.

3.2.0 Final Solutions or Improvements

3.2.2.1 : How were the methods and/or tools used to determine the final solution(s)/improvements(s)?

Reengineering

Frequent Line stoppage due to noodle chocking



Zero line stoppage. Increase in production

Reengineering

High downtime

Zero downtime. High Productivity.

Cost Benefit Analysis

Payback within 63 day of full running production

3.2.0 Final Solutions or Improvements

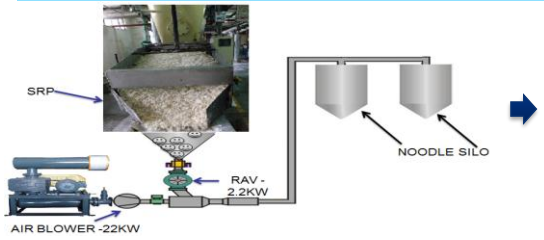
3.2.2.2 : What was(were) the final solution(s)/Improvement(s)?

X's	Causes	Solution Identified	Risk	Mitigation	Resp.	Target Date
X1	Noodle conveyer issue	Pneumatic conveying system consisting of Air blower with Rotary Air Lock Valve is replaced with belt Conveying System to convey noodles up to Silo	Noodle spillage can happen	Collection tray provided & belt side bottoom covered	KKT	June'16
X2	CSP Vacuum pump jamming	RO water is given to csp vacuum pump .	No risk		VS	20.07.2015
X2	Downtime high due to vacuum pump tripping & low steam pressure	Water jet vacuum system installed to avoid vacuum pump tripping and low steam pressure problems.	water strainner chocking	Regular cleaning & inspection for strainner	KKT	Oct'15
X4	Caustic flow low during winter	steam jacket provided on suction line	Trap malfunctioing	to clean jacket trap on regular freq.	Vipin	Nov'15
X4	Downtime due to caustic pump	Stand by Caustic pump.	standby pump capcitiy is low	no plan for higher capacity standby pump	Vipin	15.07.2015
X4	Caustic header Leakage	Caustic header replaced with new	Leads to leakage if maint is not proper	Made Part of PM checksheet	VS	20.08.2015
X5	Barometric Water temp high	both cooling tower serviced	cooling tower failure	standby cooling tower and pump avaialble.	Ext party	Aug'15
X6	Low Steam Pressure	Plant Operator need to communicate to utility person to correct low steam pressure situation.	No risk		SS	01.07.2015
X7	Pipeline chocking	Electrical heat tracing provided on the fat lines.	electrical heat tracing can get damaged	electrical tracing made part of PM checksheet	AS	21.10.2015
X8	Strainer chocking	cleaning frequency defined in log book and water pressure indication for control. operator trained.	No risk		Shift Operator	18.07.2015
X9	Lauric Pump not given requisite flow	Lauric pump repaired.	Pump failure	Is part of PM checksheet	Omprakash	16.07.2015
X9	Low flow rate of blend feed pump	Blend feed pump-3 replaced & T4 pump repaired with changed in part.	failure of pump	Standby pump available.	VS	15.08.2015
X10	High reactor Pressure	Heat exchangers caustic cleaning done	No risk	Cleaning freq increased	JSS	05.07.2015
X11	Over capacity pump	11KW chilled water pump replaced with 5.5KW	No risk		AS	15.09.2015
X12	Idle running	Interlocking of hot well fan & pump with temp controller	No risk		AS	28.09.2015
X13	line chocking	Providing Electrical Heat Tracing to pipe lines.	electrical heat tracing can get damaged	electrical tracing made part of PM checksheet	AS	21.11.2015
X14	line leakage/Cu Tracing damaged	Copper tracing repaired			Vipin	Oct'15
X15	Open steam pipeline chocking by FAT.	NRV Provided in flushing steam lines to avoid line choking by fat	NRV malfunctioning	replaced with spare NRV	VS	10.08.2015
X16	higher stock of DFA in storage tanks	Sync planning along with FAGP department to ensure lower stock of DFA in storage tank	No risk		KKT/GV	Nov'15
X17	steam traps malfunction	Lauric melting tank steam trap replaced with a new float type trap	No risk		Vipin	09.08.2015

3.2.0 Final Solutions or Improvements

3.2.3.1 : How were the final solution(s)/improvement(s) validated?

Pneumatic conveyer used to transfer noodle to silo.



Open Conveyer used to transfer noodles .

Pilot run was done for 9 days and data collected to validate it.

3.2.0 Final Solutions or Improvements

3.2.3.2 : What evidence showed that validation was performed prior to implementation?

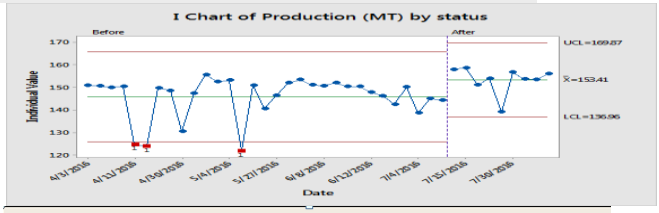
Validation of new Noodle conveyer

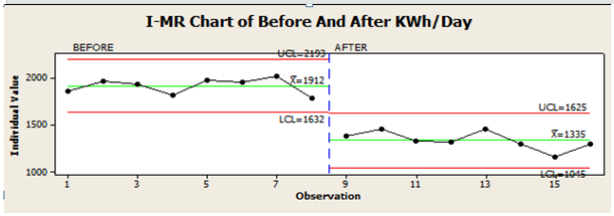
Two-Sample T-Test and CI: Before(MT/day), After(MT/Day)

Two-sample T for Before(MT/day) vs After(MT/Day)

	N	Mean	StDev	SE Mean
Before(MT/day)	31	145.90	8.99	1.6
After(MT/Day)	9	153.41	5.92	2.0

Difference = μ (Before(MT/day)) - μ (After(MT/Day))
Estimate for difference: -7.51
95% CI for difference: (-12.85, -2.18)
T-Test of difference = 0 (vs ≠): T-Value = -2.95
P-Value = 0.008 DF = 19



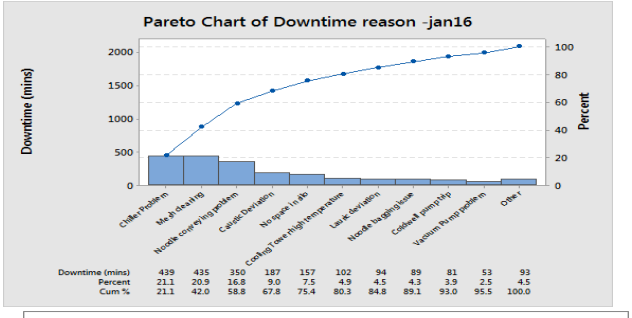


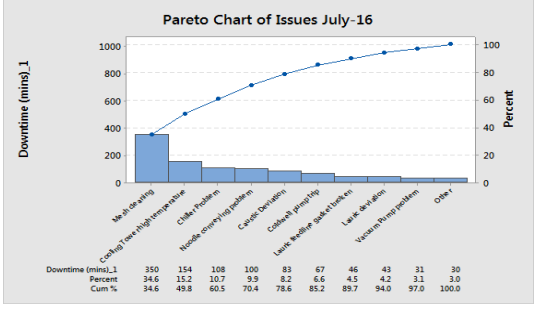
Production data taken for validation using 2 t test which clearly shows increase in productivity.

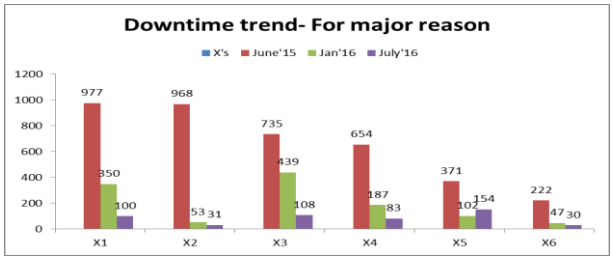
3.2.0 Final Solutions or Improvements

3.2.3.2 : What evidence showed that validation was performed prior to implementation?

X's Downtime Reduction trend







X1: Noodle Conveying Issue
X2: Vacuum Pump Problem
X3:Chiller problem
X4:Caustic Deviation
X5: Barometric water temp high
X6:Steam Pressure low

3.2.0 Final Solutions or Improvements

3.2.3.2 : What evidence showed that validation was performed prior to implementation?

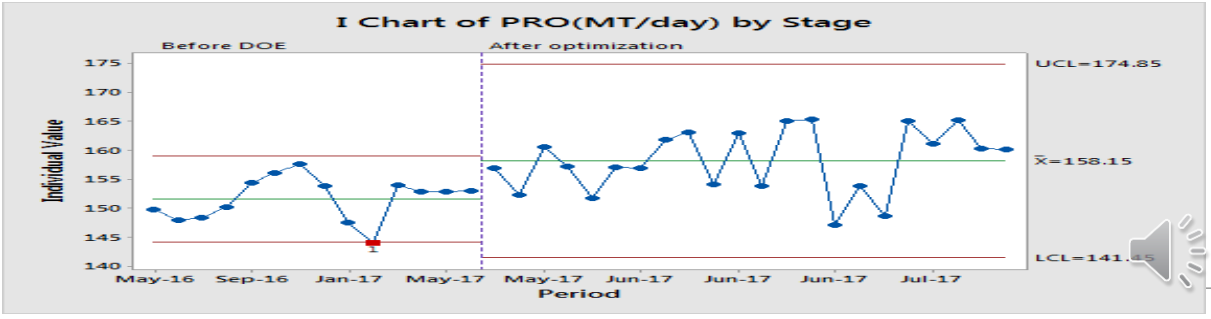
X2 : Result of Process Optimization

Two-Sample T-Test and CI: PRO(MT/day), Stage

Two-sample T for PRO(MT/day)

Stage	N	Mean	StDev	SE Mean
Before DOE	14	151.56	3.75	1.0
optimization	22	158.15	5.48	1.2

Difference = μ (Before DOE) - μ (optimization)
Estimate for difference: -6.59
95% CI for difference: (-9.72, -3.46)
T-Test of difference = 0 (vs ≠): T-Value = -4.28 P-Value = 0.000 DF = 33

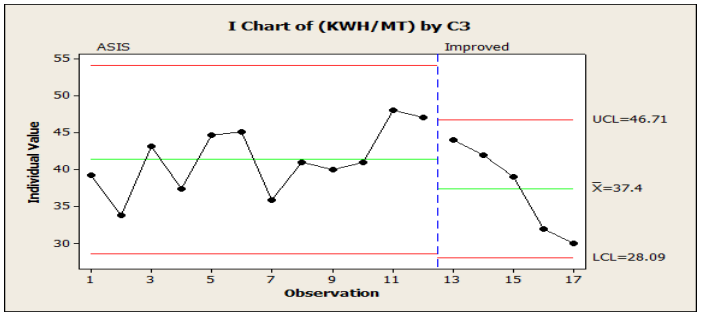


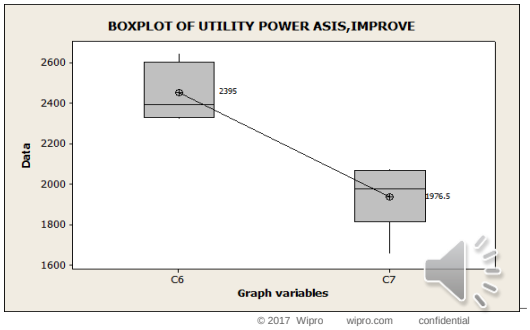
3.2.0 Final Solutions or Improvements

3.2.3.2 : What evidence showed that validation was performed prior to implementation?

X11: 11 KW Chilled water Pump replaced with 5.5 KW Pump

DISCRIPTION	KW	KWh/DAY
COLD WELL PUMP MOTOR OLD	11	260
COLD WELL PUMP NEW	5.5	140
DIFERENCE		120





3.2.0 Final Solutions or Improvements

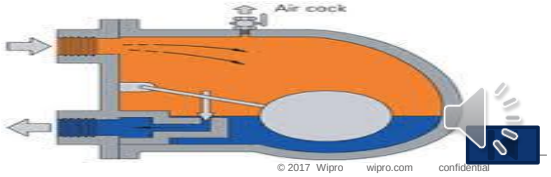
3.2.3.2 : What evidence showed that validation was performed prior to implementation?

X17 : Thermo Dynamic (TD) type steam Trap

- TD type steam traps are use to operate more frequently for discharging the condensate.
- The frequency of TD steam traps depends on condensate load, in this the condensate load is high.
- Hence to minimize the steam trap operation & reducing steam losses , float type steam trap is installed, this had reduced the steam losses.

BEFORE-THERMO DYNAMIC TRAP

AFTER-FLOAT TYPE TRAP



3.2.0 Final Solutions or Improvements

3.2.4.1 : What additional potential benefits were anticipated from the final solution(s)/Improvements(s)?
3.2.4.2 : Were the additional potential benefits anticipated prior to implementation?

Financial saving
Increase in Productivity
Reduction in Power Consumption
Reduction in Steam Consumption

+

Timely Delivery
Improvement in quality
Internal customer satisfaction
Healthy Workplace
Safe work place

Not Anticipated

3.2.0 Final Solutions or Improvements

3.2.5.1 : What data was generated and how was the data analyzed to justify why the chosen final solution(s)/improvement(s) should be implemented?

Reduction in downtime

	X's	June'15	Jan'16	July'16
X10	Noodle conveying problem	977	350	100
X2	Vacuum Pump problem	968	53	31
X3	Chiller Problem	735	439	108
X4	Caustic Deviation	654	187	83
X5	Barometric water temp high	371	102	154
X6	Steam Pressure low	222	47	30

Improvement after optimized Parameter (DOE)

Period	PRO(MT/d	Stage
5/25/2017	156.84	After opti
5/28/2017	152.215	After opti
5/31/2017	160.51	After opti
6/1/2017	157.115	After opti
6/6/2017	151.685	After opti
6/7/2017	156.995	After opti
6/8/2017	156.858	After opti
6/9/2017	161.75	After opti
6/13/2017	163.03	After opti
6/14/2017	154.125	After opti
6/15/2017	162.9	After opti
6/21/2017	153.8	After opti
6/22/2017	165.094	After opti
6/23/2017	165.294	After opti
6/26/2017	147	After opti
6/27/2017	153.874	After opti
7/7/2017	148.6	After opti
7/8/2017	165.115	After opti
7/9/2017	161.055	After opti
7/10/2017	165.18	After opti
7/11/2017	160.21	After opti
7/12/2017	160.1	After opti

3.2.0 Final Solutions or Improvements

3.2.5.2 : What evidence showed that justification was performed prior to implementation?

From: Anand Kumar Goel (WG01 - Wipro Consumer Care & Lighting)
Sent: Saturday, May 28, 2016 3:18 PM
To: Kalyanpur Raghunath (WG01 - Wipro Consumer Care & Lighting)
Cc: Vikram Sharma (WG01 - Wipro Consumer Care & Lighting); Narendra Gupta (WG01 - Wipro Consumer Care & Lighting)
Subject: FW: JBR - Unit-I (16-17)-004 For Modification of noodle conveyors at CSP

Dear Sir,

Pls find attached herewith JBR proposal of Rs 1.53 Lac towards modification of CSP noodles Conveyors.

- ~~Currently noodles is conveyed to Silo 6 & 7 through pneumatic conveying system by using blower and rotary valve & SS closed pipline.~~
- We proposed to use belt conveyor to transfer noodles to Silo 6 & 7 and remove use of blower system, this help us saving approx. 380 Kwh power per day.
- We were having two idle conveyors and we need to modify them for use.
- Payback of same is comes to 62 working days.
- We had obtained quotations for thee vendors and M/s Sheetal Engg is selected on the basis of competitive quote and earlier satisfactory work.
- Payment terms is 100% after supply and for service is after completion of work.
- This will be part of Unit-I JBR budget and cumulative approval is Rs 5.87 Lac against annual plan of Rs 50.00 Lac.

S.No.	Electrical Load in KW	Existing Pneumatic conveying	Proposed Noodle Conveyor	Saving of Load	Power saving(KWH)
1	Root Blower	22.00	-	22.00	
2	Rotary Air Lock Valve	2.20	-	2.20	
3	Conveyor Motors (02 nos.)	-	4.40	(4.40)	
	Total Power	**24.20**	**4.40**	**19.80**	**380.00**
	App. Saving/Day in Rs				**2,470.00**

Pls approve and forward for further approval.

Best Regards,
Anand Goel

3.3.0 Project Management update

3.3.3.1 : How was the correctness of the initial or updated project scope, deliverables, and timing confirmed(or, what changes were made)?

Problem Statement: **With the change in fiscal benefits The cost of production of the Soap noodles (SFG) for the** Santoor Soap manufactured at Baddi unit has gone up by Rs 1500/MT. We need to deliver the good quality noodle at low cost to the TSF lines.

Defects and Metrics:

Business Metric: Cost & Quality

Primary Metrics & Objective:

Y1: Increase the productivity from 121 TPD to 144 TPD

Y2 : Reduce the power cons. from 38.5 kwh/ton to 27.15 kwh/ton

Y3: Reduce the Steam cons from 196 kg/ton to 175 kg/ton

Financial Impact:

89 Lacs(FY15-16);

222 lacs(FY16-17); 31 lacs (YTD17-18)

Project Scope

Process starts With	:	Tank yard
Process ends With	:	Packed soap noodles
In scope	:	CSP Plant
Out scope	:	trial run

Sponsor: Mr. Kalyanpur Raghunath
BB: Mr. Sanjeev Kumar
MBB: Mr. Suresh Kaushal
Process Owner(GB): Mr. Venkatesaiah Gurram
Team Members: M/s Omprakash, Vikram sharma, Ashwani Sharma, jaswinder Sehgal, Suresh Pal, Dinesh Singh.

Project Timeline :

Start Date : 01-04-2015

Target Completion Date : 30-09-2015

STEP	Estimated Date	Actual Signoff
Define	22/04/2015	25/04/2015
Measure	22/05/2015	30/05/2015
Analyze	30/06/2015	15/07/2015
Improve	15/	
Control	30/	

Improvement phase extended till Sep'16

3.3.0 Project Management update

3.3.3.2 : How were stakeholders involved and/or communicated with during the solution /improvement phase of the project?

Team Meeting	Weekly (11:00 AM- 12:00 PM)	Frequency - daily
Review -Factory Head/BB	Biweekly	Frequency – Weekly
Review -MQ head	Quaterly	Involved through mail/phone on regular frequency . Updated on result.
Status Review - COO	Quaterly	Involved through mail/phone on regular frequency. Involved in JBR/Capax approval. Updated on result.
Status Review - President	Quarterly	Involved through mail/phone on regular frequency . Involved in JBR/Capax approval. Updated on result.

3.3.0 Project Management update

3.3.3.3 : What stakeholder resistance was identified and/or addressed in this phase of the project?

Stakeholder	Resistance	How it was addressed
Process team	None	Happy
Maintenance team	None	Happy
Noodle bag filling team	With high productivity, work increased	HR was involved & additional manpower added
Supplier team	Issue in supply	Meeting with Factory head to explain the benefit for the plant
Factory head	None	
MQ Head	None	
BU team	None	

3.3.0 Project Management update

3.3.3.4 : How was the appropriateness of the initial team membership and management routines confirmed(or, what changes were made)?

Sponsor: Mr. Kalyanpur Raghunath
BB: Mr. Sanjeev Kumar
MBB: Mr. Suresh Kaushal
Process Owner(GB): Mr. Venkatesaiah Gurram
Team Members: M/s Omprakash, Vikram sharma, Ashwani Sharma, jaswinder Sehgal, Suresh Pal, Dinesh Singh.

+ HR Member

+ FAGP & Store team added

Team Meeting	Weekly (11:00 AM- 12:00 PM)
Review -Factory Head/BB	Biweekly
Review -MQ head	Quaterly
Status Review - COO	Quaterly
Status Review - President	Quarterly

+ Daily Meeting along with noodle handling & FAGP team

4.1.0 Stakeholder Considerations In Implementation

4.1.1.1 : How were stakeholders involved in planning the solution/Improvement implementation?
4.1.1.2 : How were stakeholders involved in implementing the solution/improvement?

Stakeholder	Role in planning	Role In implementation
Process team	Support the trail planning	Support the trail. Training on new process.
Maintenance team	Role in planning the trail	Implement the solution along with OEM. Training
Noodle handling team	Planning for handling higher production	Ensuring noodle line is not stopping due to high productivity.
Supplier team	Planning to sync the supply as per new requirement	Ensuring DFA/MADD production is in sync with CSP Production.
Factory head	Planning for quick approval	Support in implementation with timely approval.
MQ Head	None	Ensuring six sigma process is followed.
BU team	Planning the approval	Ensuring timely approval

4.1.0 Stakeholder Considerations In Implementation

4.1.2.1 : What was done to anticipate resistance before it occurred?
4.1.2.2 : What types of resistance were actually encountered during the course of solution/improvement implementation?
4.1.2.3 : How was the actual resistance identified

Stakeholder	Resistance Anticipated	Actual Resistance	How it was identified?
Process team	Work load will increase	Process team has to struggle at beginning.	Apprehension about change
Maintenance team	Work load will increase	Engineering team has to put extra hour	Apprehension about change
Noodle handling team	None	Working load increased. Leads to noodle line stoppage many time at beginning.	Noodle Line stoppage due to silo getting filled. Noodle filling per person increased.
Supplier team (Store & FAGP)	None	Need to make change in working/process to ensure smooth supply.	Shortage in supplier few time at initial stage
Factory head	Going slow	Happy with implementation	None
MQ Head	None	Happy with implementation	None
BU team	None	Happy with implementation	None

4.1.0 Stakeholder Considerations In Implementation

4.1.3.1 : How was the actual resistance addressed?
4.1.3.2 : How did the team know it was successful in addressing the resistance?

Stakeholder	Actual Resistance	How it was address ?	How team know?
Process team	Work load will increase	Skill updating by training/counselling	Happy with change /communication in meeting
Maintenance team	Work load will increase	Skill updating by training/counselling	Happy with change /communication in meeting
Noodle handling team	Working load increased. Leads to noodle line stoppage many time at beginning.	Study of the noodle bag filling process. HR involvement for rationalizing per person load	No line stoppage
Supplier team (Store & FAGP)	Need to make change in working/process to ensure smooth supply.	Change in the process/training.	No line stoppage
Factory head	Happy with implementation	None	By getting all approval
MQ Head	Happy with implementation	None	Ok in review.
BU team	Happy with implementation	None	By getting all approval

4.1.0 Stakeholder Considerations In Implementation

4.1.4.1 : What was the evidence of stakeholder group buy-in?
4.1.4.2 : What evidence showed that buy-in was obtained prior to implementation?

From: AnilKumar Raina (WG01 - Wipro Consumer Care & Lighting)
Sent: Saturday, June 04, 2016 10:19 AM
To: Vineet Agrawal (WG01 - Wipro Consumer Care & Lighting)
Cc: Manish Daga (WG01 - Wipro Consumer Care & Lighting)
Subject: FW: JBR - Unit-I (16-17)-004 For Modification of noodle conveyors at CSP

Output from CSP would be around 6.4mt/hr and the proposed modified conveyors will be able to handle this output. Directly from the CSP, bagging would be difficult with this output and temp of the noodles would be around 46/47 degrees. They are planning to provide fans for cooling the noodles. By this, temp would drop to around 40 degree and the noodles would be aged before bagging. After bagging and stitching the noodles would be stored in Unit 1 . Actually, they have found this system in Ganesh fats. In our case we are not doing anything with the existing system. With new proposed conveyors Baddi would get power savings of 380units/day which is huge and some idle conveyors are getting utilized.
Anil
Begin forwarded message:

From: "Vineet Agrawal (WG01 - Wipro Consumer Care & Lighting)" <vineet.agrawal@wipro.com>
Date: 4 June 2016 at 8:13:44 AM IST
To: "Manish Daga (WG01 - Wipro Consumer Care & Lighting)" <manish.daga@wipro.com>
Cc: "AnilKumar Raina (WG01 - Wipro Consumer Care & Lighting)" <anilkumar.raina@wipro.com>
Subject: Re: JBR - Unit-I (16-17)-004 For Modification of noodle conveyors at CSP

I wanted to speak to understand what is being done here. Can conveyors manage the speed of output of CSP.
Also why dont we have the noodle bagging next to the CSP output itself. Or do you want the moisture levels to come down before you bag it?
VA

From: Anand Kumar Goel (WG01 - Wipro Consumer Care & Lighting)
Sent: Saturday, May 28, 2016 3:18 PM
To: Kalyanpur Raghunath (WG01 - Wipro Consumer Care & Lighting)
Cc: Vikram Sharma (WG01 - Wipro Consumer Care & Lighting); Narendra Gupta (WG01 - Wipro Consumer Care & Lighting)
Subject: FW: JBR - Unit-I (16-17)-004 For Modification of noodle conveyors at CSP

Dear Sir,

Pls find attached herewith JBR proposal of Rs 1.53 Lac towards modification of CSP noodles Conveyors.

- Currently noodles is conveyed to Silo 6 & 7 through pneumatic conveying system by using blower and rotary value & SS closed pipline.
- We proposed to use belt conveyor to transfer noodles to Silo 6 & 7 and remove use of blower system, this help us saving approx. 380 Kwh power per day.
- We were having two idle conveyors and we need to modify them for use.
- Payback of same is comes to 62 working days.
- We had obtained quotations for thee vendors and M/s Sheetal Engg is selected on the basis of competitive quote and earlier satisfactory work.
- Payment terms is 100% after supply and for service is after completion of work.
- This will be part of Unit-I JBR budget and cumulative approval is Rs 5.87 Lac against annual plan of Rs 50.00 Lac.

S.No.	Electrical Load in KW	Existing Pneumatic conveying	Proposed Noodle Conveyor	Saving of Load	Power saving(KWH)
1	Root Blower	22.00	-	22.00	
2	Rotary Air Lock Valve	2.20	-	2.20	
3	Conveyor Motors (02 nos.)	-	4.40	(4.40)	
	Total Power	**24.20**	**4.40**	**19.80**	**380.00**
	App. Saving/Day in Rs				**2,470.00**

4.2.0 Solution/Improvement Implementation

4.2.1.1 : What Process(es)or system(s) were changed or created to implement the solution/improvement?

X	Cause	New process/System Implemented
X1	Noodle conveyer issue	Pneumatic conveying system consisting of Air blower with Rotary Air Lock Valve is replaced with belt Conveying System to convey noodles up to Silo
X2	Downtime high due to vacuum pump tripping & low steam pressure	Water jet vacuum system installed to avoid vacuum pump tripping and low steam pressure problems.
X4	Caustic flow low during winter	steam jacket provided on suction line
X4	Downtime due to caustic pump	Stand by Caustic pump.
X4	Caustic header Leakage	Caustic header replaced with new
X5	Barometric Water temp high	both cooling tower serviced
X6	Low Steam Pressure	Plant Operator need to communicate to utility person to correct low steam pressure situation.
X7	Pipeline chocking	Electrical heat tracing provided on the fat lines.
X8	Strainer chocking	cleaning frequency defined in log book and water pressure indication for control. operator trained.
X9	Low flow rate of blend feed pump	Blend feed pump-3 replaced & T4 pump repaired with changed in part.
X10	High reactor Pressure	Heat exchangers caustic cleaning done
X11	Over capacity pump	11KW chilled water pump replaced with 5.5KW
X12	Idle running	Interlocking of hot well fan & pump with temp controller
X13	line chocking	Providing Electrical Heat Tracing to pipe lines.
X15	Open steam pipeline chocking by FAT.	NRV Provided in flushing steam lines to avoid line choking by fat
X16	higher stock of DFA in storage tanks	Sync planning along with FAGP department to ensure lower stock of DFA in storage tank
X17	steam traps malfunction	Lauric melting tank steam trap replaced with a new float type trap

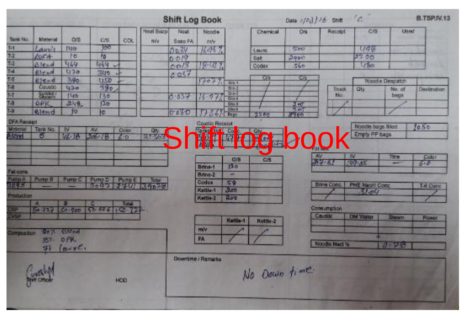
4.2.0 Solution/Improvement Implementation

4.2.1.2 : What systems were changed or created to measure and manage the performance of the implementation?

Process sheet

DESCRIPTION	UNIT	TIME 8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00
T1 Temp	DEGC	75.3	75.0	74.6	74.6	74.6	74.2	74.3	74.5	74.6	74.7	74.5	74.7
T2 Temp	DEGC	45.1	44.9	44.8	44.9	45.4	46.2	46.4	46.5	46.4	46.3	46.2	46.1
T3 Temp	DEGC	74.3	74.5	74.6	74.7	74.7	74.7	74.8	74.9	74.9	74.9	75.0	75.1
Soap O/L Heat Exch. Temp	DEGC	108.6	108.9	110.7	110.8	108.5	108.9	108.7	108.8	108.0	109.8	110.8	111.8
CT wtr plant I/L Temp	DEGC	23.3	23.4	23.8	24.2	24.6	25.0	25.4	25.7	26.0	26.0	[illegible]	[illegible]
Booster Cnd. wtr Temp	DEGC	20.9	21.2	22.2	23.8	25.3	26.4	27.2	27.8	28.2	28.3	27.7	[illegible]
Vac. Pmp chilled wtr O/L Temp	DEGC	21.0	21.0	21.8	23.2	25.1	26.7	27.8	28.7	29.6	29.9	29.6	29.2
Ejector cnd. wtr Temp	DEGC	20.1	21.2	22.9	27.8	26.4	26.9	27.4	30.4	28.0	27.6	26.5	24.9
Reactor Pressure	BAR	2.5	2.6	2.4	2.3	2.3	2.6	2.5	2.5	2.1	2.3	2.7	2.6
Reactor O/L valve opng.	%	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Vacuum Chamber Pressure	mBar A	52.7	56.7	56.9	56.7	56.9	58.6	57.8	58.3	56.3	56.1	57.4	56.2
DPFAD Flow	KG	3370	3745	3798	3501	3801	3819	3819	3815	3550	3626	3719	3687
Palm stearine Flow	KG	1	1	1	1	1	1	1	1	1	1	1	1
LFA Flow	KG	0	0	0	0	0	2	0	0	0	1	0	0
RDFA Flow	KG	556	618	627	580	627	630	630	629	585	598	613	608
DPKFAD Flow	KG	299	332	338	312	338	339	339	339	315	322	330	327
Caustic Flow	**KG**	**1894**	**2105**	**2143**	**1980**	**2138**	**2148**	**2148**	**2145**	**1995**	**2032**	**2092**	**2072**
Water Flow	KG	866	1015	1048	977	1055	1060	1060	1068	1001	955	900	892
Brine Dosing	STRK/M	111	114	114	108	114	116	116	115	108	111	114	111
EHDP Dosing	STRK/M	21	23	23	23	23	32	32	32	31	31	31	31
MP STEAM FLOW TSP	KG/H	696	782	840	770	770	864	693	597	736	635	908	1034
FAT Blend cons.	**Kg**	**4227**	**4697**	**4765**	**4395**	**4767**	**4792**	**4789**	**4783**	**4451**	**4547**	**4664**	**4624**
Noodles Production	**Kg**	**5419**	**6021**	**6109**	**5635**	**6112**	**6143**	**6140**	**6133**	**5706**	**5830**	**5980**	**5928**
Caustic cons/Ton Noddles	**Ton**	**0.165**	**0.165**	**0.166**	**0.166**	**0.165**	**0.165**	**0.165**	**0.165**	**0.165**	**0.165**	**0.165**	**0.165**

DESCRIPTION	UNIT	20:00	21:00	22:00	23:00	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00
T1 Temp	DEGC	74.6	75.0	75.1	75.4	75.8	76.0	76.0	75.7	75.5	75.3	75.1	75.1
T2 Temp	DEGC	45.9	45.7	45.5	45.4	45.2	45.0	44.9	44.7	44.6	44.4	44.2	44.1
T3 Temp	DEGC	75.2	75.3	75.3	75.5	75.5	75.6	75.6	75.7	75.7	75.8	75.8	75.9
Soap O/L Heat Exch. Temp	DEGC	112.2	110.8	112.2	113.7	113.2	111.2	112.6	111.6	112.1	112.4	112.9	113.0
CT wtr plant I/L Temp	DEGC	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	25.3	25.4	25.5	25.4	25.4	25.4	25.4
Booster Cnd. wtr Temp	DEGC	[illegible]	25.2	[illegible]	24.6	[illegible]	23.5	23.5	23.4	23.1	22.8	22.7	22.6
Vac. Pmp chilled wtr O/L Temp	DEGC	28.7	28.3	27.8	27.5	26.9	26.1	25.7	25.2	24.6	24.1	23.7	23.5
Ejector cnd. wtr Temp	DEGC	27.4	23.3	23.9	23.9	23.0	22.3	23.0	22.9	22.3	22.2	22.2	22.1
Reactor Pressure	BAR	2.7	2.5	2.7	2.7	2.8	2.3	2.3	2.5	2.3	2.5	2.5	2.5
Reactor O/L valve opng.	%	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Vacuum Chamber Pressure	mBar A	56.8	56.6	59.7	58.8	55.8	59.2	58.8	60.2	60.2	62.7	63.4	61.9
DPFAD Flow	KG	3744	3794	3869	3860	3166	3868	3869	3869	3868	3869	3869	3795
Palm stearine Flow	KG	1	1	1	1	1	1	1	1	1	1	1	1
LFA Flow	KG	0	0	0	0	0	0	0	0	0	0	0	0
RDFA Flow	KG	617	626	638	636	515	629	629	629	629	629	629	617
DPKFAD Flow	KG	332	337	343	343	277	338	338	338	338	338	338	332
Caustic Flow	**KG**	**2094**	**2126**	**2150**	**2143**	**1766**	**2155**	**2155**	**2155**	**2155**	**2155**	**2166**	**2122**
Water Flow	KG	906	918	936	937	798	1004	1004	1004	1004	1004	989	956
Brine Dosing	STRK/M	115	115	117	117	108	120	120	120	120	120	120	120
EHDP Dosing	STRK/M	32	32	32	32	31	29	30	30	30	30	30	30
MP STEAM FLOW TSP	KG/H	725	709	734	700	515	717	753	581	755	757	752	581
FAT Blend cons.	**Kg**	**4695**	**4758**	**4852**	**4841**	**3960**	**4837**	**4837**	**4838**	**4837**	**4838**	**4837**	**4745**
Noodles Production	**Kg**	**6019**	**6100**	**6221**	**6206**	**5077**	**6201**	**6202**	**6202**	**6202**	**6202**	**6202**	**6084**
Caustic cons/Ton Noddles	**Ton**	**0.165**	**0.165**	**0.163**	**0.163**	**0.165**	**0.164**	**0.164**	**0.164**	**0.164**	**0.164**	**0.165**	**0.165**



4.3.0 Project Result

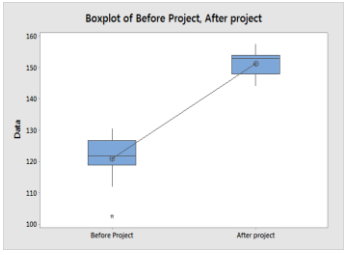
4.3.1.1 : What were the results?

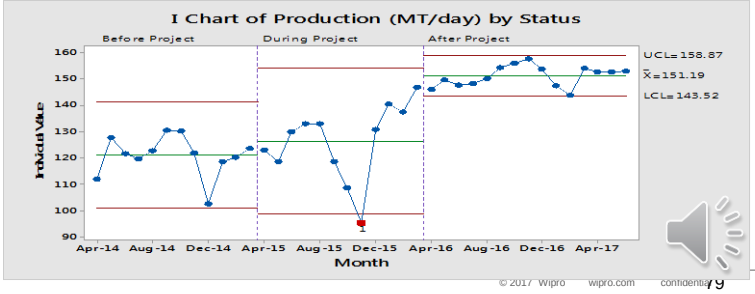
Two-Sample T-Test and CI: Before Project, After project

Two-sample T for Before Project vs After project

	N	Mean	StDev	SE Mean
Before Project	12	121.03	7.78	2.2
After project	15	151.19	3.89	1.0

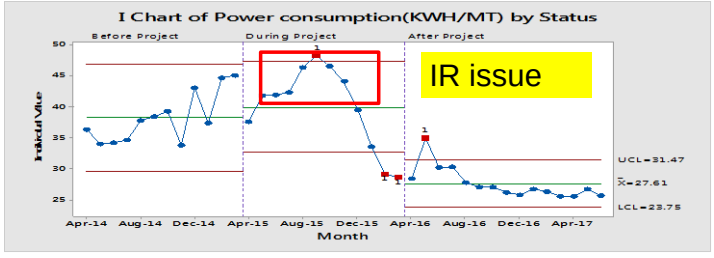
Difference = μ (Before Project) - μ (After project)
Estimate for difference: -30.16
95% CI for difference: (-35.40, -24.91)
T-Test of difference = 0 (vs ≠): T-Value = -12.26
P-Value = 0.000 DF = 15



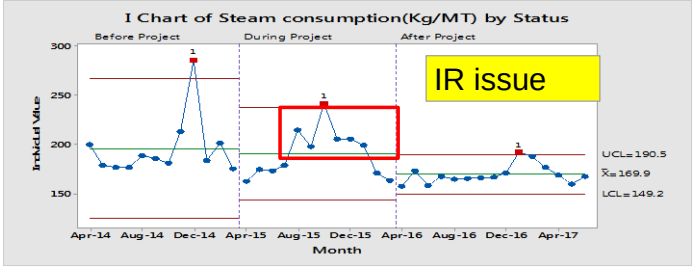


4.3.0 Project Result

4.3.1.1 : What were the results?



Power consumption reduced from 38 KWH/MT to 27.61 KWH/MT



Steam consumption reduced from 196 Kg/MT to 169.9 Kg/MT

4.3.0 Project Result

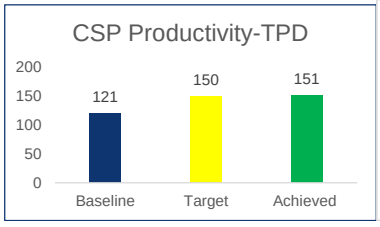
4.3.1.2 : How did the results compare to the specific project goals/measures from item 2.1.1?

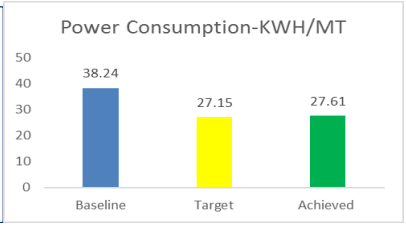
Primary Metrics & Objective:

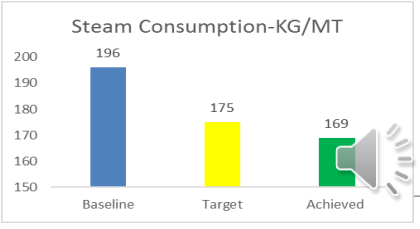
Y1: Increase the productivity from 121 TPD to 150 TPD
(Achieved-151 MT/day)

Y2 : Reduce the power cons. from 38.5 kwh/ton to 27.15 kwh/ton
(Achieved – 27.61 Kwh/ton)

Y3: Reduce the Steam cons from 196 kg/ton to 175 kg/ton
(Achieved- 169 kg/Ton)







4.3.0 Project Result

4.3.2.1 : What additional benefits were realized from the project?

1. **What business Metric improved**
   1. Increase in production volume 32 %.
   2. Reducing power consumption by 28.8 %.
   3. Reducing steam consumption by 13.8%.
   4. Increasing the site PBIT.
2. **What customer metric improved**
   1. Improvement in quality due to less handling.
   2. Timely availability of noodles.
   3. No loss due to unavailability of noodles.
   4. Less inventory at location.
3. **What are the Financial Savings**
   1. Total Savings of 37.25 Mn in two year.

4.3.0 Project Result

4.3.2.2 : How did the team measure any of the additional benefits that were "soft"?

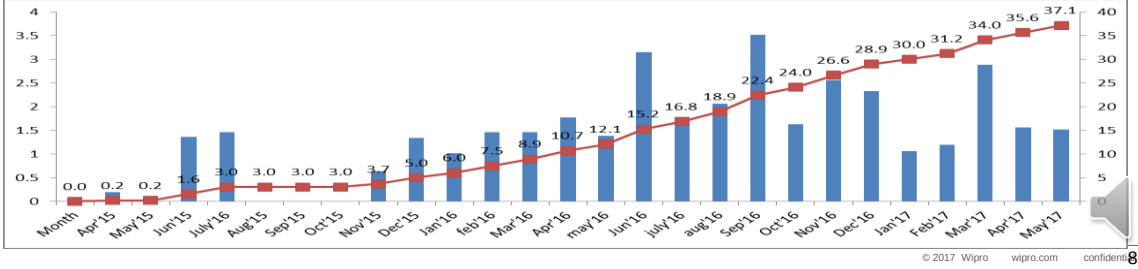
1. Commitment of team to achieve the goal
2. Team moral has lifted up to challenge our own benchmark
3. Working condition improve due to elimination of dust & noise.
4. 5S improved.

4.3.0 Project Result

4.3.2.3 : How do the actual additional benefits that were realized compare to the expected additional benefits identified in Item 3.3.4?

- Meets noodle requirement of all customers
- Lesser consumption of utilities , so lesser cost of product.
- Total saving of 37.29 mil till Jun'17.

month	Apr'15	May'15	Jun'15	July'16	Aug'15	Sep'15	Oct'15	Nov'15	Dec'15	Jan'16	feb'16	Mar'16	Apr'16	may'16	Jun'16	july'16	aug'16	Sep'16	Oct'16	Nov'16	Dec'16	Jan'17	Feb'17	Mar'17	Apr'17	May'17	Jun'17	Total
Baseline	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	121	
Actual	123	119	130	133	118	109	95	131	141	137	147	144	141	150	148	148	150	154	156	158	154	148	144	154	152.8	152.8	152.9	
Saving	0.20	0.00	1.36	1.46	0.00	0.00	0.00	0.64	1.34	1.01	1.45	1.45	1.54	1.29	2.78	1.40	1.77	3.12	1.41	2.24	2.03	0.92	1.01	2.57	1.56	1.52	3.18	37.25



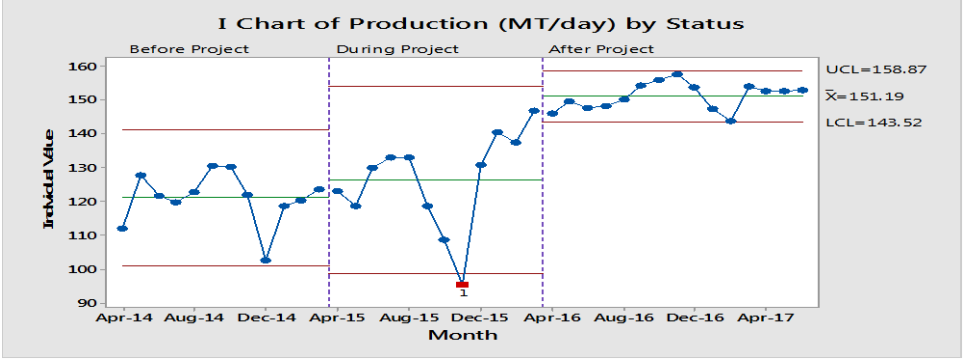
5.1.0 Sustaining Results Over Time

5.1.1.1 : What was done to make sure the process of system changes made during the implementation(Item 4.2.1) continued to be followed?

Control point	Control method	Frequency	Responcibilty	Where Recorded
Belt Conveying System Installed	Planned Maintainance	As per defined fre	Maint Eng	Maint Log book
Water jet vacuum system installed	Planned Maintainance	As per defined fre	Maint Eng	Maint Log book
steam jacket provided on caustic suction line	Planned Maintainance	As per defined fre	Maint Eng	Maint Log book
Stand by Caustic pump.	Planned Maintainance	As per defined fre	Maint Eng	Maint Log book
both cooling tower serviced	water temp Measurement	As per defined fre	Shift incharge	Shift log book
Electrical heat tracing provided on the fat lines.	Visual Inspection	Weekly	Maint Eng	Maint Log book
Stainer chocking-cleaning frequency defined in log book and water pressure indication for control. operator trained.	Water Pressure	Hourly	Shift incharge	Shift log book
Heat exchangers caustic cleaning done	Reactor Pressure increase	Online monitroing	Opeartor	DCS
Sync planning along with FAGP department to ensure lower stock of DFA in storage tank	maint. Low DFA stock	daily	Production manager	Tank book record
Lauric melting tank steam trap replaced with a new float type trap	Planned Maintainance	As per defined fre	Maint Eng	Maint Log book

5.1.0 Sustaining Results Over Time

5.1.1.2 : What evidence showed that this become part of the organization's culture/operating strategy?



Leading Indicator
Process/downtime
Monitoring/audit
Daily Gemba meeting

Lagging Indicator
(tracking of Productivity, Power & Steam consumption)

5.1.0 Sustaining Results Over Time

5.1.2.1 : What was done to make Sure the benefits obtained from implementation (Item 4.2.1) will be maintained?

X	Cause	New process/System Implemented
X1	Noodle conveyer issue	Pneumatic conveying system consisting of Air blower with Rotary Air Lock Valve is replaced with belt Conveying System to convey noodles up to Silo
X2	Downtime high due to vacuum pump tripping & low steam pressure	Water jet vacuum system installed to avoid vacuum pump tripping and low steam pressure problems.
X4	Caustic flow low during winter	steam jacket provided on suction line
X4	Downtime due to caustic pump	Stand by Caustic pump.
X4	Caustic header Leakage	Caustic header replaced with new
X5	Barometric Water temp high	both cooling tower serviced
X6	Low Steam Pressure	Plant Operator need to communicate to utility person to correct low steam pressure situation.
X7	Pipeline chocking	Electrical heat tracing provided on the fat lines.
X8	Strainer chocking	cleaning frequency defined in log book and water pressure indication for control. operator

Changes from implementation become part of Weekly process audit done by quality.

Process Sheet

DESCRIPTION	UNIT	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16
T1 Temp	DEGC	75.3	75.0	74.6	74.6	74.6	74.2	74.3	74.5	74
T2 Temp	DEGC	45.1	44.9	44.8	44.9	45.4	46.2	46.4	46.5	46
T3 Temp	DEGC	74.8	74.8	74.8	74.8	74.8	74.8	74.8	74.9	74
Soap Oil, Heat Exch. Temp	DEGC	108.6	108.6	108.6	108.6	108.6	108.6	108.7	108.8	108
CT wtr plant IL Temp	DEGC	23.3	23.4	23.6	24.2	24.6	25.0	25.4	25.7	26
Booster Cnd. wtr Temp	DEGC	20.9	21.2	22.2	23.8	25.3	26.4	27.2	27.8	28
Vac. Pmp chilled wtr OIL Temp	DEGC	21.0	21.0	21.8	23.2	25.1	26.7	27.8	28.7	29
Ejector cnd. wtr Temp	DEGC	20.1	21.2	22.9	27.8	26.4	26.9	27.4	30.4	28
Reactor Pressure	BAR	2.5	2.6	2.4	2.3	2.3	2.6	2.5	2.5	2
Reactor OIL valve opng.	%	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100
Vacuum Chamber Pressure	mBar A	52.7	56.7	56.9	56.7	56.9	58.6	57.8	58.3	56
DPFAD Flow	KG	3370	3745	3798	3501	3801	3619	3819	3815	35
Palm stearine Flow	KG	1	1	1	1	1	1	1	1	
LFA Flow	KG	0	0	0	0	0	2	0	0	
RDFA Flow	KG	556	618	627	580	627	630	630	629	5
DPKFAD Flow	KG	299	332	338	312	338	339	339	339	3
Caustic Flow	**KG**	**1894**	**2105**	**2143**	**1980**	**2138**	**2148**	**2148**	**2145**	**19**
Water Flow	KG	866	1015	1048	977	1055	1060	1060	1068	10
Brine Dosing	STRK/M	111	114	114	108	114	116	116	115	1
EHDP Dosing	STRK/M	21	23	23	23	23	32	32	32	3
MP STEAM FLOW TSP	KG/H	696	782	840	770	770	864	693	597	7
FAT Blend cons.	**Kg**	**4227**	**4697**	**4765**	**4395**	**4767**	**4792**	**4789**	**4783**	**44**
Noodles Production	**Kg**	**5413**	**6021**	**6103**	**5635**	**6112**	**6143**	**6140**	**6133**	**57**
Caustic cons/Ton Noddles	**Ton**	**0.165**	**0.165**	**0.166**	**0.166**	**0.165**	**0.165**	**0.165**	**0.165**	**0.1**

Data for FY : 1617, PC : 12, Location : Baddi-CC1, Index : Effectiveness, Mode : View Report

Sl No	Attribute	Data for PC	Target	Weightage	Formula	Weighted Score
	Customer Impact					
1	Pending of 'A' category CSOs more than 45 days YTD Total Class A CSOs logged in the year (YTD)	1 9	0	15	D1	13.33
	Incoming quality					
2	DPMO of incoming material top five contributor Baseline - last year	222 1250	750	10	A	10
	Process Improvement					
3	Sigma level of weekly process audit done by QCD PC Noodle plant. Baseline - last year	5.07 4.8	5	15	A	15
	Key result Area					
4	CSP productivity (MT/day) Baseline - last year	145 126	150	15	A	11.88
	Savings					
5	Actual savings realised for WCCLG- YTD Total Annual Target Saving in Rs	23 51	51	20	N1	9.02
	Out Going Product Quality					
6	Defect level of out going gulcovita, sweetner at factory - Expressed in PPM PC Baseline - last year	183 1250	750	15	A	15
	Project closure index					
7	No of projects running on time("Green") YTD Total No of Projects active	7 8	8	10	C	8.75
	Weighted Score Target : 100	Total Weighted Score				82.98

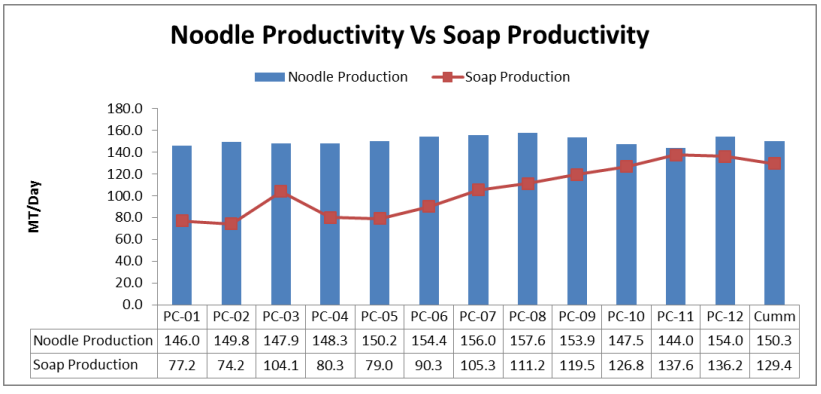
5.1.0 Sustaining Results Over Time

5.1.2.2 : What evidence showed that this become part of the organization's culture/operating strategy?

Fin Saving included into enterprise Six sigma saving

SS Projects - CC Baddi 15-16

No.	Project Description	Baseline	Target		PC7	PC8	PC9	PC10	PC11	PC12	YTD
1	Increasing CSP plant productivity	121	155	Production ACHIEVED/day	155.99	157.57	153.85	147.52	143.95	153.97	
				no of Production day	7.05	10.76	10.82	6.07	7.70	13.69	
				FIN SAVING	1,406,073	2,242,911	2,026,225	917,614	1,007,276	2,572,748	21.07



	PC-01	PC-02	PC-03	PC-04	PC-05	PC-06	PC-07	PC-08	PC-09	PC-10	PC-11	PC-12	Cumm
Noodle Production	146.0	149.8	147.9	148.3	150.2	154.4	156.0	157.6	153.9	147.5	144.0	154.0	150.3
Soap Production	77.2	74.2	104.1	80.3	79.0	90.3	105.3	111.2	119.5	126.8	137.6	136.2	129.4

With Increase in Noodle productivity, Soap productivity also ramp up.

5.2.0 Communication of the Results

5.2.1.1 : How did the team communicate the results to the various stakeholder groups?

From: Kalyanpur Raghunath (WG01 - Wipro Consumer Care & Lighting)
Sent: Friday, June 23, 2017 10:50 AM
To: Vineet Agrawal (WG01 - Wipro Consumer Care & Lighting) <vineet.agrawal@wipro.com>; AnilKumar Raina (WG01 - Wipro Consumer Care & Lighting) (anilkumar.raina@wipro.com) <anilkumar.raina@wipro.com>
Cc: Kalyanpur Raghunath (WG01 - Wipro Consumer Care & Lighting) <kalyanpur.raghunath@wipro.com>; 'anil.menon1@wipro.com' <anil.menon1@wipro.com>; Suresh Kumar Kaushal (WG01 - Wipro Consumer Care & Lighting) <suresh.kaushal@wipro.com>; Yogeshwar Patil (WG01 - Wipro Consumer Care & Lighting) <yogeshwar.patil@wipro.com>; Narendra Gupta (WG01 - Wipro Consumer Care & Lighting) <naren.gupta@wipro.com>; Rahul Awadhiya (WG01 - Wipro Consumer Care & Lighting) <rahul.awadhiya@wipro.com>; Praveena Kumar Gowranna (WG01 - Wipro Consumer Care & Lighting) <praveena.gowranna@wipro.com>; Munivar Basha (WG01 - Wipro Consumer Care & Lighting) <munivar.basha1@wipro.com>; Milind Vaidya (WG01 - Wipro Consumer Care & Lighting) <vaidya.milind@wipro.com>; Chitradeep Aras (WG01 - Wipro Consumer Care & Lighting) <chitradeep.aras@wipro.com>; Dileep Kumar Yarra (WG01 - Wipro Consumer Care & Lighting) <dileep.yarra@wipro.com>; Nambiraj K (WG01 - Wipro Consumer Care & Lighting) <nambiraj.k07@wipro.com>; Damodhara Kamath (WG01 - Wipro Consumer Care & Lighting) <damodhara.kamath@wipro.com>; Maheshwar Sharma (WG01 - Wipro Consumer Care & Lighting) <maheshwar.sharma@wipro.com>; Sudheer Hegde (WG01 - Wipro Consumer Care & Lighting) <sudheer.hegde@wipro.com>; Shobha Ramesh (WG01 - Wipro Consumer Care & Lighting) <shobha.ramesh@wipro.com>; Umesh Sharma (WG01 - Wipro Consumer Care & Lighting) <umesh.sharma@wipro.com>; Anil Chugh (WG01 - Wipro Consumer Care & Lighting) <anil.chugh@wipro.com>; Manish Daga (WG01 - Wipro Consumer Care & Lighting) <manish.daga@wipro.com>; Satish Tokhi (WG01 - Wipro Consumer Care & Lighting) <satish.tokhi@wipro.com>
Subject: FW: Daily production report of 22.06.2017

NOODLE PRODUCTION: 165.094 MT (CSP+CVSP) (165.094 MT + Nil) D/T CSP: (Mesh cleaning- 20 min) CVSP: (No Plan- 1440 min)

Note: Highest ever production of CSP noodles achieved, previous highest was 162.4 MT on 16.10.2016

Team has communicated the result through mail/phone to all the stakeholder. Also, during the quarterly review the detailed presentation shown to top management.

5.2.0 Communication of the Results

5.2.1.1 : How did the team communicate the results to the various stakeholder groups?

1st prize LSSEA-2016 (DMAIC-MFG)

Baddi Unit 1 CC team won the First prize at Symbiosis Centre for Management & Human Resources Development (SCMHRD)in Lean Six sigma Excellence Award Competition (LSSEA 2016) for the project "Improving CSP productivity to exceed the internal customer satisfaction"

5.2.0 Communication of the Results

5.2.1.1 : How did the team communicate the results to the various stakeholder groups?

Project won the Silver award during the Wipro Quality council-2017.

Thank You – Journey will continue

Spirit of Wipro

- Be passionate about clients' success
- Treat each person with respect
- Be global and responsible
- Unyielding integrity in everything we do

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