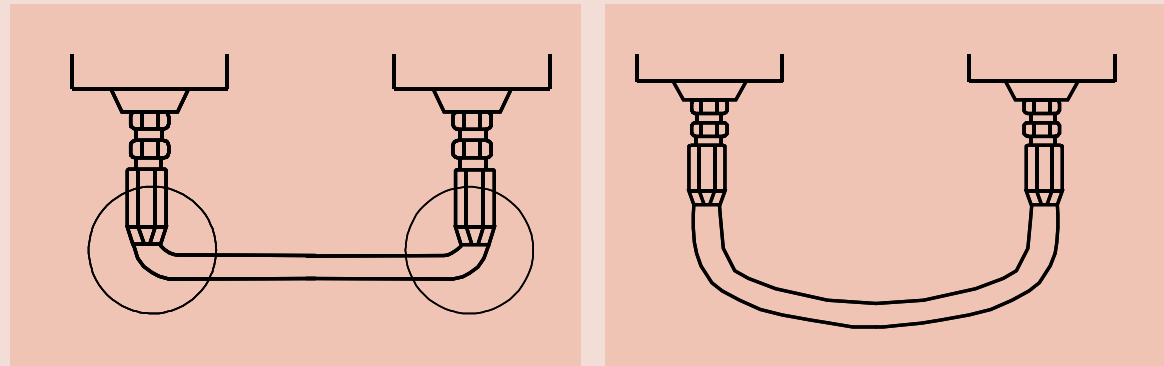


Must Not Do – Maintenance Work – (1)

Hydraulic hose must not bend excessively

After replacement fatigue will happen in a short time leading to oil leakage again



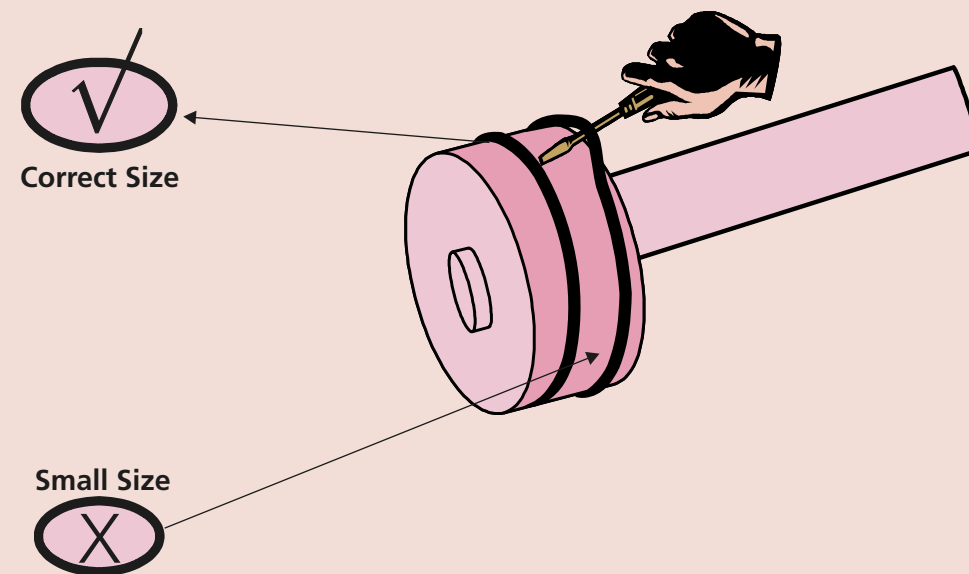
Not OK

OK

Must Not Do – Maintenance Work – (2)

Small size O-ring must not be set by pulling

It is easy to cut because O-ring is always stretched



Correct Size

Small Size

For further details please contact:

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Progress @ TPM



The Newsletter from TPM Club India

Newsletter

Volume No. 18

February, 2005

TPM JOURNEY AT TATA STEEL

TPM excellence awards are awarded to companies that were successful during the audit of JIPM (Japan Institute of Plant Maintenance), Japan. For the year 2004, 4 plants of Tata Steel successfully challenged the award. The following is the interview by Dr Sarita Nagpal, Principal Counsellor, TPM Club India with Dr T Mukherjee, Dy Managing Director (Steel), Tata Steel.

Let me first of all congratulate you in this great achievement, 4 Plants of Tata Steel have been recognised by Japan Institute of Plant Maintenance for applying TPM successfully. What would have been the main objectives of challenging the TPM excellence award for Tata Steel?

Dr T. Mukherjee
Deputy Managing Director
(Steel)
Tata Steel



Thank you. TPM initiative was started 4-5 years ago in these 4 plants (Bearings Division at Kharagpur, Hot Strip Mill, Wire Rod Mill and Precision Tube Mill Tubes division at Tata Nagar) of our company. Although some of these plants were doing well in terms of production and were improving their performance every year, albeit incrementally, the full potential of these plants were yet to be explored. General cleanliness and house keeping were not up to the mark. The condition of equipments was deteriorating with time resulting in increased instances of breakdowns, defects, rejections and other losses. The safety condition of these plants was also not satisfactory. Through the TPM initiative, we mainly focused on improving the condition on the shop floor and of the equipment so that the ultimate aim of **ABCD→Z (Accidents, Breakdowns, Customer Complaints & Defects→Zero) could be achieved.**

Once these plants, through systematic application of TPM principles, achieved significant improvement in these parameters and consequently improved profitability, our JIPM TPM consultant, Mr Tomoya Watanabe, reviewed the results and pronounced the plants ready to challenge the JIPM TPM Excellence Award, 2004. These plants challenged the award and successfully defended it.

Challenging the award was a very important milestone for the plants in their journey towards TPM implementation. All the employees of these plants worked as a well oiled self directed team to achieve the goal.

Could you share with us some of the tangible and intangible gains?

Some of the significant gains at these plants resulting out of systematic implementation of the TPM concepts included reduction in number of accidents (both major as well as minor). The number of breakdowns, as compared to the base level, dropped by 90-95%. Significant reduction was also achieved in generation of defects and customer complaints. This has resulted in a considerable improvement in the production and productivity of these plants. The cost of production has come down in spite of increase in the cost of raw material, power and establishment. The overall profitability of these plants, some of them in the red few years ago, has also improved.

There has been a visible improvement in the "1S" & "2S" conditions in all areas of these plants. The plants look clean, people enthusiastic and a culture of wanting to improve is displayed everywhere. Following the TPM concepts has empowered the employees motivating them to develop into true leaders in their respective areas.

In terms of various initiatives taken in Tata Steel for improvement in Manufacturing / operations, what was the contribution of TPM vis a vis others.

As different programmes and tools evolved, different initiatives were taken up by our company to improve effectiveness. In order to bring all these initiatives under one umbrella, we launched the ASPIRE (Aspirational Initiative to Retain Excellence) program a few years ago. All the improvement initiatives, being practiced by us, became a part of ASPIRE. Total Productive Maintenance is a very important constituent of ASPIRE with the objective of improving the parameters discussed earlier.

What were the changes in mind-set during the TPM journey?

The TPM journey helped to change the mindset of the people from satisfaction over past achievements to an environment of continuous improvement. Far from being satisfied with what they were doing, the employees are now motivated to set stretch targets for themselves and achieving the same almost every time. Before we embarked on the journey, the urge to improve was lacking. There was the typical mindset that break downs or defects will occur as the machines become old and components wore out. The "I run it", "you fix it" mentality was prevalent. Conscious efforts were made through the ASPIRE program to change this mind set. The Jishu Hozen activities enabled us to change the mindset of the people to "I own my machine". As this change set in, the employees stopped being satisfied with what had already been achieved in the past. They started setting more stretched and aspirational targets for themselves and achieving the same. This enhanced their confidence and motivated them to take even more stretched targets to be subsequently achieved.

We had ushered in an environment of continuous improvement using the TPM vehicle. And a very important change in mind set has appeared. While every one would swear by the importance of TPM, the realization that TPM is a means, an essential means and not the goal, has evolved.

What is the role of the top management in leading TPM ?

Our ASPIRE program is top driven with the top management actively involving themselves in the various improvement initiatives. Our top management sincerely believes in the TPM methodology of "Managers Model Machines", in which senior managers of the plant work on the machines to improve their condition and lead by example. Apart from the regular progress reviews, resource allocation, setting directions and communicating with all employees, we also visit the shop floors regularly to have a first hand feel of the plant conditions and also provide the employees with yet another opportunity to interact with us. The role of the top management becomes even more important in an initiative like TPM which is basically a shop floor and equipment focused activity involving all the employees of the plant.

Based on your experience, how should Indian companies introduce TPM and why?

For a structured initiative such as TPM, any company that decides to adopt it must understand the concepts clearly and communicate the same to all its employees. Advice / facilitation from experts from the Japan Institute of Plant Maintenance or CII TPM Club India is advisable at the commencement of the journey. Progress reviews, from experts, help to ascertain the direction of the initiatives and also for making mid course corrections. Involvement of external experts enables the company to identify more areas of improvement in the company, especially from an external perspective. I would not hesitate in saying that while apparent results come quickly, a greater emphasis on training and following the rigors of TPM are essential for sustaining and maintaining improvements.

TPM AT BAJAJ AUTO LTD

Bajaj initiated TPM activities few years ago at their manufacturing sites including their latest plant at Chakan and further extended the concepts to R&D and their Vendors. This article covers the insight behind Bajaj's venture into the above areas.

Why TPM for Chakan plant

Chakan is Bajaj Auto's third plant. Many improvement initiatives were attempted here. It was realised that none of these initiatives provided results on every aspect of excellence in operations. Each initiative had a very narrow focus and tended to neglect other areas of operations. Secondly, all these initiatives tended to have a project orientation and depended too much on the ability and the focus of the driver.

We wanted to implement a system which was system and goal driven and which looked at every parameter of operations to ensure workshop excellence by participation of all employees. Based on our experience of TPM at the Akurdi and Waluj plants, we found TPM is highly structured. It involves everyone, from the top man to the operator, in the organisation. The measurements under P, Q, C, D, S, M force the operations to look at every aspect of work to bring about excellence.

Moreover, the way in which TPM encompasses all the departments, it is very appropriate to our need for developing Bajaj into a system driven organisation. There is a focus on what is being done and what needs to be done with a very clear review mechanism to monitor progress. At Chakan, we have flexible working on the line. TPM provides a good framework for training and developing them.

Yamaguchi San has been teaching us how to identify losses and reduce/eliminate them. His focus has been on educating us to graduate from understanding "Know How" which is relatively easy to "Know Why". This will help us in not only achieving operational excellence but also in developing a learning organisation with in-depth knowledge for problem solving.

Why TPM at R & D of Bajaj Auto Ltd

Due to reasons of competition in the 2 wheeler industry, new product launches are becoming very frequent.

Bajaj Auto has also been launching a number of new products in the last few years. Our experience while launching the new products was not very satisfactory. The new product that was launched used to have similar problems in the first few months of its debut and we used to keep solving these problems after they had occurred. This was not a good situation for the company's image in the eyes of customer.

Our R & D team is very creative. However each model was considered as a separate creation. The learning from the past was not put to best use. Hence, similar problems were required to be solved.

With this as background, we had requested our Guru Yamaguchi San to help us in developing methodology to prevent failures to ensure defect free product launch.

We focussed on 2 activities. First, the problems based on customer complaints in the previous models were given the focus at the design stage itself. The concept of "what we did" and "what we did not" was put in place. This helped the designers to review the root cause of allowing a weak design to go to the field and so improve their learning.

Secondly, we are focussing on impressive product designs. Such designs will also help us in achieving reduction of manufacturing costs and help us in competing better in the market place. These two activities are of prime importance as new products/models are being launched at short intervals. Ultimately, we aim to attain a level where good designs are realised through good design review with the participation of all concerned.

Why TPM for Bajaj Vendors.

At Bajaj, the core components are manufactured in-house and others are sourced from vendors. We have strengthened our manufacturing to a larger extent and achieved excellent results through the continuous implementation of TPM. While our processes have become robust, we had the vendor supplied components giving us problems. We came to the conclusion that to have reliable and good quality products, we not only have to make our processes robust but also try to improve the processes at our vendor's.

Apart from Quality from the vendors, we also started to look at their cost, delivery, ability to manage their processes and the capability to develop new products, reliably, in shorter time to help us in attaining the goal of high quality / low cost products and defect free new product introduction. With TPM being a successful tool at Bajaj, we decided to use this excellent tool at our vendor's facilities also. Yamaguchi San was kind enough to accept our request and the TPM journey at Vendors started.

Activities for eliminating customer complaints based on vendor supplied products were initiated as phase I activities. Their processes were streamlined and people were developed to a level from where they can meet our requirements. The results have been encouraging. We started with few vendors and now we are expanding this to more vendors.

TPM Kick-off at Bajaj Auto's Chakan Plant

After Bajaj Auto's Akurdi and Waluj plants, it was the turn of the youngest Chakan Plant near Pune, to commit itself to the TPM philosophy. The journey for implementing TPM had started during Nov 2003 and on 8th Dec 2004 the plant reached the milestone of Kick-off.

The TPM policy of Bajaj Auto declares TPM, "as a means of creating a safe and participative work environment in which all employees target towards elimination of losses in order to continuously enhance the capacity, flexibility, reliability and capability of its process, leading to higher employee morale and greater organisational profitability." Before kicking off the TPM activity, the plant had put in one year of committed efforts to be in a position from where it can now go full steam to meet the TPM policy aspirations. These efforts included practising TPM in model cells, creating awareness amongst employees, creating a formal TPM organisation, setting up of expert sub-committees to implement eight pillars of TPM. Present on the occasion were Mr. Sueo Yamaguchi, TPM guru & consultant for BAL, Mr. Rajiv Bajaj Joint Managing Director, eminent business associates and employees.

The employees of the plant had organised a display of various Kaizens done in different areas of the plant and cartoons display on the lighter side of TPM. This was much appreciated by the chief guests as the first of its kind exhibition showing the spread of TPM in various areas. Mr. Yamaguchi, Mr. Rajiv Bajaj & all the guests visited the Kaizen stalls of different departments & interacted with the cell members who were very enthusiastic to explain their Kaizens with working models. At the kick-off venue, the event commenced by lighting of the traditional lamp at the hands of Mr. Yamaguchi, Mr. Rajiv Bajaj & others, followed by rendering the theme song specially composed for the occasion.

This was followed by declaration of PQCDMSM targets for the plant by the GM of the plant Mr. P Shrivastava. Speaking on the occasion, Mr. Rajiv Bajaj said he has full faith in young and dedicated Chakan team and is confident that with their sincere efforts and continued guidance from Mr. Yamaguchi, which has resulted outstanding achievement in model cell activities, the team would be able to successfully achieve the stringent targets set for the plant.

Mr Yamaguchi in his address, congratulated the employees on the spread of TPM culture in the plant and excellent results achieved in various cells in different shops including model cell activities. He commented that with the commitment shown by the Chakan team, he is sure that the plant would be able to challenge the TPM award very soon. BAL Chakan team has celebrated month of Nov.'04 as the Kaizen month for prevention of defects. The response from cell members & staff was overwhelming & more than 400 kaizens were generated during the month. Other events like slogan competition were also organized. Winners of best Kaizens were awarded with the rolling trophy & individual certificates & gifts during Kick off ceremony at the hands of Mr. Yamaguchi, Mr. Rajiv Bajaj, Mr. DK Sharma & Mr. P Shrivastava.

Finally, with one voice from entire Chakan team "We will do it!", the plant started its TPM journey on the path of continual excellence. The event culminated by singing the National Anthem.

Manager model cell achievement at BAL -Chakan Plant

Parameter	Criterion	Bench Mark	Result	Achievement
P - Production & Productivity	Out put per hour	40	60	1.5 times increased
	Out put per man	64	96	1.5 times increased
Q - Quality	Inprocess Defect Phenomenon.	4	0	100 % down
	Field Defect Phenomenon.	0	0	Sustained Zero defect.
C - Cost	Conversion cost / comp			30% down as compared to BM cost.
M - Morale	Kaizen per month	5	10	2 times increased



Mr. Yamaguchi addressing the gathering, also seen from L to R - Mr. P. Shrivastava, Mr. Rajiv Bajaj & Mr. DK. Sharma.



TPM Activity Board which displays the TPM activities and results of these activities carried out



Models being used to explain the kaizens successfully implemented as a part of Kick off function.



TPM KICK OFF FUNCTIONS

INDIAN OIL CORPORATION LIMITED

(Assam Oil Division), Digboi

TPM Kick Off of Digboi Refinery was possible on 27.10.04 due to successful TPM implementation of AVU, the Pilot Model. We sincerely acknowledge the involvement and guidance of Mr. Mahendra Prasad, Counsellor - TPM from TPM Club of India towards achieving this. It is heartening to note that we have started reaping the benefits of TPM, both tangible and intangible, which are summarized as under:

A. Tangible Benefits through reduction of losses

Sl. No	Area of losses	Unit	Saving in Quantity	Savings Rs. Lacs/Yr.
1.	Water			
1.a	DM Water	M ³ /Hr.	5	9.80
1.b	Raw Water	M ³ /Hr.	1	0.50
2.	Air Leaks	CFM	105	6.25
3.	Steam Leaks	Kg/Hr.	2200	36.75
4.	Steam Header Insulation	SRFT	285	11.57
5.	Recovery of LPG during DCU SAD operation (through Kaizen)	MT	280	46.44
6.	Reduction in slop oil generation due to staggered charging of slop with crude (through Kaizen)	MT of FO	5520	94.00
7.	Repeated failure of Mechanical Seal			12.20
	TOTAL SAVING			217.51

B. Intangible Benefits

1. Zero Leakages and orderliness leading to good house keeping and enhanced safety.
2. Easy and convenient working atmosphere due to much improved visual management.
3. Fool proof lubrication system through colour coding.
4. Cleaner equipment leading to early detection of abnormalities.
5. Effective team building.
6. Increased belongingness of employees through participation in Kaizen and contribution of OPL.
7. Contagious effect for operators and technicians of other plants & units who have already taken up TPM philosophy at their own initiative.

INDIAN OIL CORPORATION LIMITED

Haldia Refinery

IOCL, Haldia would like to place on records our sincere thanks & gratitude to Dr Sarita Nagpal and Shri Mahendra Prasad for their continuous guidance and support which have enabled us to launch Total Productive Maintenance across the Haldia refinery on 30th October, 2004.

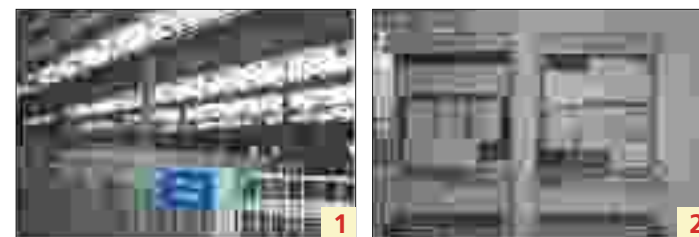
ACTIVITIES OF STEP 4 - AUTONOMOUS MAINTENANCE

The first three steps of Autonomous Maintenance teaches the operators what the abnormalities are, what will happen if they are not corrected and in the process create the relationship between man and machine. These 3 steps of Autonomous Maintenance prevent most of the breakdowns and defects from occurring. The next step is the General Inspection. For carrying out these activities, operators need to be trained on the machine parts. In this step at least the following machines parts need to be addressed.

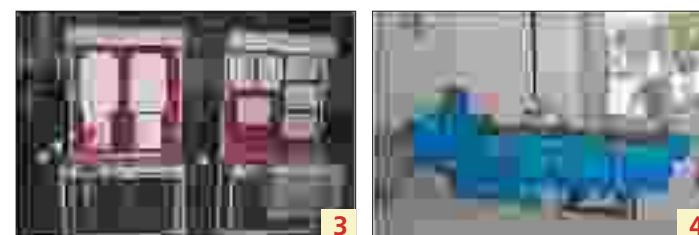
- | | |
|-------------------|-------------------------|
| 1. Bolts and Nuts | 5. Drive |
| 2. Lubrication | 6. Electric |
| 3. Hydraulic | 7. Safety |
| 4. Pneumatic | 8. Machining Conditions |

The knowledge on these subjects are given to the operators through on-the-job and classroom trainings. In the classroom trainings, cut models and working models are utilised so that the operators can try and learn by themselves.

At Bajaj Auto Ltd, Akurdi, they have created a "TPM Tech Centre" where both knowledge and skill is imparted to the operators so that they become proficient in machine management apart from operations. All the operators and the maintenance staff come to the "TPM Tech Centre" not only for learning but also for better understanding of the systems and experiment the improvements that they are planning to implement.



1. A view of the "TPM Tech Centre"
2. Basic knowledge is imparted through one point lessons and parts display
3. Working model of a pump and a paint spray gun – operators can operate and understand themselves
4. Working model of a paper filter



1. Technical details about FRL
2. Working model of Hydraulic cylinder. In this experimental test bench, operators can understand how a cylinder will operate under normal condition, mark on the piston rod and when the mounting bolts are loose
3. Experimental test bench for pneumatic system
4. A separate area allocated for learning and experimenting on drive systems



It is indeed a proud achievement resulting out of continuous endeavor by Haldrefin members with unstinted cooperation from CII. I think that the essence of TPM philosophy has percolated down the strata of our employees. We are confident to march forward and strive for continuous improvement of our refinery. The benefits accrued due to TPM activities at the Pilot Model Plant of PDA, as assessed so far, are enumerated below.

Intangible benefits

- ▶ Neat & clean plant, no overflow, improved aesthetic look and accessibility; safe, easy and comfortable movement.
- ▶ Health monitoring of plant and equipments has improved.
- ▶ Improved lubrication management, ease of maintaining basic operating conditions, orderly and assigned place for every item.
- ▶ LOBians inspired, Haldrefin members aspire implementation of TPM at their respective areas.

Tangible benefits

- ▶ Compressor breakdown has reduced over 75%
- ▶ Feed to solvent ratio is closer to a design value of 10 leading to improved product quality.
- ▶ Propane consumption has reduced drastically
- ▶ Steam loss has been reduced by about 80%
- ▶ Fuel saving is about Rs 1.5 lacs/year
- ▶ Kaizens implemented account for recurring saving of Rs 1.08 cr/year
- ▶ Kaizens, to be implemented, is expected to generate recurring saving of Rs 72 lacs/yr.
- ▶ Flaring loss stopped from PDA resulting saving of Rs 3.23 lacs/month
- ▶ Overall plant effectiveness has improved by about 75%

INDIAN OIL CORPORATION LIMITED

Guwahati Refinery

IOCL, Guwahati Refinery in seas to put on record our sincere thanks for the Continuous guidance provided by Shri Mahendra Prasad during implementation of pilot model of TPM in our Delayed Coking Unit (DCU). We also acknowledge his contribution towards making the TPM Kick-off ceremony on 29th October 2004, a Grand success.

We are happy to inform that substantial tangible and intangible benefits have accrued during the course of implementation of TPM in the model unit and elsewhere. The same are listed below:

Tangible Reduction of losses

MODEL PLANT

Detail	Area	Savings (Rs. Lacs)	Details
Steam Leak	DCU	12 . 40	200 kg/hr reduction
Lube Oil Spillage (kaizen)	DCU	1 . 80	7 Lt/day saved
Hydro-Carbon leak	DCU	28 . 30	270 Mt/yr reduction
Fuel Saving	DCU	19 . 40	Reduction in Heat Loss (improvement in insulation & Heater Operation)
In situ cleaning of CFC (Kaizen)	DCU	12 . 00	Reduction in LPG Loss
	SubTotal	73 . 90	

BY KAIZEN IN OTHER UNITS

P-2/P-9 pump suction line modification (Kaizen)	CDU	146 . 00	CDU startup time reduced by 16 hrs.
Modification in front of end Purging facility (Kaizen)	HGU	24 . 00	HGU start up time reduced by 8 hrs.
Reduced Hydrogen Flaring ex HDT (Kaizen)	HDT	9 . 50	H ₂ flaring reduced by 3 Kg/hr
	Sub Total	179 . 50	
Grand Total		Rs. 253 . 40 lacs	

Intangible

1. Confidence to attend leaks and abnormalities on line has increased. Earlier short bolting and gasket/gland leaks were attended during shutdown only but with TPM it has been attended on line.
2. Increased belongingness to a cleaner & more orderly work place.
3. Easier working because of better visual management.
4. Safer working environment due to reduction of hydrocarbon leakages.

EXIDE INDUSTRIES LIMITED

Haldia

The Kick-off ceremony of Total Productive Maintenance (TPM) was held at Exide Haldia on 9th October, 2004. The purpose of the kick-off was to spread the TPM practices amongst all employees with all the machines. Prior to the kick-off, it had been restricted to only 07 nos. Model machines & 02 nos. model Assembly lines. There was a lot of enthusiasm amongst the employees and they had participated spontaneously and exhibited a great deal of efforts and cooperation for this kick-off.

The distinguished visitors viz. Mr Lakshman Seth, Member of Parliament, our Chairman, Mr S B Ganguly, Director-Industrial, Mr G Chatterjee, Chief-TQM, Dr A Ghosh, our TPM Consultant, Mr Charles Pinto and Heads of local factories had graced the occasion. Other honourable guests from neighbouring industries, district officials and the representatives of media were also present. The programme included TPM Policy Declaration, Unfurling the TPM Kick-off Board, Presentation by the Pillar Chairmen etc.

Our Chairman Mr S.B.Ganguly & Director-Industrial Mr G.Chatterjee highlighted the achievements of Haldia and expressed their confidence that Haldia will successfully implement TPM in absolute concept, in his speech. Mr Lakshman Seth, M.P. spoke about Haldia factory being a Model Factory of Haldia which was expected to create prosperity and share prosperity in the region and the State. Mr Hrishikesh Pradhan, General Secretary, Employees' Union spoke on this occasion and said that employees of Haldia are willing to take up the challenge and implement TPM successfully. Mr Prafulla Samanta, President, Employees' Union said in his speech that nothing is impossible. We can, if we try, succeed in conquering the impossible.

The function was concluded with oath taking ceremony for total commitment from all employees to implement TPM throughout the factory and to achieve the management targets in line with the Master Plan.

PQCDSM Figures for Exide Haldia Plant for the period April'04 to Nov'04

BENEFITS ACHIEVED BY PRACTICING TPM

Manager's Model M/C Name	% Production increase per shift for April'04 to Nov'04	% Reduction of rejection for April'04 to Nov'04	Total cost saving from April'-04 to Nov'04	5S of Score increase one Point lesson	%OEE increase from Apr'04 to nov'04
1 Auto Wirtz m/c no 9	9.50%	60%	14,202	50%	6%
2 Iken m/c no. 1	38%	76%	141,323	32%	16%
3 Auto Assy line -1	14%	56%	320,703	65%	10%
4 Indl. Wirtz	8%	5%	54,376	11%	9%
5 Indl Pasting and Oven	23%	51%	461,223	20%	11%
6 New Hadi - 1	14%	40%	39,293	20%	11%
7 Indl.PP Assy. Line	8%	47%	246,920	40%	10%
8 Bielomatik	13%	53%	227,957	40%	11%
9 L P Compressor no.2	NA	NA	25,745	45%	Not calculated

Inventory Reduction :

Indigenous bought out parts inventory for various types of items reduced by 25 % to 50%

No accidents occurred in the model machine area during Apr'04 to Nov'04

Number of kaizens = 56

Number of One Point Lessons = 70

Number of Suggestions related to TPM = 34

On Time Deliveries

KAIZEN EYE



TPM is all about thinking style and attitude to do. The correct way of thinking to solve a problem will lead to better understanding and easy to do. Kaizen eye is a methodology which will help in thinking and solving the problems in a simple and easy way. The methodology of Kaizen eye along with the proper and improper care is represented below.

THEME	REDUCE /ELIMINATE /INCREASE /PREVENT
PROBLEM	CORRECT OBSERVATION
ANALYSIS (ROOT CAUSE)	1. Poka Yoke 4. Many Bolts 7. Long 2. Less Friction 5. Coolant 8. Cannot detect 3. Fully 6. Big 9. Difficult
IDEA	OPPOSITE OF ROOT CAUSE 1. Poka Yoke 4. Less Bolts 7. Short 2. More Friction 5. No Coolant 8. Can detect 3. Partly 6. Small 9. Easy
COUNTERMEASURE (KAIZEN)	PROVIDING/CHANGING
RESULT	REDUCE TIME ↓ REDUCE FREQUENCY ↓ ELIMINATE INCREASE LIFE ↑
BENEFIT	INCREASE PRODUCTION ↑ REDUCE COST ↓



Phenomenon stratified by 5W and 1H

WHEN	Trend	Continuous, discontinuous, very rare
	Time, period	Start-up, season (summer, winter, rainy season), set up
WHO	Men	Day shift, night shift, new employee, temporary help
WHAT	Materials	Lots, type No.
WHERE	Location	Part, range, process, equipment
WHICH	Trend	Direction (+,-, fore, rear, left and right), increase, reduction
HOW	Status	Equipment, jigs, tools, accuracy (dynamic, stationary), machining conditions

Proper case

PU :	Body PU	Loss :		CELL :	Supply Module	REF. NO. :		KAIZEN SHEET
Activity in				Kaizen Idea :				
KK	JH	PM	QM	OTPM	E&T	SHE	IFC	
Kaizen Theme :								No Packing
To reduce direct material cost of Door Hinges.								
Problem / Present Status : Hinges are supplied in pack cartoons.								Counter Measure : To provide storage/transportation crates.
Before Sketch				After Sketch				
								
Analysis :				Result :				
High cost of Door-Hinges ↓ High Packaging cost ↓ Supply in corrugated packing				Unit Cost-Rs. 52 51 50 49 Before: 51.8 After: 50				
Keyword: Packing								

Improper case

PU :	Vehicle	KAIZEN SHEET													
CELL :	Supply														
REF. NO. :	OPTM / VPU / SM														
Activity in											Benefit in				
KK	JH	PM	QM	OTPM	E&T	SHE	IFC	P	Q	C	O	S	M		
Kaizen Theme :											Idea :				
TO STANDARDISE SPARE WHEEL COVERS.											CHANGE DESIGN (BRAND NAME TO BE MENTIONED.)				
Problem / Present Status :											Counter Measure :				
Before Sketch											After Sketch				
															
Analysis :											Result :				
High variety of spare wheel covers (27 nos) ↓ Model name mentioned on the cover ↓ Root Cause: INITIAL DESIGN											INVENTORY 3.02 lacs 1.8 lacs BEFORE AFTER				

Correct thinking

Kaizen Theme
Reduce Inventory cost

Root Cause:
Different spare wheel cover

Kaizen Idea:
Common spare wheel cover

Kaizen:
Changing design
Model name →
Brand name