

**UNIDO - ACMA**

**Partnership Programme, India**

# Case Study #6:

**Sanjay Techno plast Pvt. Ltd.**



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## BACKGROUND OF SANJAY TECHNO PLAST

*Through this programme we have transformed our company to a beautiful stature of industrial personality. We are now living in the world of total certainty by overcoming almost all uncertainties related to machine, man, method and material. We are now fully equipped with the management tool to handle quality, productivity and profitability challenges.*

**Prasad L Kokil, Managing Director**

### OVERVIEW

**Company:** Sanjay Techno Plast Pvt. Ltd.

**Location:** Aurangabad

**Programme period:** Sept. 2005 – Feb. 2008 (30 months)

**Number of employees:** 92 (12% women)

**Core products and processes:** Precision turned components, broaching, gun drilling and milling

**Average annual turnover:** INR 145 million. (USD 3.22 million)

**Value of exports:** INR 122.9 million (USD 2.73 million)

**Tier:** 1 & 2

### KEY CHALLENGES FACED

- » Numerous customer complaints and returns.
- » High in-process rejection PPM.
- » High employee absenteeism.
- » High frequency of accidents
- » Low value addition of employees to reduce manufacturing costs.

### ASPIRATIONS AND AIMS

- » To improve customer satisfaction by achieving zero rejections and zero complaints
- » To earn maximum possible profits in a sustainable manner by eliminating waste from all processes
- » To create a healthy and safe work environment for all employees
- » To improve knowledge, awareness and confidence workers and to empower them to address any challenge faced

# Case Study #6:

Sanjay Techno plast Pvt. Ltd.

*Birthday wishes by the Head of Production*



This company was started by Mr. Prasad Kokil and Mr. Sudhir Shiradkar in 1999-2000. Both are engineering graduates and hold post-graduate diplomas in Business Management. They have more than 10 years of experience in various engineering industries at senior positions before starting Sanjay Techno Plast as a new venture.

The company disposes of various production facilities including injection moulding machines, presses, and welding machines, and manufactures plastic parts for the two-, three-, and four wheeler industries. They also produce plastic parts for the appliance industry along with forward integration of painting on plastic parts. Sanjay Techno Plast is currently a tier-1 vendor for Videocon Group and a tier-2 vendor for Bajaj Auto Ltd. Other major customers are Varroc Group, Endurance Group, Ceekay Daikin Ltd (tier-1 vendor to Bajaj Auto Ltd) and Tata Motors Ltd. The company also exports parts of coffee vending machines to Germany through Expert Net Cad, an intermediary agency dealing between STPL and OEMs in Germany.

The company received ISO 9000:2001 certification before joining the UNIDO-ACMA programme and ISO TS 16949:2002 after programme completion.

*Family get together*



Before the programme experts visited Sanjay Techno Plast, the company faced problems like high rejections at customer end as well as in-process stage. Absenteeism was also quite high resulting in poor planning. Frequent accidents on the shop-floor also played a role in creating disturbance in company's overall work performance and atmosphere. A general lack of knowledge about the concept of 'wastes' impeded the value addition by employees and their potential to identify potentials for reducing manufacturing cost. The company was searching for an external agency to guide them out of these problems. When the management of Sanjay Techno Plast came to know about UNIDO, the company grasped the opportunity and joined the programme.

## **VISION STATEMENT**

To become a world class company.

## **MISSION STATEMENT**

To serve humanity and the nation by doing extra-ordinary work through our company's activities by involving all the concerned people.



# Case Study #6:

Sanjay Techno plast Pvt. Ltd.

## SANJAY TECHNO PLAST'S JOURNEY THROUGH THE PROGRAMME

*K.V. Gavali (Production Manager) being awarded for doing one Kaizen each for 540 working days*



The programme started in the company in September 2005 and lasted for a period of 30 months under the guidance of national expert, Mr. P. D. Kulkarni. After conducting initial meetings to understand the challenges faced, the counsellor divided various operational areas of the company into zones and provided intensive class-room as well as practical training on 5S, Kaizen, mistake proofing, and various other quality control tools. The training given by the counsellor was as per the previously defined UNIDO-ACMA road map.

Over the following months, the counsellor reviewed the results of all key initiatives on the shop floor and in the course of monthly review meetings (MRM). During each visit, new tasks were assigned to each zone, and the progress was evaluated at the next visit planned every third week. Zone leaders were encouraged to provide continuous training on 5S, Kaizen, My Machine Campaign and other tools to co-workers. In addition, a set of 32 key indicators (e.g. scrap clearance frequency, absenteeism, accident frequency and severity rate, customer return or number of machine defects.) was introduced in a phased manner and monitored on a regular basis. As part of the UNIDO-ACMA programme, approximately 750 kaizens (which is a Japanese term and refers to improvement suggestions brought forward by employees) were implemented on quality, productivity and cost reductions.

### **MEETING THE SAFETY CHALLENGE**

In order to make the workplace safer and to reduce accident frequency, the CEO and all line managers interacted with machine operators and shop floor workers to understand the reasons behind the accidents. By applying a "Why-Why Analysis" approach, the root causes of accidents could be found and permanent countermeasures were taken to make sure that accidents won't happen again. Operators appreciated this approach very much and participated in other improvement activities with remarkable enthusiasm.

### **REDUCING ABSENTEEISM RATE**

High absenteeism and sudden absence from work place without any prior notice was a major problem in the company. It affected the smooth production flow and caused problems for the adherence to delivery schedules. Management addressed this problem by communicating directly with the workers. In case of irregular identified workers, counselling helped in controlling the adverse trend. In addition, an attendance bonus of INR 100 was introduced for workers who came to work on time during all working days.

### **ENHANCING EMPLOYEE MOTIVATION AND PRODUCTIVITY**

In order to improve the problem solving capability of employees, quality circle teams were formed. These teams focused on bottom-up approaches whereby ideas and suggestions were collected from machine operators and discussed with managers. This initiative was instrumental in bringing about several improvements to key processes. For instance, tool setup time for critical processes was reduced and about 80.77% of the tools required significantly lower set-up time, which turned the production process much more efficient. Other actions taken to improve employee involvement included the following:

- » Direct interaction between CEO and employees to discuss the problems and challenges employees were facing and to uncover solutions.

# Case Study #6:

Sanjay Techno plast Pvt. Ltd.

Material feeding system in hopper



Before - manually



After - automated feeding

Shadow boards on shop-floor



Tool storage system



- » Kaizen ceremonies were organized to motivate employees to get involved in improvement activities and based on the quality of the suggestions provided, awards were distributed (e.g. house hold items, cash awards, etc.).
- » Cash advances were made available to employees for illnesses, marriages, and children's education.
- » Benefits like medical treatment, lunch, uniform and shoes were given to all employees.

## ENHANCING PRODUCTIVITY

The counsellor together with managers and selected employees brainstormed on how to enhance productivity. At first the company tackled machine process parameters and then looked into various other processes and identified other potential areas for improvement. Operators have been fully involved in the process and were given class-room and practical training on autonomous maintenance within the framework of 'my machine campaign'. This approach motivated operators to come up with suggestions on how to remove abnormalities and take ownership of their respective machine. That way, substantial improvements could be achieved – i.e. the machine breakdown rate was reduced and also machine down time was significantly lowered.

As part of the productivity enhancement drive the company furthermore looked into Overall Equipment Efficiency (OEE). Before the programme started OEE was as low as 75% with respect to the benchmark of minimum 85%. Based on suggestions made by employees, the company implemented measures such as preventive and predictive maintenance, part replacement at scheduled intervals, and finally managed to increase OEE to more than 90%. Actions such as feeding material automatically into hoppers also impacted positively on.

## ADDRESSING AND REDUCING CUSTOMER COMPLAINTS

To reduce customer complaints at the start of the programme was a big challenge for the company. Based on the counsellor's suggestions more focus was given on mistake proofing. By using 7 quality control (QC) techniques and implementing poka yoke, customer complaints were significantly reduced in the course of the programme, but could not be eliminated completely. Some of the steps taken in order to achieve zero rejections included:

- » Shadow boards were placed on the shop floor to prevent employees from using incorrect tools.
- » A new tool storage system was instituted in order to standardize the use of tools
- » Training on critical requirements was given to all employees concerned to enable them to analyze problems with minimal supervision.
- » "One point lessons" - short visual presentations communicating standards, problems and improvements in work processes and equipment - were displayed at different places on the shop floor, so that previously committed mistakes are not repeated.



# Case Study #6:

Sanjay Techno plast Pvt. Ltd.

## OUTCOMES

Mr. S.S. Gaikwad (GM - O) receiving National Energy Conservation Award - 2009( 1<sup>st</sup> Prize ) from the Hon'ble Union Minister of Power Mr. Shushil Kumar Shinde in New Delhi on December 14, 2009



Company entrance from the road side



### KEY RESULTS

- » Single Minute Exchange of Dies (SMED): Average mould change over time reduced from 98 min to 13 min.
- » In process rejection reduced from 98 thousand to less than 6 thousand.
- » Inventory Turn Ratio (ITR) increased from 20 to 44
- » Value Added to Employee Cost (VAPCO) increased from 2.22 to 4.63
- » Machine- break down frequency reduced from 47 nos. to 2 nos. per month
- » Original Equipment Efficiency (OEE) has gone up from 76 to 92%
- » Accident frequency and severity reduced to Zero.
- » Absenteeism reduced from 8.4 to 4.2% in 30 months.

A strong focus on the customer and bringing in innovative business ideas based on total employee involvement has rewarded the company with a steady compound annual growth rate (CAGR) of over 50% over the duration of the programme. The company also managed to attract six new customers and developed 44 new products for its customers over the same period of time.

### QUALITY AND PRODUCTIVITY IMPROVEMENTS

The company had a strong desire to rapidly transform itself into a more dynamic organization. This also became visible through the results achieved by the company in the areas of in-process rejection and OEE. In-house rejections, for instance, have declined by 94%. Increased employee involvement has resulted in improvements on the shop floor and successful implementation of 1,400 Kaizen. The number of Kaizen provided per employee per year crossed the target mark set by counsellor of 6 Kaizen per employee per year. Machine maintenance and tool set-up processes have vastly improved, resulting in an OEE which surpassed the target of 85%. In addition, zero break downs have been recorded for several days in the case of many machines on the shop floor. More than 1,200 visual controls have been displayed with a focus on reducing rejections and increasing customer satisfaction.

### AWARDS AND RECOGNITION

- » Award for “Best Industry in the District for Year 2008” from Government of Maharashtra.
- » Appreciation Award from Varroc Group in April 2008.
- » Awarded “Winner-Prize” for the achievements in the field of 5S in 2008 and “Runner-Prize” for SMED in 2009, by the Quality Circle Forum of India.

IMPROVEMENTS			
	Before	After	Change (%)
SMED in minutes	98	13	+86.7
In-process rejection in PPM	98,000	6,000	+ 94
Absenteeism (in %)	8.4	4.2	+50
VAPCO ratio	2.22	4.63	+100
Accident severity ratio	74	0	+100
OEE in %	76	92	+21
Customer returns PPM (average p.a.)	2500	1000	+60
Defects due to machine breakdowns (numbers/year)	47	2	+95.7
New Customers added			11
New Products added			57
Tangible savings in operating costs (US\$)			97,194

Note: Positive trend mark will be '+' and negative trend mark will be '-'.

# Case Study #6:

Sanjay Technoplast Pvt. Ltd.

## FUTURE OUTLOOK



### THE SUSTAINABILITY CHALLENGE

The company decided to continue many of the activities learned during the programme period and to monitor key performance indicators regularly. Ten additional indicators have been added after the completion of the programme to trace progress in more domains and regular reviews of all zones of the company are conducted. The review process currently in use is similar to the one that was implemented as part of the programme: It implies that the CEO conducts a final review of all key indicators once they have been analyzed by the zone leaders along with the coordinator and deputy coordinator for each zone.

The company achieved the goal of obtaining TS 16949:2000 certification in June 2008 and is striving to get ISO 14000 and OHSAS certification by 2012. The activities carried out during the UNIDO-ACMA Programme considers all the parameters required in manufacturing, and is therefore also a huge step towards most certifications in this field.

The company also expressed its interest to participate in advanced training programmes for firm clusters to continue its transformation into a more dynamic and productive organization.

### FUTURE TARGETS

- » To increase business by adding new customers and products at the rate of two customers per year.
- » To reduce in-house rejection/rework parts per million (PPM) from 6,000 to 1,000 by the end of 2009.
- » To obtain ISO 14000 and OHSAS certifications by the end of 2012.

# Case Study #6:

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## CONTACT DETAILS:

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