CASE STUDY

Performance Evaluation of CSAPL
PERFORMANCE EVALUATION OF CSAPL

by

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1. PROLOGUE

Dr. W. Edwards Deming once said\textsuperscript{1}: “There’s no law that says anybody has to improve. It’s all voluntary. It’s only a matter of survival.”

At Crescent Steel and Allied Products Ltd. (CSAPL) we strive to improve ourselves, through self-evaluation, in order to sustain providing quality products to our customers.

2. INTRODUCTION OF CSAPL

CSAPL is an API authorized steel linepipe manufacturer and a multi-layer Polyethylene coating applicator. We manufacture large diameter Double Submerged Arc Spiral Welded (DSAW) steel linepipe with facilities for external corrosion protection by multi-layer Polyethylene/Polypropylene or single layer Fusion Bonded Epoxy coating.

CSAPL, a unit of Crescent Group, is a public limited company that began production in March 1987\textsuperscript{2}. CSAPL is listed on the Stock Exchanges of Pakistan. Its business offices are at Karachi while the factory is located at S.I.T.E. Nooriabad, which is on the main Super Highway. The factory is spread over 30 acres, and includes a residential colony with separate housing for officers and staff and recreational facilities such as indoor games\textsuperscript{3}.

CSAPL has the API monogram authorization since 1987. The company was certified to ISO 9001 Quality Standard in January 1997. It is the first Pakistani Pipe Manufacturer having ISO 9001 and a dual API Q1/ISO 9001 certification.

We have supplied over 2.3 Million Metres of Bare/Pre-coated pipes to Oil, Gas, Water and Processing industries.

3. PRODUCTION PROCESS

The process flow of production activities is shown in Chart-1 (next page). Apart from process flow diagram, qualitative and quantitative measurement parameters are listed against each activity. Those parameters that are recorded on various forms are also mentioned. The responsibility of inspection/measurement is assigned for each activity; the ‘self ‘ means check by Production staff, while ‘Q.C.’ means check by Quality Control Inspector.
4. PERFORMANCE EVALUATION

For the sake of performance evaluation of the organization, some of the major performance measures are tabulated against respective functions/departments. Chart-2 also shows the tools through which these measurements are made. Improvements in the performance measurements, in the last few years, are narrated after this table.

<table>
<thead>
<tr>
<th>Functions/Departments</th>
<th>Performance Measurements</th>
<th>Tools</th>
</tr>
</thead>
</table>
| PRODUCTION            | 1. Production Efficiency | a. SP Log Book  
b. Budget Analysis Report |
|                       | 2. Rejection Rate        | a. Coil Reconciliation Report  
b. Final Inspection Report |
|                       | 3. Production Rate       | a. Census Report  
b. SP Log Book |
|                       | 4. Scrap (Finishing)     | a. Coil Reconciliation Report  
b. Final Inspection Report |
| ADMINISTRATION        | 1. Absenteeism           | a. Absentee Report |
|                       | 2. Late Coming           | a. Attendance Register  
b. Late Coming Report |
|                       | 3. Training              | a. Training Plan  
b. Performance appraisals  
c. Training Reports |
| MARKETING             | 1. Customer Complaints   | a. Letters from Customers  
b. Visit Investigation Reports |

**Chart-2**

4.1 PRODUCTION EFFICIENCY: This efficiency can be defined as the ratio of time utilized for the production of pipes plus time spent on necessary stoppages (changing of welding nozzles, milling tips etc.) divided by total time available. The figures for years 1996, 1997, and 1998 were 84%, 88%, and 89% respectively. This has been possible through improved plant maintenance, enhanced monitoring, and acquisition of latest technology—such as PLC based Heavy Duty Milling Machine for Pipe Plant.
4.2 REJECTION RATE: Rejection of a pipe takes place when a pipe is no more considered a prime pipe, and therefore downgraded. The rejection rate is the ratio of the length of pipe rejected to the length of pipe produced.

<table>
<thead>
<tr>
<th>Year</th>
<th>1996</th>
<th>1997</th>
<th>1998</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rejection rate (%)</td>
<td>1.3</td>
<td>0.59</td>
<td>0.52</td>
</tr>
</tbody>
</table>

The rejection rate could have been even lower in 1998; but because of the local coils’ use, which render more rejection, it could not be brought down further.

4.3 SCRAP (FINISHING): This is the scrap at Finishing Line, in percent, which is the ratio of scrap to the total weight of the pipes produced. The picture for the last three years is like this:

<table>
<thead>
<tr>
<th>Year</th>
<th>1996</th>
<th>1997</th>
<th>1998</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scrap (%)</td>
<td>0.82</td>
<td>0.36</td>
<td>0.71</td>
</tr>
</tbody>
</table>

In 1998 local coils were also used that contributed to higher scrap.

4.4 ABSENTEEISM (Factory): The status of absentees for the last four years is given below:

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of absences</td>
<td>630</td>
<td>623</td>
<td>638</td>
<td>421</td>
</tr>
</tbody>
</table>

There seems to be a particular phenomenon of absenteeism due to location of the factory—Nooriabad. People generally stay at the factory. Workers go to their homes on weekends; some do overstay and absent themselves from duty. This phenomenon is more prominent for the weekend when the workers get their salary.

4.5 LATE COMING (Head Office): The status of late coming for the last three years is given below:

<table>
<thead>
<tr>
<th>Year</th>
<th>1997</th>
<th>1998</th>
<th>1999 (7 months)</th>
</tr>
</thead>
<tbody>
<tr>
<td>People who came late</td>
<td>27</td>
<td>27</td>
<td>16</td>
</tr>
<tr>
<td>No. of times late</td>
<td>202</td>
<td>93</td>
<td></td>
</tr>
</tbody>
</table>

There is a dis-incentive for late coming. It is reflected in the annual appraisal.
4.6 TRAINING: The following is the position of training courses which were attended by our staff.

<table>
<thead>
<tr>
<th>Year</th>
<th>1996</th>
<th>1997</th>
<th>1998</th>
</tr>
</thead>
<tbody>
<tr>
<td>In-House Courses</td>
<td>6</td>
<td>6</td>
<td>10</td>
</tr>
<tr>
<td>Internal Speakers</td>
<td>3</td>
<td>5</td>
<td>9</td>
</tr>
<tr>
<td>External Courses</td>
<td>8</td>
<td>14</td>
<td>12</td>
</tr>
<tr>
<td>No. of Officers’ Trainings</td>
<td>33</td>
<td>25</td>
<td>36</td>
</tr>
<tr>
<td>No. of Supervisors</td>
<td>……</td>
<td>30</td>
<td>38</td>
</tr>
<tr>
<td>No. of Workers</td>
<td>………</td>
<td>6</td>
<td>9</td>
</tr>
</tbody>
</table>

Note: In 1996 during in-house courses on ISO 9000 (by external speaker) all staff members attended the program. Also in 1998, seventy-six (76) workers attended in-house training program on ISO 9000.

4.7 CUSTOMERS COMPLAINTS: When a customer encounters a problem with our pipes, he lodges a complaint to Marketing department in writing. On receipt of a complaint a Q.C. team is mobilized and sent to the site. The team investigates the case and prepares a report. Appropriate action is taken to the customer’s satisfaction. In the last six years a total of six (6) complaints were received, which are as follows:

<table>
<thead>
<tr>
<th>Year</th>
<th>No. of Complaints</th>
<th>Follow up</th>
</tr>
</thead>
<tbody>
<tr>
<td>1993</td>
<td>1</td>
<td>Not CSAPL's pipe</td>
</tr>
<tr>
<td>1994</td>
<td>0</td>
<td>-----------</td>
</tr>
<tr>
<td>1995</td>
<td>1</td>
<td>Pipes within Specs.</td>
</tr>
<tr>
<td>1996</td>
<td>0</td>
<td>-----------</td>
</tr>
<tr>
<td>1997</td>
<td>2</td>
<td>a. Advised customer (coating)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>b. Replaced pipe (7.5 Mtrs.)</td>
</tr>
<tr>
<td>1998</td>
<td>2</td>
<td>a. Replaced pipe (5.5 Mtrs.)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>b. Advised customer on correct test method (coating).</td>
</tr>
<tr>
<td>1999</td>
<td>0</td>
<td>-----------</td>
</tr>
</tbody>
</table>
4.8 QUALITY IMPROVEMENT PROCEDURE:

We have recently introduced a procedure for Quality Improvement Projects for each department. The purpose of this activity is to continually strive for improvement through initiatives from within the departments. A form for the purpose has also been devised, which is presented as Appendix A.

5. PERFORMANCE AREAS THAT NEED IMPROVEMENT:

There are some areas where the improvement has not been very significant, and therefore these areas still pose challenge to the management. One area is HRD. Career planning needs to be formalized. The company is taking measures to keep the staff members motivated. This includes adequate emoluments and benefits, improved living environment, and training. There is a need to conduct Employee Survey to evaluate the motivation levels.

There is a focus on training, but there is a room for improvement there—especially in Training Need Assessment (TNA). Some care is taken to design the company-wide training plans keeping in view the training needs, but the TNA has not yet reached a scientific level.

There have been improvements in the maintenance management of plant and equipment. A higher level of system is desired including computerized maintenance management system.

6. EPILOGUE

To sum up the discussion I can say that we have been able to achieve some improvements in the shape of increase in production efficiency, decrease in rejection rate and scrap, decline in late coming, enhancement in training and trainers, and maintaining customers complaints to a minimum. At the same time there are areas for improvement, which include, strengthening HRD function, conducting Employee Surveys for motivation, improving Training Need Assessment process, Making more effective the Maintenance Management of plant and equipment. This will not happen by accident, it will require focussed and planned approach.

At the end, I like to reproduce a quote from Willa A. Foster⁴, that is:

“Quality is never an accident.
   It is always the result of
   high intention, sincere effort,
   intelligent direction,
   and skillful execution.
   It represents the wise choice
   from many alternatives.”
REFERENCES


ABOUT THE AUTHOR

Mr. Nadir Mazhar is a Mechanical Engineer and an MBA. He has over 28 years of industrial and training experience in Pakistan and abroad. He has undergone several training programs, including the ISO 9000 Auditor/Lead Auditor Course.

He has been engaged in numerous teaching and training programs. He has also taught at the IBA Karachi University, and at the Southeastern University--UAE campuses.

Mr. Mazhar has been actively involved in the professional community. Presently, he is the Vice President (Mech.) of the Institution of Engineers, Pakistan.

Currently, he is working as a General Manager for Messrs. Crescent Steel and Allied Products Ltd. Apart from looking after the manufacturing facility, he is also the Quality Management Representative for the organization.

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Appendix A

CRESCENT STEEL AND ALLIED PRODUCTS LTD.  Form: QM 41

QUALITY IMPROVEMENT PROJECT

A. **Starting of Project:**
   1. Quality Improvement Opportunity:

   2. Needs of Quality Improvement (State quality losses/current status/benchmarks):

   3. Resources required (If any):

   4. Planned completion date of project:

B. **Corrective & Preventive Measures Taken:**

C. **Facts & Figures Collected for Confirming the Improvement:**

D. **Steps Required to Ensure the Sustaining of Improvement:**

E. **Comments:**

Department Head

Dept: QA  Revision: 0  Effective Date: April 1998