

ABSTRACT

Six Sigma Methodology has been found a most powerful Quality Improvement Technique so far in the world. This technique was originated in Motorola Inc. USA by Japanese as such, it became very popular in Europe and many corporations revolutionized their business culture after implementing this program. They showed drastic results on record and improved their profitability and productivity in multiples.

In this Study Six Sigma Methodology has been applied for energy saving in Sul Northern Gas Pipelines Limited. It is a great fact that almost of the Industry and Domestic life in Pakistan is highly depending upon Natural Gas. Due to poor quality of installations in domestic, commercial and industrial sectors a large part of Gas resource is wasted. Six Sigma Technique has been applied to identify the most critical reasons for gas leakage in Domestic connections above ground installations and have the solution to get rid of the leakage defect problem. The scope of study was restricted to Multan region only due to its atmospheric temperature.

The technique consists of several Non Statistical and Statistical Quality tools. The Non Statistical Quality techniques include Process Mapping, SIPOC diagram, FMEA, Mistake Proofing (Poke Yoka), Cause, and Effect diagram, Control Plan etc., whereas Statistical techniques include Pareto Analysis, Measurement System Analysis (MSA), Regression Analysis, Design of Experiment, Descriptive Analysis, Non Parametric tests and Statistical Process Control.

This technique is highly effective and result oriented because whatever shortcomings appeared and found after applying the appropriate tool (method) in the processes, they are removed before moving to next phase.

In the Study it has been found that on the average almost 2% of the joints in every domestic Customer Metering Station are poor and cause the Gas Leakage that cost around RS. 2.1 million per annum in the form of financial loss.

The main reasons for these poor leaking joints found in the study were expertise level of technician (fitter) and quality of tools(local and imported) used for pipe fittings and threading.

The solution obtained after the application of Six Sigma Technique can save a financial loss of Pak Rs. 2.1 million per annum and Obviously this saving is the saving of our National Assets.

As far as the information is concerned rarely the Statistical Quality research by the Statisticians in Pakistan has been completed on the Six Sigma Methodology so far. This may be the uniqueness of this study.