Implementation of Total Quality Management in the Small Scale Industry sectors of Nepal

ABSTRACT
The SSI sector in Nepal is varied and vast. In addition to generating employment potential with limited range of fixed capital, the sector creates an atmosphere for the development of entrepreneurship spirit. Small Scale Industries facilitate effective mobilization of resources in terms of both capital and skills. SSI has an edge over large scale industries in quick adoptability to changes. The sector has grown vigorously during the last decades besides playing a vital role in fulfilling our socio-economic objectives.

Total Quality Management (TQM) is concerned with the integration of all the efforts in the organizations towards quality improvement. Quality development and maintenance are to meet full customer satisfaction at economical levels. Productivity can be improved by enhancing quality of products and business effectiveness. TQM is a methodology for continuously improving the quality. The approach of TQM has been based on the quest for progress and continuous improvement in the areas of cost, reliability, quality innovation, efficiency of goods and services delivered through the participation of all levels and function of the organization.

The process of liberalization and globalization has affected the Nepalese SSI sectors. An attempt has been made in this paper to study how TQM approach will be more effective in the present scenario and also studied problems faced during implementation. The specific techniques such as kaizen, 5S, problem solving tools, Quality circles are studied and analyzed.

INTRODUCTION
Total Quality Management (TQM) is the management philosophy, which is the integration of all functions and process within an organization in order to achieve continuous improvement of the quality of goods and services under a disciplined approach. The goal of TQM is customer satisfaction. It is the application of quantitative methods and human resources to improve the process within an organization and exceed customer needs now and in the future. TQM which is originated in Japan after second world war is the most prominent and power full approach applicable business, service and industrial sectors. In the present scenario probably this is a must for the survival of any enterprise. It is based on the participation of all the members of an organization in improving process good and services. The methods for implementing this approach are found in the teachings of quality leaders such as Philip B. Crossby, Deming, V. Feigenbaum, Ishikawa, Juran and Taguchi. The three critical components for the TQM process to flourish are:
1. A management group willing to allow everyone in the organization to participate in the decision making process
2. A process of continuous improvement
3. The use of multifunctional teams.

The industrial sector in Nepal is facing severe competition due to globalization and liberalization. Large and medium size industries are able to cope up with the existing situation.
with their financial strengths etc. The small scale industries (SSI) sector, the industries in which in the plant and machinery is below one Crore, is facing a lot of problems in selling their products due to the domestic and international competition and SSI units have to survive by any means. Even though the plant size is limited, the impact of the performance of SSI sector on the society is immense. The SSI sector has emerged as a vibrant and dynamic sector of Nepalese economy. It also acts as a nursery for providing for promoting entrepreneurial talent and as a catalyst for industrial growth. The liberalization has created threats as well as opportunities for this sector. The SSI sector has certain inherent strengths such as rich heritage, cheap labor and local availability of raw material.

**SCOPE AND PURPOSE**

In Nepal, unemployment is a major problem. The SSI sector is most powerful sector in creating new jobs for the societal uplift. For the survival of SSI sector in the present scenario the implementation of TQM in SSI sector is the best solution. As discussed earlier, the concept of TQM may be the new mantra to complete with the multi national companies. By managing quality of the product and service upto or beyond customer requirement is the unique solution. The organizations that are quality conscious and cost competitive will survive. Basically TQM was initiated in Japan, it is extended into all over the world. Already many large and medium industries have adopted the TQM approach, and become successful. The approach is proved to be successful worldwide. But time implementation of TQM in SSI sector is still lagging behind. So there is a lot of scope towards implementation of TQM in SSI sector. The different concepts and techniques involved in TQM are studies here in detail.

**IMPLEMENTATION OF TQM**

Quality can be defined as “Fitness for use” – Juran in 1974

“Quality is conformance to requirements” – Phillip Crosby in 1984

According to American Society of Quality “The totality of features and characteristics of a product / service that bears on its ability to satisfy stated and implied needs”

Total quality management approach to long term success through customer satisfaction. It requires five basic concepts.

1. A committed and involved management to provide a long term top to bottom organization support
2. A constant focus on the customer both internal and external
3. Effective utilization of the entire work force.
4. Continuous quality improvement of the business and production process
5. Performance measures for the process

**The Phases or Pillars of TQM are**

Phase I – Total employee involvement
Phase II – Continuous Improvement
Phase III - Standardization

**Phase I – Total Employee Involvement (TEI)**

TEI involves several small groups activities. Small groups are formed with few employees each group is given certain responsibilities. Small groups such as work improvement team, cross functional teams and quality circles as shown in figure

To achieve good results and profits, through customer satisfaction by reducing waste in every activity, TEI is a must. When top management of the company is committed for implementation of TQM in the organization, all the employees of the organization must be involved by conducting various training programs and awareness campaigns.

Work Improvement Team: These small groups of employee are for work improvement and work related problem solving purposes. These
will meet periodically, discuss and analyze the problems and will come out with a solution. These groups are being monitored by the lower and the middle level management personnel. Cross-functional Teams: Employees from different departments in small numbers will form a team. They analyze the problems related to different departments and will come out with solutions. For a SSI Unit employee number is not much larger, so ensuring employee involvement is much easier. Each and every employee of the organization should know the other colleagues work, should posses the working knowledge. There it comes the concept of multi skilled worker. The worker having knowledge of all relevant functions in the firm will be an asset to the organization. All of the workers should be trained this way. Quality circles: Quality circles is a small group of employees in the same work area or doing a similar type of work who voluntarily meet regularly for about an hour every week to identify, analyze and resolve work related problems, leading to improvement in their performance, and enrichment of their work life.

Phase - II : Continuous Improvement

Under this phase, there are different techniques involved such as KAIZEN, Just In Time (JIT), 5 ‘S’, Quality costs, Quality Function Deployment (QDF), Benchmarking, Poka-yoka, Business Process Reengineering (BPR), Total Plant Maintenance (TPM), Statistical Quality Control (SQC) tools in problem solving.

When continuous improvement of the process takes place, output and profits will result. There are different approaches are explained below.

KAIZEN: Kai-Zen is the Japanese word, ‘Kai’ means change while ‘zen’ means for better, so kaizen means change for better, in other words continuous improvement. Implementation of Kaizen involves small groups of improvement. The progress of work in a week are discussed, analyzed and recorded. The problems relating to the work area will be listed down. The smallest problems should be tackled frist, next comes bigger one, like wise the progress of the organization take place. Thus to explore the maximum potential available in small improvement, Kaizen has proved to be producing dramatic results.

Just In Time (JIT): It can be defined as ‘a philosophy of manufacturing based on planned elimination of all waste and continuous improvement of ‘productivity’. It encompasses the successful execution of all manufacturing activities required to produce a final product, from design engineering to delivery, and including all stages of conversion of raw materials into finished goods. The primary elements of JIT are to have only the required inventory when needed, to improve quality to zero defects. It is a lean production system because waste can be minimized.

The Five ‘S’ Approach: This approach can be used to orderliness and systematic arrangement of the plant.

1. SEIRI (sorting) : Sorting out unnecessary items and streamlining the process.
2. SEITON (Systemizing): A place for everything and everything in its place.
3. SEISO (Sweeping): Keeping work area clean.
4. SEIKETSU (Sanitation): Prevention of problems by keeping things standardized and maintaining a good environment.
5. SHITSUKE (Self Discipline): maintaining good habits and discipline.

Bench Marking: It is the search for industries best practices that leads to superior performance. The idea is to find another organization in the similar business that is doing a particular business better than the present company and then using that information to improve your process. It forces constant
comparison and testing of industries best practices. It promotes team work by attracting attention towards good business practices as well as production to remain competitive. Benchmarking allows an organization to establish realistic and credible goals.

Poka-yoka: It means fool proofing fail safe or mistake proof. It relies on the experiences of the workers, for they know the problems and have the ability to design mistake proof devices.

Problem solving tools: TQM is more than a philosoph, it needs scientific techniques for its implementation. There are seven basic quality control tools, for problem solving and for in the process analysis. The QC tools are as listed below

1. Check sheets
2. Graphs
3. Histograms
4. Parato analysis charts
5. Cause and Effect diagrams
6. Scatter diagrams
7. Control Charts

The variation of process from its standard values can be studied and analyzed. The reason for the variation must be discussed. And corrective action must be initiated if required.

Phase- III: Standardization

Fixing standards for various processes in the industries are fixed by various organizations at the National and International level. Quality standards can be categorized as Domestic, National and International Standardization. The international organization for the standardization (ISO) is most popular International standardization and can be adopted in each and every organization is a quality system that has been approved by more than 90 countries. The standard requires the quality system to be in place for a number of elements such as management responsibility, contract review, design control, document control, purchasing, process control, non conforming products and services and statistical techniques.

PRACTICAL APPROACH OF IMPLEMENTATION OF TQM IN A SMALL SCALE INDUSTRY

Step 1: Commitment by management: It is compulsory for the successful launching and implementation of TQM programme in the organization. The management should be well aware of TQM and they should undergo for training, if required.

Step 2: Pre assessment of company level data. The related data in all aspects regarding customer’s perception and supplier performance should be collected and analyzed to know the company, where it stands in the market. The details of raw materials, machinery, tools etc should be collected. Using the result of pre assessment, the perceptions of customers and employees are used as foundation for the entire implementation f the process.

Step 3: Creating awareness among employees: It can be achieved by training programmes and workshops to employees.

Step 4: The strengths and weakness of the organization are studied and documented. The process includes the exchanges of information through the use of service, evaluations questions and interviews from the individuals across the enterprise and all the operational levels. This self assessment provides both individual and group perceptions of the organization.

Step 5: Benchmarking with industry leaders: Declaring the quality policy of the company by benchmarking with the leaders.

Step 6: Evangelization: It is the process of spreading TQM to other departments, which was implemented successfully in one department. In the previous step the information and knowledge are required about