

Implementation of ISO 9001:2015 and TQM Principles In Indian Construction Companies

^[1] Dr. B.S. Patil, ^[2] Prof. V.P. Tankasali ^[3] Mr. Amol. B Patil, ^[4] Mr. Y.S. Patil ^[5] Mr. Parag.S. Joshi,
^[1] Dept of Civil Engg ^[2] HoD, Dept of Architecture, ^{[3][4]} Asst Prof, Dept of Civil, ^[5] PG Student,
^{[1][3][4]} Sharad Institute of Technology College of Engineering, Ichalkaranji
^[2] B.L.D.E University Vijayapur ^[5] Dhole Patil College of Engineering, Talegaon, Pune

Abstract- As construction projects get bigger and more complex, clients are increasingly demanding higher levels of quality, efficiency, and delivery. Total Quality Management (TQM) has long been recognized as a successful management philosophy in the manufacturing and service industries. TQM can also be embraced in the construction industry to induce quality and productivity. This paper attempts to introduce the basic elements of ISO 9001:2015 and describes how each can be implemented in a wide array of construction-related companies, in order to achieve their goal of total quality. Numerous case studies were found which demonstrate the ability of ISO 9001:2015 to improve a company's quality performance, avoid costly errors, and produce satisfied customers. The benefits experienced include reduction in costs, better employee job satisfaction because they do not need to attend to defects and client complaints, recognition by clients, work carried out correctly right from the start, subcontractors with proper quality management systems, and closer relationships with subcontractors and suppliers. TQM performance measures were also reflected through top management commitment, customer involvement and satisfaction, employee involvement and empowerment, customer– supplier relationships, and process improvement and management.

Keywords: Total Quality Management, ISO 9001:2015.

I. INTRODUCTION

With the ISO 9001:2015 standard gaining popularity worldwide, Total Quality Management (TQM) has become a strategic and survival approach for most firms in every industry. TQM is a complete management philosophy that emphasizes overall satisfaction through the continuous improvements to products and processes. In conditions of world market globalization, in which aspires to be integrated Indian economy, for maintenance of competitiveness of the domestic producers the promotion of Quality in a rank of national idea is necessary. The course of thinking evolution in the field of quality specifies continuous improvement and complication of activity, which named as quality management. Each stage of evolution includes new theories of quality for maximizing consumers' satisfaction. Ever more people recognize that the beginning of new Millennium passes in under the badge of TQM..

In India the QMS, conforming the requirements of the standards ISO 9001:2015 series, few companies have for the present. But the interest to QMS systems creation is very high, especially in major construction companies. The important step for the integration of India in the world movement for quality became the decree on domestic production quality in which the state support is declared to:

- QMS based on ISO 9001:2015 development at the companies;
- Maintenance of the educational programs in the field of quality;
- Best goods and business excellence awards setting up.

For last ten years in Indian construction industries the significant experience of development, implementation and certification QMS was accumulated. For the analysis, the results are followed by, the interviews with top management, the products of the companies, and certification bodies were used.

II. NEED OF QUALITY CONTROL

Quality control is an essential part of any production process and civil engineering constructions are no exception. Quality control is an important requirement for civil engineering constructions for ensuring quality and creating durable national assets. The need for quality control on these constructions has increased considerably in recent times due to a significant increase construction industry area and the level of service expected from public.

It is common knowledge that quality control, besides leading to constructions of improved quality and uniformity, and ensuring a more economical utilization of materials, also affords a significant reduction in user costs, in terms of lower costs of vehicle operation, transportation

and maintenance. The extra cost of exercising quality control being only a fraction of the resulting benefits, is highly economical proposition, in as much as on an average project it is estimated that the cost of exercising quality control would be just 1 to 2 percent of the construction cost. On the other hand, the direct and indirect economic return from quality control could be of the order of 5 to 10 percent of the total construction cost and even more.

Main factors affecting the implementation and success of QMS are:

1. Employee skill - The higher skilled employees accept quality management activities more quickly than lower skilled employees.
2. Education level - Higher educated employees accept quality management activities more radically than lower educated employees.
3. Length of employment – It is very difficult to change the mind of employees who have worked for long time in a specific culture and to accept quality activities and their accompanying changes. By involving employees in the quality process and activities would help.
4. Age of employees – Young employees usually can accept changes quicker than elderly employees.
5. Top management attitudes, commitment and involvement towards change.
6. Attitude of employees towards change – Negative attitudes can be overcome by educating, training and involving employees in the change project.
7. Work methods – Employees who are employed on traditional working methods have been found to have difficulty in accepting a QMS.
8. Understanding of quality improvement needs by employees – If they understand the needs then they can easily accept quality management.
9. Salaries – Employees with poor salaries are less likely to accept a QMS.
10. Leadership by top management through appointed teams, requires the monitoring of performance achieved by quality activities.
11. Cross functional integration in an organization instead of departmental interaction.
12. Provide products and services of consistent quality.
13. Provide products and services that meet the customer's requirements, comply with the law and legislation, and meet the organization's own requirements.
14. Can help in streamline business processes and continuously improve them. Obviously, top management commitment and leadership, employee involvement, employee and top management attitudes of ISO, training,

and reward are some of the important factors in a quality management system implementation in any organization.

A summary of the main reasons of why companies adopt ISO 9001:2015 Can be framed as follows:

- a- Pressure from existing customers (Johannes, 1996; Buttle, 1997).
- b- Pressure from parent organization (Johannes, 1996).
- c- Promotional benefit (Johannes, 1996).
- d- Competitors Registration (McAdam and Canning, 2001).
- e- To improve internal efficiency (McAdam and Canning, 2001).
- f- To maintain/increase market share (Magd and Curry, 2003).
- g- To help improve customer service (Douglas et al., 2003).

ISO 9001-2015: A Way Of Managing For Conformance

Quality assurance, according to the Standard, is a way of managing that prevents non-conformance and thus “assures quality”. This is what makes ISO 9001:2015 different from other standards: it is a management standard, not a product standard. It goes beyond product standardization: it is standardizing not what is made but how it is made. To use standards to dictate and control how organizations work was to extend the role of standards to new territory. To take such a step we might have firstly established that any such requirements worked that they resulted in ways of working which improved performance.

Troubles arising at QMS development, implementation and certification

It is possible to categorize the main problems arising at QMS development, implementation and certification in India to four basic signs:

- Human resources
- Organizational
- Information
- Financial

The problems, bound with human resources basically fall into companies staff training of quality management principles and practice, motivation system of quality assurance and its improvement building, quality management process approach methodology creation.

Unfortunately, in India a system of continuous training the field of quality has not built yet. Creations of a system of continuous training in the field of quality will need consolidation of efforts of governmental administration bodies, educational institutions of different levels, non-governmental and consulting organizations in the field of quality.

It is possible to relate to organizational problems stages of activity on QMS development and implementation planning, a group of specialists participating in this activity creation, and QMS adequate organizational structure design.

The problem of QMS's adequate organizational structure design is one of the most complex, as its solution is connected to real-life structure changes, re-shuffling, change of authorities and subordination.

The QMS should be documented. From here information problems outflow. They consist in information flows and QMS documentation hierarchy definition, QMS documentary procedures development, quality programs development, working instructions and other documents, in which one with an indispensable grain size the duties, authorities, responsibility and intercommunications of staff are established.

About the necessity of TQM principles introduction and creation of quality systems:

The important feature of TQM principles and international standards ISO 9001:2015 is their universality, which is an opportunity of use by any companies or organizations of all branches without dependence from a kind of activity and production, which make.

The experience of many countries gives all bases to believe, that the TQM principles and ISO 9001:2008 implementation will make Administrative reform spent for India is irreversible, full-scale, and deep and, that is most important, effective.

One of the basic tasks, which should be solved for the purpose of Administrative reform achievement in India, is the development of new functioning ideology of executive authority and local government bodies as activity on maintenance of the citizen's rights and freedom, granting of state and public services. These services should be qualitative and meet the requirements of the international standards. In practice, however, citizens and the subjects of economic activity are not perceived as the consumers by official bodies yet.

The TQM and ISO 9001:2015 principles implementation should help organizations to consider their activity from the point of view of consumer satisfaction degree, as it already was made by many in the different countries of the world. Unfortunately, in India still there are many organizations, where QMS would be entered or were developed. In our opinion, it is possible to consider QMS creation in bodies as the "pilot" projects, which experience will allow generating approaches to TQM and ISO 9001-

2015 principles implementation of in public and private sector.

CONCLUSIONS

- * ISO 9001:2015 is a good start on the road to total quality management.
- * ISO 9001:2015 which can be base for TQM can prove to be a great method of building a quality track record that will stand up under the closest scrutiny, even in the most competitive construction environments.
- * For architects, engineers, contractors, specifications workers, hardware managers, and other professionals in construction-related industries, ISO 9001:2015 in Construction is the key to achieving more consistent performance levels, improved efficiency and productivity, a solid reputation for quality, and a sharper competitive edge.
- * Expansion of works on creation and certification of QMS both at the companies, and in organizations of public sector.
- * Popularization the Quality Awards among the companies and organizations of region.
- * Development and realizations of the concept of total education in the sphere of quality.

REFERENCES

- 1) ASCE. (1990). Quality in Constructed Projects: Manual of Professional Practice. New York, American Society of Civil Engineers
- 2) Banerji, K.; Gundersen, D. E. and Bahara, R. S. (2005). Quality management practices in Indian service firms, Total Quality Management 16(3): 321-330.
- 3) Dissanayaka, S. M.; Kumaraswamy, M. M.; Karim, K. and Marrosszeky, M. (2001). Evaluating outcomes from ISO 9000 certified quality systems of Hong Kong constructors, Total Quality Management.
- 4) ECI. (1994). Total Productivity Management: Guidelines for the Construction Phase. Loughborough, Productivity Task Force, Economic Construction Institute, Loughborough, University Johannes, C.G. (1996), "ISO 9000 – a managerial approach", Library Management, Vol. 17, No. 5, pp. 14-24.
- 5) Magd, H. and Curry, A. (2003), "An empirical analysis of management attitudes towards ISO

9001:2000 in Egypt”, The TQM Magazine, Vol. 15, No. 6, pp. 381-390.

International Journal of Quality & Reliability Management, Vol. 18, No. 9, pp. 941-966.

- 6) Kanji, G. and Wong, A. (1998). “Quality Culture in the Construction Industry.” Total Quality Management and Business Excellence, Vol. 9, No. 4&5, pp. 133-140.
- 7) Lee, S.F. (1998) Survey on TQM implementation in Hong Kong. In: S.K.M. Ho (Ed.) Proceedings of the 3rd International Conference on ISO 9000 and Total Quality Management (Hong Kong, School of Business, Hong Kong Baptist University), 7± 9 April, pp. 386± 392.
- 8) Morrow, P.C. (1997). The measurement of TQM principles and work-related outcomes. Journal of organizational Behaviors, 18, pp. 363-396.
- 9) Magd, H. and Curry, A. (2003), “An empirical analysis of management attitudes towards ISO 9001:2000 in Egypt”, The TQM Magazine, Vol. 15, No. 6, pp. 381-390.
- 10) Magd, H., Kadasah, N. and Curry, A. (2003), “ISO 9000 implementation: a study of manufacturing companies in Saudi Arabia”, Managerial Auditing Journal, Vol. 18, No. 4, pp. 313-322.
- 11) Naser, K., Karbhari, Y. and Mokhtar, M. Z. (2004), “Impact of ISO 9000 registration on company performance Evidence from Malaysia”, Managerial Auditing Journal, Vol.19, No. 4, pp. 509-516.
- 12) Quazi, H. A. and Jacobs, N. R. (2004), “Impact of ISO 9000 certification on training and development activities: An exploratory study”, International Journal of Quality & Reliability Management, Vol. 21, No. 5, pp. 497-517.
- 13) Tsim, Y. C., V.W. S. Yeung, and E. T. C. Leung. (2002). An adaptation to ISO 9001:2000 for certified organisations. Managerial Auditing Journal 17 (5): 245–50.
- 14) Watson., K. (2004), Research Methods Study Book, First Edition, Bradford, Bradford University School of Management.
- 15) Yahya, S. and Goh, W. (2001), “The implementation of ISO 9000 quality system”,