Quality System Standards

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Quality management programmes are important prerequisites for manufacturing organizations to ensure the flow of quality goods. The Bureau of Indian Standards has recently published an Indian Standard for Quality Management System (IS : 10201) in six parts in line with the ISO 9000 series published by the International Organization for Standardization. The authors discuss in this paper the contents of IS : 10201 and highlight the benefits likely to accrue through its implementation -- Ed.

The functions related to procurement, production, sales and finance have been traditionally considered important by the management for the successful running of an organization while those related to 'quality' have been taken as an addition to functioning cost and hence reluctantly supported. This is mainly due to the fact that greater emphasis has been laid on technical specifications and sorting/screening type of inspection procedures for meeting customer requirements and preventing defective products reaching the market. However, customers may still be dissatisfied if the product is not of the desired quality even though this can be attributed to deficiency in the specification being used or in the organizational system to design and produce goods according to customer's requirements.

After the Second World War, a perceptible change was noticed in many countries in the approach of their industry towards quality. They adopted a preventive approach to ensure that a product of the desired quality was manufactured right the first time. The phenomenal progress achieved by some of these countries as a result has conclusively proved that the key to success of business and industry is the importance given by the management to quality. Consequently, management of quality has assumed great significance leading to the development of standards on quality systems. These standards complement the relevant product or service requirements given in the technical specifications. If properly applied, they could be most beneficial to an organiation. A number of national standards bodies have published such standard during the last decade.

Indian Standards for Quality

The Bureau of Indian Standards recognized the importance of preparation of Indian Standards on quality systems at the beginning of this decade. An Indian Standard 'Manual on Quality Assurance Systems' (IS:10201) was published in 1982. This standard describes a basic set of quality elements by which quality management systems could be developed and implemented within an organization. It was revised in 1987 wherein more quality system elements were included and the details for some other quality elements were modified/elaborated. Another Indian Standard on 'Management Information Systems -- Quality Control' [IS:7200 (Part 3)] was also published in 1982. This standard contains charts and proformae which are helpful in establishing a quality management system in an organization. BIS had earlier published a number of Indian Standards on statistical techniques which are helpful in the presentation and analysis of data and in taking decisions while putting into practice various stipulations given for different elements of the quality system. Besides, preparation of detailed Indian Standards on some of the important quality system elements has been undertaken. So far, two such Indian Standards, namely, 'IS : 10708-1985 Guide for the analysis of quality costs' and 'IS : 12040-1987 Guidelines for development of vendor rating systems' have been published.

International Standards for Quality Systems

The need for an international understanding on 'Quality Systems' was fulfilled by the publication of a series of five International Standards by the International Organization for Standardization (ISO) in May 1987. The series comprises the following standards :

- ISO 9000-1987 Quality management and quality assurance standard -- Guidelines for selection and use;
- ISO 9001-1987 Quality systems -- Model for quality assurance in design/development, production, installation and servicing;
- ISO 9002-1987 Quality systems -- Model for quality assurance in production and installation;
- ISO 9003-1987 Quality systems -- Model for quality assurance in final inspection and test; and
- ISO 9004-1987 Quality management and quality system elements -- Guidelines.

An International Standard on 'Quality systems-Vocabulary' (ISO 8402) was earlier published in 1986. These standards have been written in general terms with the product manufacturer in mind. It may be helpful for each industry or industry sector to develop their own specific quality management standards based on these generic standards for use within their own industry. These standards are also applicable to service industries, such as banking, hospitals, hotels and restaurants. However, the terminology used and the emphasis laid on different aspects of quality system cannot always be readily related to these sectors. So far, 18 countries have adopted (or will be adopting) identical, or technically equivalent versions of the ISO 9000 series (see Appendix A). India is the first amongst the developing countries to adopt these standards.

Adoption of ISO 9000 series standards by INDIA

Soon after the publiction of ISO 9000 series standards a Technical Committee (Quality Control and Industrial Statistics) of the Bureau of Indian Standards scrutinized them. The Committee was of the view that they represented the cumulative experience of various countries. Their adoption by BIS would be a great help to Indian industry as these standards would help them in developing their own quality systems in line with international practices. The transparency of the quality system at the national and international levels would help the Indian industry not only in the internal market but also in its export drive. The Committee observed that while there existed no Indian Standard equivalent to ISO 8402, ISO 9000, ISO 9001, ISO 9002 and ISO 9003, an Indian Standard IS : 10201-1987 was technically equivalent to ISO 9004. Hence, the Committee recommended the adoption of the remaining five ISO standards as Indian Standards with a dual numbering system as different parts of IS : 10201 and retain the

INDIAN AND INTERNATIONAL STANDARDS FOR QUALITY SYSTEMS

Indian Standard	Corresponding International Standard	Status
IS : 10221 Quality Systems		
Part 1-1988 Vocabulary	ISO 8402-1986 Quality-Vocabulary	Identical
Part-2-1988 Guidelines for selection and use of standards on quality systems	ISO 9000-1987 Quality management and quality assurance standard--Guidelines for selection and use	Identical
Part-3-1988 Guidelines on quality management system elements	ISO 9004-1987 Quality management and quality system elements--Guidelines	Technically equivalent
Part 4-1988 Model for quality assurance in design/development, production, installation and servicing	ISO 9001-1987 Quality systems - Model for quality assurance in design/development, production, installation and servicing	Identical
Part 5-1988 Model for quality assurance in production and installation	ISO 9002-1987 Quality systems - Model for quality assurance in production and installation	Identical
Part 6-1988 Model for quality assurance in final inspection and test	ISO 9003-1987 Quality - Model for quality assurance in final inspection and test	Identical

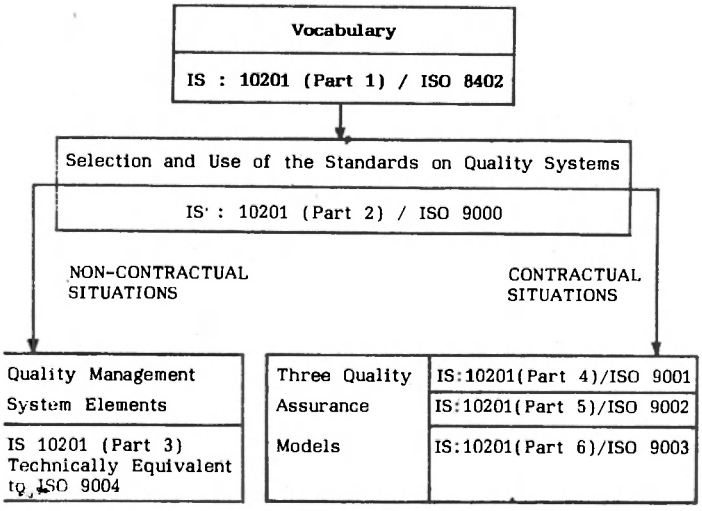

Fig.1. Structure of quality systems standards.

existing Indian Standard IS : 10201-1987 as Part 3, BIS accepted the recommendations of the Committee and has since adopted the ISO 9000 series standards.

The Indian Standards for quality systems along with the corresponding International Standards are given in the box.

The structure of quality systems standards is given in Fig.1. The interrelationship of the various parts of IS:10201 and their brief contents is highlighted in the following paragraphs.

IS : 10201 (Part-I) 1988

This standard defines basic and fundamental terms relating to quality concepts, as they apply to products and services, for the preparation and use of quality standards and to facilitate mutual understanding in international communication. The terms defined in this standard have a direct application to all Indian Standards in the series on quality systems (IS:10201).

IS : 10201 (Part-2) 1988

This standard provides the guidelines for the selection and use of a series of Indian Standards on quality systems that can be used for internal quality management [(IS : 10201 (Part 3)] as well as external quality assurance purposes [IS : 10201 (Part 4)], [IS : 10201 (Part 5)] and [IS : 10201 (Part 6)]. It clarifies the relationship among various quality concepts and specifies the rules for using the three models given in IS : 10201 (Part 4), IS : 10201 (Part 5), and IS : 10201 (Part 6), IS : 10201 (Part 2) introduces the notion of degree of demonstration concerning the adequacy of the quality systems and the conformity of the product with the specified requirements. A cross reference list of quality system elements has also been included as an annexure to the Standard.

IS : 10201 (Part 3) 1988

This standard, together with IS : 10201 (Part 2) provides guidance to all organizations on quality management. Each of the quality system elements listed in IS : 10201 (Part 2) 1988 has been explained in Part 3. The Standard helps in developing and implementing a quality system as also determining the extent to which each quality element is applicable. It also provides guidance on the technical, demonstrative and human factors affecting the quality of products or services at all stages -- from detection of customer's needs to their satisfaction. Throughout this standard, emphasis is placed on the satisfaction of the customer's needs and establishment of functional responsibilities. The objective is to minimize the cost of the quality project while maximizing the benefits.

INDIAN STANDARDS ON QUALITY SYSTEMS (IS : 10201)

Priced at Rs.160, excluding packing and postage charges, the six parts of 'IS : 10201 Quality systems' can be purchased from BIS Headquarters at New Delhi and its Regional, Branch and Inspection Offices as under :

Regional Offices	:	Bombay, Calcutta, Chandigarh, Madras
Branch Offices	:	Ahmadabad, Bangalore, Bhopal, Bhubaneshwar, Guwahati, Hyderabad, Jaipur, Kanpur, Patna and Trivandrum
Inspection Offices	:	Pune and Nagpur.

IS : 10201 (Part 4) 1988

This standard is applicable when conformance to specified needs is to be assured by the supplier throughout the whole cycle--from design through to servicing. It is used when the contract specifically requires design effort and the product requirements are stated (or need to be stated) principally in performance terms. This standard represents the fullest requirements, involving all the quality system elements detailed in IS : 10201 (Part 2) at their most stringent.

IS : 10201 (Part 5) 1988

This standard is for use when the specified requirements for products are stated in terms of an already established design or specification. Only the supplier's capabilities in production and installation are to be demonstrated. All the quality system elements listed in IS : 10201(Part 2) 1988 except 'design' and 'after sales service' are present but some are treated less stringently.

IS : 10201 (Part 6) 1988

This standard applies to situations where only the supplier's capabilities for inspection and tests (conducted on the product as supplied) can be satisfactorily demonstrated. In this standard, only half of the quality system elements of IS : 10201 (Part 2) 1988 are requi-

red, and at a lower level of stringency than for IS : 10201 (Part 5) 1988.

BENEFITS

Implementation of the quality system standards by industries would result in several benefits. Through total effort for improvement and sustenance of quality, the industry would reap cost benefits by bringing down/eliminating failure at different stages. This would lead to consumer satisfaction and better image of their products.

It has also been observed that a large number of purchasing agencies these days are not satisfied with the inspection of the product alone. They also try to assess the quality assurance system followed by the suppliers to gain confidence in regard to consistent quality of the products. Thus, many manufacturing organizations have to face a multiplicity of assessments. However, with the introducing of a standard quality system whose transparency can be identified with International Standards, the manufacturers can be benefited by reduction in the number of such assessments. An assessment carried out by one of the organizations is likely to be acceptable to several organizations when a standard is made use of for the purpose. Besides, exporters following a quality assurance system in line with the International Standard would also be benefited.

Satisfaction of the discerning customer in regard to both cost and quality is the single most important criterion for the growth and long-term success of any organization and IS : 10201 would have a lion's share of contribution in this direction.

APPENDIX A

COUNTRIES WHICH HAVE ADOPTED (OR WILL BE ADOPTING) ISO 9000 SERIES STANDARDS

Country	Standard	Country	Standards
Austria	All	Japan	All
Canada	ISO 9004	Netherlands	All
France	All	New Zealand	All
Finland	All	Norway	All
Germany F.R.	All	Spain	All
India	All except ISO 9004	Sweden	All
Ireland	All	Switzerland	All
Israel	All	United Kingdom	All
Italy	All	United States of America	All