

CHAPTER - 7
QUALITY AUDIT

INTRODUCTION

Quality audit is a verification activity aimed at evaluating the degree of conformance to a standard specification or procedure of the design, product, process or system. Quality audit has two parts one of which is the examination of the system within which the items of product or service are brought into being and the other is an examination of the items themselves. The first is called the quality system audit and the second is the product or service quality audit.

The quality system audit - which is our topic in this chapter - evaluates management systems, methods, equipment, facilities and manufacturing process as compared to product or service audits which examine physical products and service attributes and their audit.

Neither type of quality audit is popular either in Yemen or in India in the consumer products industry. During my survey of the industry, I started queries into this topic with one question - "Do you have quality audit in your organisation"? About 87% of the Indian organisations replied that they do not, practise such audits. In Yemen there is not even one organisation which has a quality audit system. As a result of that, I felt that it is worthwhile to explain in this chapter the concept of quality system audit.

A) WHAT IS QUALITY AUDIT?

The American Guru Joseph M. Juran in his book, Quality Control Hand Book defined quality audit as "an independent review conduct ¹ to compare some aspects of quality performance with a standard for that performance"

Japanese expert Asaka has compared the quality audit and health management. ² He stated that, in health management a person goes to a doctor, examines the system, checks for causes, gets the medicine, recovers from the disease and keeps himself in a good condition. Of course, one should also use preventive medicine such as exercise, good nutrition and so on. Quality audit works in a similar manner in an organisation. Quality audits are conducted to check the causes of poor quality, action is taken for correction. The process is improved and the organisation is kept healthy and quality conscious at all times.

National and International Standards define the meaning of the quality audit as follows :

International Standard ISO 8402-1986, quality vocabulary defined quality audit as follows :

Quality Audit - A systematic and independent examination to determine whether quality activities and related results comply with planned arrangement and whether these arrangements are ³ implemented effectively and are suitable to achieve objectives.

American National Standard ANSI/ASQC-A3-1987, Quality systems Terminology defined quality audit as follows :

Quality audit - A systematic and independent examination and evaluation to determine whether quality activities and results

comply with planned arrangement and whether these arrangements are implemented effectively and are suitable to achieve objectives.

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National Standard of Canada CAN-CSA-Q395-1981, Quality audit gave the following definition :

Quality audit - A systematic examination of the acts and decisions of people with respect to quality in order to independently verify or evaluate and report the degree of compliance to the operational requirements of the quality programme, or the specification or contract requirements of the product or service.

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TYPES OF QUALITY AUDIT :

There are two types of quality audit in general use throughout the various industries. They are internal and external quality audit. Internal quality audits are carried out by a team, functionally placed under the top man directly, consisting of experts grouped together for this function. External quality audits are carried out by independent organisations with a view to selecting the company with a best quality philosophy and performance.

INTERNAL QUALITY AUDIT

Internal quality audit can be divided into six different categories as listed below :

- a) Quality system audit,
- b) Management quality audits
- c) Process quality audits,
- d) Data processing quality audits

- e) Product quality audit
- f) Decision sampling audit

QUALITY SYSTEM AUDIT

Quality system audit is an audit of the quality system to determine the effectiveness and compliance of the system with the pre-determined reference standard. Quality system audits evaluate the quality system as it applies to an overall or particular elements within the organisation. The reference standard for this type of quality audit is the quality programme of the organisation which defines its policies, procedures and work instructions.⁶ Conformity to the quality programme indicates a controlled and disciplined operation. Non-conformity to the quality programme, of course, indicates a lack of discipline and control of the operation.

MANAGEMENT QUALITY AUDIT:

Management quality audit is a key element in managing a quality system. This type of audit reviews and evaluates the responsibilities, accountabilities, actions, interactions, etc., of the management team with respect to all the activities contributing to the output quality of the organisation. The reference standard, for this type of quality audit are the policies, line of responsibility and accountability, procedures and working instructions forming the quality programme of the organisation.⁷

PROCESS QUALITY AUDIT

Process quality audits are a form of internal quality audit used to determine if operators are following the laid down process for the various special process critical to a particular

programme. This type of the auditing is carried out prior to the inspection operation so that a true measure of the process capability is determined. ⁸ The objectives of processing auditors are to ensure that, the operators control properly record the end result of the process meet the general acceptance criteria for the particular process and that the methods and control defined reflect current practice. The reference standards for process quality audit are the process quality programme and the process performance specification.

PRODUCT QUALITY AUDIT

Product quality audit is an audit of the quality system as it applies to a particular product. It examines all elements of the product and their related quality system elements to assess the system against the referenced standard or specification of the product. ⁹ Product audit is usually done after the final inspection and before shipment. Similarly, the reference standard are the same as in those described for process quality audit.

Product audits, in my opinion, are best carried by the individuals who would normally perform this type of test or inspection rather than by quality personnel. By utilizing the personnel who are normally carrying out these types of checks, maximum use is made of their inherent skills.

DATA PROCESSING QUALITY AUDIT

Data processing quality audit is an organised method of analysing and reporting information on quality to assist decision makers at all levels. This type of quality audit ensures that the

company's computer systems are operating as planned, as required and the company's data are in compliance with established standards for accuracy.¹⁰

By conducting this type of quality audit, companies are able to assess the adequacy of its control, identify and correct problem areas and provide assurance that the systems are producing accurate data.

The reference standards for this type of audit are the documentation defining the objectives, techniques, and operations of individuals concerned with software and data processing.

DECISION SAMPLING

The last area of internal quality audits which, I think, extremely useful is the decision sampling of quality acceptance and rejection decisions of inspection and test personnel.

An inspector or tester carrying out an inspection is paid to make a quality decision based upon the results of his particular measurement or judgement. In virtually all cases, judgement is an important factor used by the inspector in making his decision. Decision sampling is a statistical technique used to determine the ability of these inspections and tests personnel to make valid quality decisions.

The technique is applied by having a quality auditor visit each inspection station at a regular interval in order to authorise movement of material from that inspection station to the next operation in the material flow.¹¹

The reference standards for this type of audit will depend on the operation being evaluated.

EXTERNAL QUALITY AUDIT

External quality audits are conducted by auditors who are not members of the auditee's organisation. Auditors who perform external quality audit are specialists from outside the organisation hired to conduct an independent audit.

External quality audits are more common in Japan and Western countries. In Japan this type of audit started in 1951 and the best organisation in this audit is given the Japan quality control prize.¹² In USA, external quality audit is performed by International Association of Quality Circles (IAQC) and American Society for Quality Control (ASQC). In England, the audit is¹³ performed by Registration Board for Assessors.

In Yemen as well as in India External and Internal quality audits are still a concept. Both countries need to establish a system whereby audits will be initiated.

External quality audit can be divided into different categories as listed below :

- a) Quality system certification
- b) Vendor appraisal
- c) Regulatory controls
- d) Quality system improvement audit
- e) Product certification.

QUALITY SYSTEM CERTIFICATION

Several national commercial and military agencies have programmes which audit industrial company's quality system with

respect to national or international standards and then issue certificates to these companies that their quality systems comply with the requirements of a particular procurement quality standard. Certification means adding these approved companies to a "qualified supplier list". Being included in a quality system approval list indicates that the company is able to provide certain degrees of assurance of compliance with contractual requirements. Usually, certification programmes recognise a company's implementation. This type of audit frequently involves periodic re-audits to review any changes and confirm continued compliance with the requirements.

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VENDORS AUDITS

Vendor audit or vendor appraisal is a technique used by many major contractors to evaluate the ability of potential suppliers to provide a particular product or process. The audit of vendor normally cover all aspects from the placing of a purchase order through the quality control called for and used at the vendor's premises, the delivery, handling, and temporary storage, incoming inspection and test, and the main stocks until issued for use. All procedures applying to these activities examine for adequacy and the degree of control established.

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The reference standard for this type of audit or appraisal could be a national or international procurement quality standard or a standard developed by the contractor. The extent of the audit depends upon the nature of the work to be undertaken and the application of the item concerned.

REGULATORY CONTROLS

Regulatory agencies for the nuclear, food and drug, and insurance industries have requirements for quality systems applicable to suppliers and other organisations operating in these type of industries. These requirements have been introduced as a means of protecting the safety and health of the citizens, protecting the foreign trade of the community and protecting the purse of the government and citizen. Approval based on these requirements is a pre-requisite to commencement of production. Standards and regulations are the reference standards of this type of audit.

PRODUCT CERTIFICATION

Product certification is usually granted by the certifying agency after the inspection and test of initial production items. The Bureau of Indian Standards (BIS), for example, has a quality marking scheme for products conforming to BIS standards. BIS grants licences to manufacturers for use of BIS certification mark in respect of only those articles which are manufactured or processed in conformity with the requirements of Indian standards. The scheme requires that after carrying out a preliminary inspection of the factory and knowing the method of stage and final inspection and testing, random samples should be drawn and tested for performance at an independent laboratory. When the results comply with the requirements, the product is held eligible for BIS certification.

Some agencies require that the manufacturer must have a quality system that provides assurance that future products will conform to the standard set by the approved units. The reference standard is the product standard and the appropriate quality standards and specifications.

QUALITY SYSTEM IMPROVEMENT AUDIT

Some managements desire to penetrate the market place that has a requirement for a specific level of quality or a specific standard, or managements also want to participate in and bid for a contract having specific quality system requirements. In order to do that, the organisation's management must first try to improve the performance or quality image of the organisation. So it hires specialists or consultants from outside to audit and evaluate the system and make any recommendation for improvement that appear necessary. Figure 7.1 shows type of quality audits.

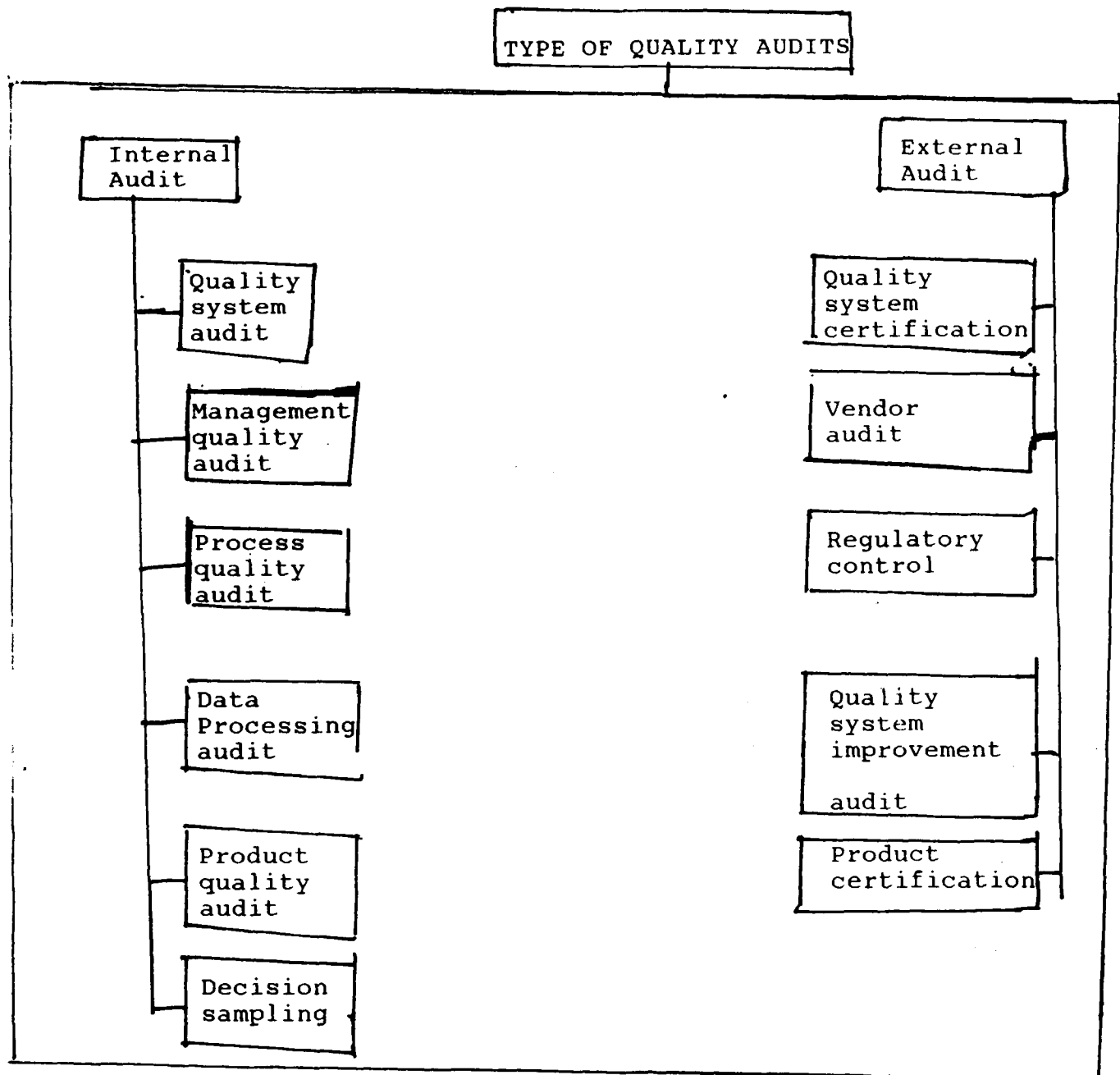


Fig. 7.1 : Types of Quality Audits.

SCOPE OF QUALITY AUDIT

Quality audit covers various aspects of quality activities within the organisation. It covers auditing the policies and procedures of the companies regarding operation, quality control

and management activity. It also covers the system and the operating effectiveness which cover various activities such as : product design changes, tool and gauge control, storage and handling practices, assessment of product quality, inter-departmental coordination, equipment control, record and corrective action.

OBJECTIVES OF THE QUALITY AUDIT

The main objectives of the quality audit are :

1. Determining the conformity or non-conformity of the quality system elements with specified requirements.
2. Ensuring whether the products are fit for use, safe for the consumers and regulations are being followed.
3. There is conformance to specifications and that written procedures are suitable and are being followed.
4. Finding out whether the quality policies of organisations meet quality standards adequately.
5. The data system is able to provide adequate information on quality to all concerned.
6. Corrective action is taken with respect to deficiencies.
7. Opportunities for improvement are identified.

QUALITY AUDIT : WHO ARE INVOLVED ?

Quality audit involves three functional parties. They are ; client, auditor and auditee.

Client is the organisation that requests the auditing organisation to conduct the audit. Client could be : customer or potential customer who requests a quality audit to make sure that there is no degradation of the quality system or products of

suppliers. The organisation's management may request for a quality audit to evaluate the adequacy and effectiveness of its quality system, and the clients also may be regulatory agencies or a military agency which may require a potential supplier to obtain approval of its quality system prior to receiving authorisation to commence providing a particular product.

Auditor is a person qualified to plan and conduct an audit in accordance with standards. Quality auditors fall into one of two categories - External or internal. An internal auditor is a member of the organisation being audited whereas an external auditor is a third party hired by an approval agency or client or customer to determine the ability of the auditee to provide the desired quality system or products. We will talk about the auditor in more detail later in this chapter.

Auditee is the organisation being audited. It is the receiving end of the activity. The auditee may be a complete organisation, or a major element or segment of an organisation.

QUALITY AUDIT ; WHERE IS IT CONDUCTD ?

According to Charles A. Mill the audit must be conducted ¹⁷ where the evidence exists and he recommends.

- Suitability of auditees' system to its mission or to a standard is better decided at the auditors' premises as the evidence can be taken there.
- Effectiveness of the system implementation or comparing actual results to desired results are better ascertained at the auditee's place as products and equipment will be required.

- Vendor quality programmes to be evaluated at vendor's premises
- Customer satisfaction can be quickly ascertained at user locations.

QUALITY AUDIT TIMING

The quality audit may be a single occurrence or a repetitive activity depending on the purpose and the result of both the audit and the quality system, product or process concerned.

Audit may be conducted to determine if a particular potential supplier shall be given a contract to provide supplies or services. When that is the case, the audit shall be carried out before the contract is awarded.

When the audit is being conducted as a result of deficient products being delivered or in order to know delivery problems, it shall be conducted at the appropriate time to resolve the difficulty most effectively. An audit carried out in one of these matters may involve considerably less than the entire quality system. When that is the case, only areas affecting the problem shall be audited.

When the quality system audit is being conducted as a routine confidence update concerning the ongoing activities of a supplier or other operator of a quality system, the full audit shall be conducted and the entire system shall be evaluated. An audit of this type can be made less frequent by using the ongoing audit results of the company's in house quality system audits.

QUALITY AUDITING STANDARD

There is an international standard guide to quality system auditing (ISO 10011-1, 1990). This standard points out that audits are required to verify whether the individual element making up quality systems, are effective in achieving the stated objectives. The growing use of standards internationally emphasizes the importance of auditing as a management tool for this purpose. The guidance provided in the standard can be applied equally to any type of audit internal or external.

ISO 10011-1 and 10011-2 covers audit objectives and responsibilities including the roles of auditor and their independence and those of the client or auditee. ¹⁹ It provides the following detailed guidance on audit :

- Initiation of the audit, including its scope and frequency.
- Preparation, including review of documentation, the programmes, and working documents,
- Execution, including the opening meeting, examination and evaluation, collecting evidence, observation and closing the meeting with the client.
- Report, including its preparation, content and distribution .
- Completion, including report submission and retention.

At the end of the standards, attention is given to corrective action and follow-up, where it is stressed that the improvement process should be continued by the auditee after the publication of the audit report.

AUDITORS REQUIREMENTS

Successful quality auditing depends on technical excellence in both the people who perform the audit, and their methodology. Economic and social forces in consumerism, liability, environment, public safety and health have led to the creation of a technical specialist assigned full time to auditing. To be effective, quality auditor must have a degree of professional competence. He must be prepared to deal with the full cycle of operational situations from marketing to product service. The first thing an auditor must know are the objectives of the company, the organisation, the department or the activity that he will be auditing.

He must understand the control process - he must know how to control. The basic structure of the control cycle includes identifying the control subject, defining the unit of measurement, establishing standards, measuring and comparing actual performance against a standard, and taking action on the differences.

Quality auditor must have a reasonable understanding of the accounting and financial perspective, he can review quality requirements to assure that compliance and effectiveness are achieved at optimum cost.

Next to the knowledge and skills comes requirement of independence of auditor for his opinion to be respected by the auditee organisation. His independence must be apparent and seen clearly by others.

While technical qualifications are important to the quality auditor's level of effectiveness, personal qualifications also play a major role. He must be able to provide competence, an additional basis for sound professional results, make a good first impression and develop an enduring relationship over a long time.

THE REASONS BEHIND THE AUDITS

The quality audit is a management tool which provides "objective evidence" based on which decisions on the adequacy of the system, effectiveness of its implementation and improvements in it can be made.

In addition, the organisation's management wants a quality audit to be carried out so that they can control operations and make sure that the policies and procedures are still followed and contribute to the health of the business.

THE ADVANTAGE OF THE QUALITY AUDIT

There are several benefits of implementing quality audit properly in the industrial organisations. The following benefits can be obtained if quality audit is implemented :

1. Internal quality audit when implemented in organisations, can help in improving the quality of the system within the company as well as the quality of the product.
2. External qualities create nation-wide quality improvement and awareness.
3. Quality audits - internal and external - help in assessing the cost effectiveness of the quality systems and measure the

effectiveness of the quality programmes.

4. Quality audits increase the productivity in the organisation. Efforts to improve quality also results in productivity improvement. The fact is that quality is achieved by improvement of the systems and processes. Improvement of the systems increases uniformity of output of product, reduces mistakes and wastages of manpower, machine and materials.

5. Quality audits motivate employees in the organisations. Since the employees and managers together openly discuss the problems that their organisation is facing during the quality audit. By doing this the management motivates its employees.

6. Quality audits disclose inadequacies in the interpretation of basic quality requirement and reveal failures which are not complying with the procedural instructions.

PROCESS OF QUALITY SYSTEM AUDIT

Audits may be undertaken by trained members of an organisation's own staff and this type of audit is called internal quality audit. Also the other type of audit external audit may be undertaken by hired professional auditors from outside the organisation.

The process of quality audits can be divided into different sub-headlines as follows :

1. Initiation of the audit
2. Planning the audit
3. Audit execution
4. Audit report and follow up.

1. INITIATION OF THE QUALITY AUDIT

The first step in the quality audit process is initiating the quality audit. Initiating quality audits comes through a preliminary meeting between the three parties concerned the client, the auditee and the auditing organisation. In the meeting, the three parties discuss the purpose of the proposed audit, the reference standards against which documentation and activities are compared, the auditors to be used and the time of the audit.

The client, the auditee and the auditing organisation (or their representatives) must be able to speak for and take decisions on behalf of the responsible managers of their organisation during the meeting. Mutual understanding and agreement will enable the auditee and the auditing organisation to carryout their activities in the most effective manner.

PLANNING AND INITIATION

Client Activities : The responsibilities of the client are :
Initiating the audit, defining the reference standards, receiving the quality report and determining any follow-up action
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required.

The client initiates the audit by bringing the three functional parties - Client, Auditing organisation and Auditee - into contact to develop a mutual understanding and agreement on :

The purpose and reference standard of the quality audit.

Timing of the audit and guidelines on how each party

can abstain from any undue intereference with the auditing.

AUDITEE ACTIVITIES

The responsibilities of the auditee with respect to the preparations for and implementation of the quality audit are :

- 1.) Appointing responsible individual (s) to work with the auditor(s)
2. Providing a work area and facilities for the auditor
3. Ensuring auditor(s) access to the necessary facilities
4. Attending specific meetings with the auditor (s)
5. Reviewing the audit findings to ensure agreement with the facts.

Accessibility to facilities, objective evidence, special processes, etc., may be restricted to the following factors.

1. Restrictions on particular facts due to government or industrial security needs, proprietary information relating to other customers.
2. Safety regulations
3. Conflicting schedules between the auditee's operations and audit.

These problems must be resolved to the mutual satisfaction of all the three parties. The schedule for the audit should be defined specifically during the initial meeting so that all participants are working towards the same starting date.

AUDITING ORGANISATION

In the initial meeting the representatives of the auditing organisation discuss with the client and the auditee, the names of the auditor(s) to be involved, the time required to prepare

any special working papers for the audit, the place where the quality audit should be carried out and details of the facilities and support that can be expected from the auditee.

2. PLANNING THE QUALITY AUDIT

The Planning Activities for a quality audit by the auditing organisation covers several functions involving actions and reactions from the three parties that will be involved in the audit. These activities include : the resources needed for the audit, scheduling the audit, gathering working papers for the audit, determining the sampling procedures to be used in the audit, reporting the results and following up on corrective actions.

RESOURCES NEEDED FOR A QUALITY AUDIT

The resources needed for the quality audit will depend largely on the type of audit and the relationship between the auditee and the auditor. In general, the resources needed for quality audit include :

PERSONNEL :

During the quality audit, members of the auditee's staff will be required for a number of activities such as :

Accompanying the auditor(s) throughout their audit activities, answering questions related to the organisation's quality system and quality standard, attending the pre-audit and post-audit meetings and perhaps operating the product or service being audited.

OFFICE FACILITIES :

During the period of the audit, the primary need for the auditor(s) is a place where he or they can have privacy to review their observations and plan. External auditor(s) require access to a telephone, but they should not require the auditee to provide typing or word processing facilities because external auditor(s) normally prepare reports and corrective action requests, at their own home office. Such facilities are needed by internal auditor(s).

PLANT FACILITIES :

Most quality system standards require the auditee to make available to the customer's representatives certain verification facilities for use in verifying the contractor's data. This include such items as special metrology devices, standards for calibration of metrology items, environmental conditions tensile strengths of products, etc. Access to facilities of this nature would be required by both External and Internal Auditors. ²¹

SCHEDULING :

The length of time needed for an audit will of course, depend on the complexity of the quality system being audited and the criticality of the items under review. Care should be taken to allow sufficient time to cover any delays that might occur. It is best for the auditor(s) to quote a duration period in term of the most likely length of time the audit will take along with suggested minimum and maximum duration parameters.

WORKING PAPER

Working paper is defined in audit standards as all the documentation required for the audit activities such as : Proce-
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dures, Working Instructions, Check Sheets, Records etc.

Working papers include memory prompts for the auditor(s) to ensure no elements are missed by the review and evaluation. It also includes detailed records of what was audited and where the activities of the audit were carried out, plus the findings for each audit activity.

The general principles for the various working papers are the same regardless of the type of quality audit or who the auditors are. But each type of audit will have its own distinctive papers.

SAMPLING PROCEDURES :

All quality audits require sampling techniques, in some form or the other.

All sampling procedures used in a quality audit shall have a sound statistical foundation. Without this principle, the soundness of any audit can be questioned.

3. QUALITY AUDIT EXECUTION

After the initiation and planning of the quality audit, the auditor starts to undertake the auditing in the various activities and departments. The auditor undertakes the audit in accordance with the time scale that has been set in opening meetings with the client, and auditee organisations. Auditors usually prepare a check-list as a reminder to aid during the assessment. The format of the check-lists are at the auditor's discretion. A

good guide to the preparation of check-lists is to think in terms of "what to look at" and "what to look for". For example, it may be decided to look at documents, records, products, equipment, procedures etc. Auditor generally uses check-lists during the process of the audit to evaluate efficacy of the system.

During the course of the audit, time should be set aside to check and ensure that the programme is running according to the plan and that necessary changes do not invalidate the original plan.

The non-conformities are identified and graded according to their significance. They should be recorded as in the format given in the Fig. 7.2 non-conformity report. The non-conformities could be categorised as minor or major. Minor non-conformities are those which constitute an isolated witnessed incidence of failure to comply with a procedure or quality management system requirement while major non-conformities reveal failure of complete systems or absence of such systems. When a number of minor non-conformities of the same kind considered together indicate a systems failure they become major non-conformities.

Finally, audit findings are presented to the auditee organisation and corrective action identified to improve the situation.

NON-CONFORMITY REPORT		
DEPARTMENT AUDIT		
DESCRIPTION OF NON-CONFIRMITIES		
SIGNATURE	AUDITEE	AUDITOR
ACTION RECOMMENDED		AUDITOR
ACTION TAKEN	SIGNATURE	DATE
REVIEW OF ACTION TAKEN	SIGNATURE	DATE

FIG. 7.2 - NON-CONFORMITY REPORT.

4. QUALITY AUDIT REPORTING AND FOLLOW-UP

Reporting : Careful transcriptions of observation made, inspection or test results obtained, conformances and non-conformances found, and other matters derived from the quality audit shall be made in a suitable manner and records during the course of carrying out the audit. The records shall be used at the end of the audit to compile a report of the entire audit findings and to relate each area of non-conformance to the spe-

cific area of control and activity where it was found.

Following the audit, a meeting with the management of the company or with the management of a supplier organisation being audited shall be arranged. At the meeting, the findings of the audit shall be presented and discussed to gain agreement on resolution or rectification of any items or areas of non-conformance discovered during the audit. The time when such corrections will take place shall be agreed to.

The report of the audit shall then be published and made available to the managements of both suppliers and customers, as appropriate, so that both may have their confidence reinforced and the on-going activity may be made more satisfactory.

Follow-Up : The audit team shall arrange a follow-up examination of the non-conforming areas or items needing correction. This shall coincide with, or follow, the agreed date of resolution of those items or areas of inadequacy of control. A partial audit shall then be performed to examine only the items affected by the corrective action.

Following the follow-up audit, the final report of the audit shall be issued; it shall show the degree of control found throughout the quality system audited.

QUALITY AUDIT STATUS IN YEMEN AND INDIA

Quality audit system is yet to become popular in consumer product industries in Yemen and India. Some organisations in both countries feel that quality audit is out of context. I was interested in doing my Ph.D. work in quality audit. I registered for my Ph.D. with the title "Quality audit for consumer product

improvement and profitable performance in selected industries in Yemen and India". I undertook a survey with the objective of understanding the concept and practices of quality audit the Yemeni as well as Indian organisations. After completing the review of literature on quality and quality audit, I developed a questionnaire and the same was administered in both countries Yemen and India. About 100 questionnaires were mailed to a selected group of industries where it was expected that quality audit is under implementation. Out of these only 33 responded after repeated reminders from among the sample units selected for study were received. Obviously, those companies who do not have quality audit systems did not respond. To my surprise only two companies in India and none in Yemen have adopted quality audits in the consumer product industries.

It was, therefore, difficult for me to work on this topic because of the non-existence of an adequate number of units adopting quality audit system in their organisations. In this respect I discussed this problem with my research guide Dr. R.G. Bapat. After a long discussion with my guide, he advised me to change the old topic and work on a related topic. Then I suggested that the approved title may be changed to a related new topic with the title "Quality Management in consumer product industry - a comparative study in selected units in Yemen and India". My guide accepted the new title which was then approved by the management committee.

Getting back now to our survey results, I may say that quality audits are common in Japan and the Western world. In Yemen as well as in India, quality audit is still a concept. Out of about 33 responding companies in both countries, barely one company in Yemen (7%) and two in India (13%) had a system which can be broadly termed as quality audit. Table 7.1 summarised the result received from both countries.

TABLE - 7.1

THE EXISTENCE OF QUALITY AUDIT

PARTICULARS	YEMEN	INDIA
Yes	7%	20%
No	93%	80%

About 93% of the responding organisations in Yemen indicated that they don't have the quality audit system in their organisation. Only one company mentioned that it has the quality audit system.

Almost 87% of the responses received from Indian organisations indicated that they do not have quality audit systems. Only two companies (13%) of the responding companies reported that they have a quality audit system.

A nation-wide quality audit system is very helpful in improving the quality of products and in getting the customers' attention immediately.

In Yemen as well as in India, there is a need to develop and establish a system whereby internal as well as external audits

will be initiated, their recognition will be publicised widely, resulting in a keen healthy quality improvement competition across the nation.

RELEVANCE OF QUALITY AUDIT

Although quality audit is a good tool to know one's mistakes for timely correction, the concept is yet to become popular in Yemen and India. It still remained a concept for sometime and its benefits are not known to most of the consumer product industries in Yemen and India because the concept is not understood by the industrialists.

The general feeling in both countries was that quality audits are not relevant in the Yemeni as well as Indian context. Table 7.2 summarised the results received from responding organisations in Yemen and India about the relevance of quality audit.

TABLE - 7.2

RELEVANCE OF QUALITY AUDIT		
Particulars	Yemen	India
Relevant	27%	47%
Note relevant	73%	53%

About 27% of the responses received in Yemen and 47% in India indicated that quality audit is relevant. The remaining 73% in Yemen and 53% in India reported that quality audit is not relevant to Yemeni and Indian contexts. One may conclude that the quality audit system is not accepted in the consumer product industry in both Yemeni and Indian organisations.

NON-POPULARITY OF QUALITY AUDIT

The main drawback for the lack of popularity of quality audit in Yemeni as well as Indian organisations is that, the expertise required to carryout an impartial audit is not available outside the organiations in both countries. There are also some industrialists in both countries who think that quality audits may expose their own mistakes to outside people.

The reasons behind the non-popularity of the quality audit are summarised in Table 7.3.

TABLE 7.3
NON-POPULARITY OF QUALITY AUDIT

Reasons	Yemen	India
There is no outside organiation ready to carryout quaity audit	54%	47%
Expertise to carryout such audit is not available	38%	33%
People think that they may expose their own mistakes to outside people	7%	13%
Quality audit is very much practicable	6%	6%

54% of responding organisations in Yemen and 47% in India said that the reasons for the non-popularity of the quality audit is unavailability of outside organisations to carryout the audit. About 33% in both countries indicated that the expertise to carryout the audit not available. 7% of Yemeni organisations and 13% of Indian ones said that through quality audit, they will expose their own mistakes to outside people. The remaining 6% in

Yemen and 6% in India mentioned that quality audit is very much practicable.

GOVERNMENT POLICIES TOWARDS QUALITY :

Governments have a vital role to play in protecting the consumers and improving the quality of the products. This social responsibility is totally forgotten in Yemen. Yemeni government is putting all kinds of obstacles for industrialists until the licence is given and after that there are no further checks. There is no periodic check on quality. There should be a clause to cancel the licence if low quality products are produced. The Indian government for the last four years has made several initiatives to promote quality such as assisting industrial associations to conduct a nationwide programme on quality awareness and to promote the concept of total quality management. The national quality campaign launched by the Prime Minister of India in 1992 for creating awareness by involving all sectors of the economy is a clear testimony of the government's commitment to quality.

There is a difference of opinion among quality managers in both Yemen and India regarding government involvement in promoting quality audit. While some agreed that the government should make quality audit compulsory in the industry, others disagree about making quality audit compulsory in the industry. Table 7.4 summarise the responses received from industrial organisations in both countries.

TABLE 7.4

Particulars	Yemen	India
Strongly agree	13%	40%
Agree	40%	20%
Strongly disagree	40%	27%
Disagree	7%	13%

Out of the responding organisations, in both countries, about 13% and 40% in Yemenis and Indian organisations respectively strongly agree about the government making quality audit compulsory. 40% Yemeni industries and 20% Indian ones agree. 40% of Yemeni and 20% of Indian responding organisations strongly disagree about making quality audit compulsory. The remaining 7% in Yemen and 13% in India disagree.

In my opinion, I think quality audit should be voluntary not compulsory. If it is compulsory, the employees will in all likelihood reject any promotion programmes; past experiences with the "zero defect" and similar movements bring this to mind.

QUALITY AUDIT SHORTCOMINGS

Although quality audit has evolved into a useful management tool, five major shortcomings have been observed in many applications :

1. Used for product acceptance or direct process control. Since quality audit is a relatively new and exotic term, some believe that use of the term in direct operations lends some

added credibility to the effort, even though nothing may have changed.

2. Restriction to evaluation and reporting. Quality audit find the deficient areas and report them to the management and someone else will solve the problems. Such an attitude only supports a natural feeling of another "checker checking the checkers". Organisations need more follow-up and assistance to help solve problems and report solutions to management.
3. Little correlation of results to cost. There is almost universal audit reporting on the basis of percentage defective in some form or another, with little thought or correlation to the cost impact. It is often said that customers don't care about costs and therefore, quality audit must be evaluated on a percent defective basis . But even a one percent defect may be very costly or cause serious delays.
4. Organisations frequently fail to allocate sufficient time to prepare for the audit. The time necessary to review the standards, prepare check-lists and flow charts, generally requires 25% to 35% of the total time for conducting the audit. In addition the auditor usually attaches rules which say that they must audit each area of the organisation within a given time period regardless of the effect or need.
5. Auditors often not receive any support from the top management. For example, corrective actions suggested by the quality auditors are not implemented many times. In

addition, some managements feel that a quality audit means spying and therefore do not cooperate completely.

CONCLUDING REMARKS

Quality audit is an effective management tool used to evaluate, confirm or verify activities related to quality. It helps not only in detecting the problems and defects in the quality management system, but also it helps as a basis for broad findings and recommendations.

Quality audits are common in Japan and Western nations, in Yemen as well as in India it is still not popular due to the fact that the concept in both countries not well understood by the industries. Out of thirty organisations in both Yemen and India only two organisations in India and one in Yemen had system which can be broadly formed as internal quality audit.

Governments, private and public organisations, consumer/customer, consumer industries in both Yemen and India should adopt quality audit system to verify whether quality activities comply with their planned arrangements and to rate the effectiveness of their quality system.

When consumer industries adopted quality audit, I am sure the image of the consumer towards local product will change. Customers will have confidence in the local industries to produce products of high quality and manufactures will become more quality conscious.

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