ECONOMIC AND SOCIAL COMMISSION FOR ASIA AND THE PACIFIC

NETWORK OF LOCAL GOVERNMENT TRAINING AND RESEARCH INSTITUTES IN ASIA AND THE PACIFIC

APPLICATION OF ISO 9000 STANDARDS IN LOCAL GOVERNMENTS AND OTHER PUBLIC SECTOR ORGANIZATIONS

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FOREWORD

In a globalizing world economy, where increasingly investment decisions are made on how well cities function, there are increasing calls for good governance and improvement in the quality of urban public goods and services. Good governance is also a prerequisite for sustained poverty alleviation. Characteristics of good governance include transparency, accountability, efficiency and responsiveness to the needs and concerns of citizens. Good governance can only be achieved when local government and urban management are viewed as systems, comprising several sub-systems, involving various actors. The requirements of good governance are similar to those articulated for private sector businesses in various quality assurance models. ISO 9000 provides workable guidelines for the implementation of one such widely accepted model, which can serve as the first step towards Total Quality Management. Although developed for the private sector these guidelines can also be applied to government agencies and organizations. The concept of applying quality standards to government functions is relatively new and has been applied in a few countries of the region. In a globalizing world economy, where increasingly investment decisions are made on how well cities function, there are increasing calls for good governance and improvement in the quality of urban public goods and services. Good governance is also a prerequisite for sustained poverty alleviation. Characteristics of good governance include transparency, accountability, efficiency and responsiveness to the needs and concerns of citizens. Good governance can only be achieved when local government and urban management are viewed as systems, comprising several sub-systems, involving various actors. The requirements of good governance are similar to those articulated for private sector businesses in various quality assurance models. ISO 9000 provides workable guidelines for the implementation of one such widely accepted model, which can serve as the first step towards Total Quality Management. Although developed for the private sector these guidelines can also be applied to government agencies and organizations. The concept of applying quality standards to government functions is relatively new and has been applied in a few countries of the region.

This publication provides local governments and local government training institutes with an introduction to ISO 9000 and its application in the public sector. Parts One, Two and Three of this publication were used as background training materials for the ESCAP/LOGOTRI Training Workshop on the Application of ISO 9000 Standards in Local Government and Other Public Service Organizations 28 November to 1 December 2000, Beijing China. During the preparation of the

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CONTENTS

Acknowledgements i

Foreword ii

PART1 AN OVERVIEW OF ISO 9000 STANDARDS 1

Introduction to ISO 2

Quality assurance and management 2

ISO 9000 standards 4

ISO 9000 and the systems approach to management 6

Definitions of terms and concept used in ISO 9000 13

The twenty elements of ISO 9001 19

Implementing ISO 9000 33

PART 2: INTAN'S EXPERIENCE IN THE APPLICATION OF ISO 9000 39

Introduction 40

The ISO 9000 journey 43

Benefits 49

Problems encountered 51

Implementing the twenty elements of ISO 9001 52

Ownership of the quality system 63

Continuous improvement and expansion of scope 63

Conclusion 64

PART 3: EXPERIENCE OF THE KUANTAN MUNICIPAL COUNCIL IN THE APPLICATION OF ISO 9000 65

Introduction 66

Functions and types local government systems in Malaysia 66

A brief history of Kuantan town and the Kuantan Municipal Council 68

Objectives of Kuantan Municipal Council 69

Administrative areas of Kuantan Municipal Council 69

The organizational structure of Kuantan Municipal Council 70

Finance 72

Management reforms 72
Kuantan Municipal Council and total quality management 76
Planning time line for ISO 9000 76
Commitment to quality 78
Prior management practices 79
Kuantan Municipal Council's organizational structure for quality performance 79
Benefits of the quality initiative of Kuantan Municipal Council 80
Customer satisfaction 81
Proof of excellent service 84
Implementation of the twenty elements of ISO 9001 84
Conclusions 103
PART 4: DIFFERENCES BETWEEN ISO 9000:1994 AND ISO 9000:2000 VERSIONS 105
Introduction 106
ISO 9000:2000 106
ISO 9001:2000 110
ISO 9004:2000 118
References 119
AnnexI: Quality system registration and accreditation bodies in Asia and the Pacific 120

PART1
AN OVERVIEW OF ISO 9000 STANDARDS

INTRODUCTION TO ISO

The term ISO refers to the International Organization for Standards which is based in Geneva, Switzerland. ISO has been issuing voluntary technical standards on almost all sectors of business, industry and technology since 1947. The vast majority of ISO standards are highly technical. They contain specifications or other precision criteria to ensure that materials, products, processes and services are suitable for their purpose. To facilitate this ISO issues guidelines, rules and definitions of characteristics.

Until the introduction of ISO 9000 and ISO 14000, most ISO standards were of concern to engineers and other technical specialists. It has produced standards covering such items as nuts, bolts, rivets, screws etc. ISO standards are developed by national delegations comprising experts from government; business and other relevant organizations, which are selected by the national standards institutes of participating countries.

QUALITY ASSURANCE AND MANAGEMENT

The drive to ensure quality of products and processes is not new. Ever since humans started manufacturing and trading goods and services, the need to ensure consistent quality has existed. Various systems have been devised to ensure quality. In the pre-industrial era, guilds of craftsmen existed in many countries. For example, in pre-colonial Indian cities craftsmen agglomerated in certain specific districts or sub-districts of cities and towns and had intricate systems of caste and non-caste based apprentice systems to ensure that those practicing their craft learnt it well and could satisfy the demands of their customers.

The need for standardization and consistent quality became acute during the Industrial era. With the introduction of the assembly line and mass production of goods, not only parts and machines, but also management processes needed to be systemized and standardized. Management systems were needed to control and manage processes and activities so that time, money and other resources were utilized efficiently. Over the years large manufacturing companies developed quality standards for their own products and for products of their suppliers.

The concept of quality control has evolved over the years. In the early days of the industrial revolution 100 per cent inspection was done on all products to

ensure that they conformed to product specifications. This approach proved rather costly and inefficient as each and every product had to be inspected.

During the two World Wars, the United States Army introduced a statistical approach to quality control. Under this approach statistical sampling techniques were used to determine whether equipment and products supplied by independent manufacturers would be accepted or rejected. However, both the 100 per cent inspection techniques and the statistical sampling techniques were found to be inefficient and costly, particularly for the manufacturers, as products that did not meet standards had to be reworked, sold at a discount, or scrapped.

In the 1950s “quality assurance” became popular. Manufacturers realized that it was more efficient to ensure quality control during the process of production rather than at the end of the process. Although it was realized as early as the 1950s that assuring quality during the process of production of goods and services, meant the involvement of the whole organization, the concept of Total Quality Management (TQM) did not become popular until the 1980s. TQM is based on the premise that a firm or an organization comprises several sub-systems, which interact and depend on each other. Unless each of the sub-systems is involved in assuring quality, total and consistent quality cannot be ensured.

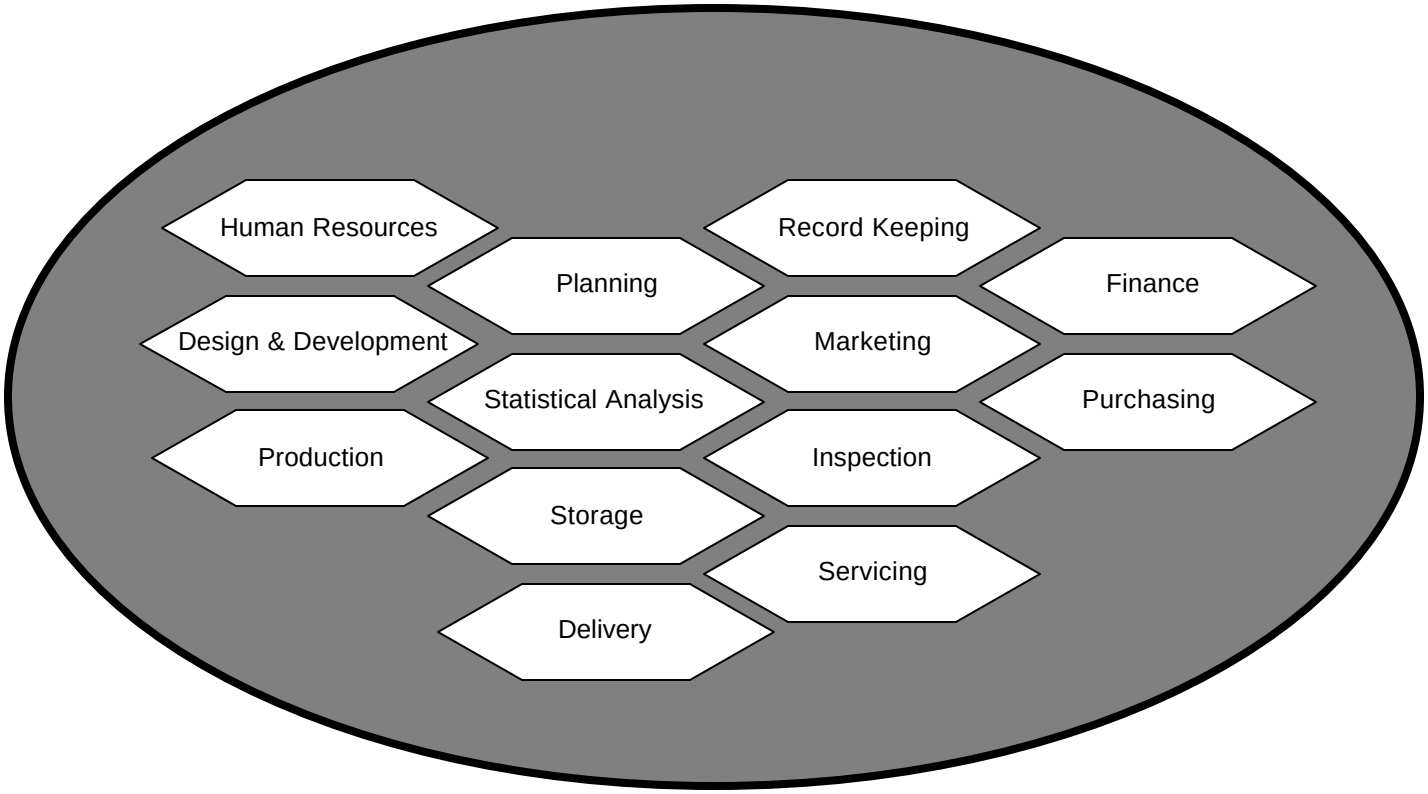
For example, an automobile-manufacturing firm comprises several sub-systems such as the design and development sub-system, the production sub-system, the marketing sub-system, the purchasing sub-system, the storage sub-system, the human resources development sub-system, the financial management sub-system etc. The production sub-system is dependent on the design and development sub-system to provide it with the design of the automobile. The design and development sub-system is dependent on the financial and marketing sub-systems to provide the resources and determine what consumers want. The marketing sub-system is dependent on the production, design and development, and financial sub-systems to provide marketable and reliable products and the resources to advertise and sell the product effectively. All of the sub-systems are dependent on the human resources development sub-system to recruit and train the right workforce. The quality of the end product (the automobile) can only be assured if quality is ensured within each of these sub-systems.

TQM requires a holistic approach to management and requires the involvement of the whole organization, particularly the top management. It also

requires customer orientation, teamwork, performance measurement, human resources development and transparency in decision-making.

Figure 1: Typical Sub-systems of an organization

As stated earlier, several large manufacturing firms and some organizations



developed systems to assure total quality in the 1970s and 1980s. However, these systems were unique to those particular firms or industries. Until the introduction of ISO 9000 standards, no generic frameworks, that were globally applicable, existed for ensuring system-wide quality. The twenty elements of ISO 9000 provide an operational framework for implementing system-wide quality assurance. They also provide an integrated quality management system, which is relatively easy to understand and apply and can serve as a key step towards Total Quality Management.

ISO 9000 STANDARDS

As stated earlier ISO standards are developed by national delegation comprising experts from business, government and other relevant organizations. In 1979, at the request of the British delegation, a new ISO technical committee on Quality Management and Quality Assurance (ISO/TC/176) was established. In 1986, the Committee produced its first standards, which were published in

early 1987 as the ISO 9000 series. In its work on developing global generic quality management standards, the Committee relied on the substantial work carried out in the United Kingdom, Canada and NATO. The development ISO 9000 standard relied heavily on the BS 5750 standards of the United Kingdom, CSAZ 299 standards of Canada and the AQAP standards developed by NATO to assure quality of military equipment. Although they were originally developed for the manufacturing sector, the ISO 9000 standards were extended to apply to the service sector as well.

In 1994 the ISO 9000 series of standards were updated and revised to their present form. ISO 9000 standards are generic enough to apply to any organization, whether it is involved in production or provision of services, whether it is in the private or public sector. Countries using ISO 9000 standards usually add a prefix to the standards. Thus for example Malaysia has added MS to ISO 9000 to indicate Malaysian standards. The ISO 9000 series standards comprise five parts, two of which are guidelines and three are quality assurance models. These are:

1. *ISO 9000–1: 1994 Quality Management and Quality Assurance Standards Guidelines for Selection and Use*. There are two other parts, namely: *Generic Guidelines for the Application of ISO 9001, ISO 9002, and ISO 9003* and *Guidelines for the Application of ISO 9001 to the Development, Supply and Maintenance of Software*.

2. *ISO 9004-1: 1994, Quality Management and Quality Systems Elements, Part 1: Guidelines*. There are several other parts of ISO 9004 and includes *Part 2: Guidelines for Services*.

3. *ISO 9001: 1994 Quality Systems – Model for Quality Assurance in Design, Development, Production, Installation and Servicing*.

4. *ISO 9002: 1994 Quality Systems – Model for Quality Assurance in Production, Installation and Servicing*.

5. *ISO 9003: 1994 Quality Systems – Model for Quality Assurance in Final Inspection and Testing*.

The *Guidelines for Selection and Use* help organizations determine whether there is a need for an ISO 9000-based quality management system. Several factors are considered including complexity and maturity of the design, production, and servicing processes, the incidence of failures and the consequences such failures, and the costs of instituting a quality control system

compared to costs of non-conformance. As a rule of thumb: the greater the probability of failure and/or cost of non-conformance, the greater the need for a quality management system.

Quality Management and Quality Systems Elements guidelines assist organizations in applying the elements of ISO 9001, ISO 9002, and ISO 9003. ISO 9001 contains twenty elements, which cover the whole process of design, development, production, installation and servicing. In the public sector ISO 9001 would be applicable to local governments, training and research institutes, public work departments etc. that design their products or services.

ISO 9002 is meant for organizations that do not carry out design and development and consequently do not include the design control requirements of ISO 9001. In the public service ISO 9002 would be applicable to the postal service, public hospitals, customs department etc. that do not have to design their products or services.

ISO 9003 is applicable to organizations whose activities do not include design control, process control, purchasing or servicing and which basically undertake inspection and testing of their final output to ensure quality. ISO 9003 could be used by government blood banks. Very few organizations in the public or private sector use ISO 9003.

It is important to note that ISO 9000 is **not a product or service standard**. It is **a process standard**. It requires an organization to set the standard of the product or service after discussing it with its customers. It ensures that the design process of the product or service (if necessary) and the processes for its production and delivery will results in outputs of consistent quality to meet the needs of the customer. It also provides mechanisms to ensure that there is continuous improvement in these processes.

ISO 9000 AND THE SYSTEMS APPROACH TO MANAGEMENT

ISO 9000 requires managers and staff to view an organization or a firm as a system comprising many sub-systems. Increase in quality, efficiency and effectiveness of an organization or firm hinges on the understanding of its managers and staff of the interrelations between these sub-systems and their effect on each other. ISO 9000 provides the framework to integrate the different sub-systems holistically.

An organization or a business must undertake several activities to produce a product or provide a service to its customers. These activities can be broadly divided into two categories: (1) activities directly related to the process of production and (2) organization wide activities. Activities of both categories are interdependent. Quality assurance must be exercised in all activities to ensure Total Quality.

Process related activities

Identification of customers

ISO 9000 emphasizes customer satisfaction as the main goal of organizations and businesses. Every public sector agency, department or organization has its customers. For local governments it is the residents of the area of their jurisdiction. For a civil service training institute, customers would most likely be other government departments and donors.

The first step in customer satisfaction is defining who the customers are. ISO 9000 requires organizations to undertake strategic planning, examining their vision, mission, goals and objectives to determine their "core activities". In other words activities, which define the organization's reason for existence. Once the core activities have been defined then the organization can identify who its "core" or most important customers are.

Establishment of contract with customers

After identifying a customer an organization or firm must determine the requirements of these customers and enter into verbal, written or unwritten agreement to provide the required product or service. The postal service has an unwritten agreement that it will deliver mail to the right address within a certain time limit.

Design of product or service

Once a contract has been entered the firm or organization needs to design the product or service if the customer request is for a new product or service. The organization can also buy the design from elsewhere. For example the public works department may either design a public building commissioned by another agency itself or hire an architectural and engineering firm to design it.

Purchasing inputs

To initiate the process of production the first step would be either compiling or purchasing the necessary inputs, such as human resources, machines, materials and other services. For example if a local government asks a civil service training institute to organize a course on urban land management policies, the institute would need to put together a team of experts and managers to organize and conduct the course. If it does not have in-house expertise it may have to hire experts from outside. It would also need to earmark the types of facilities and equipment that would be needed to design and convene training course. If it does not have in-house facilities and equipment, it may have to arrange for others to provide it with such facilities and equipment.

Safeguarding products supplied by customers

One of the key factors which leads to customer satisfaction is safeguarding the products provided by the customers to be used as an input in the design and delivery of the product or service. Safeguarding not only means preserving the inputs but ensuring that the inputs reach the concerned staff and are used in the design, production and inspection of goods and services.

Examples of customer supplied inputs include the project briefs and land for buildings provided by the customers of the Public Works Department and the photographs that customers provide to the land transport or vehicle registration department when applying for driving license.

Coding inputs

A firm or an organization needs to code the many parts or inputs that are used in production to ensure easy identification and subsequent tractability. Vehicle registration is an identification that will help one to trace the records later.

Transformation of design and inputs

The next step that an organization or a firm needs to take is transforming the design and the inputs that are in place into the required product or service. For example a patient going to the laboratory for a blood test will bring the requirements from the customer (here it is the doctor treating the patient and not the patient himself because the blood test will be taken and the readings sent to the doctor concerned). The transformation process will include the registration of the customer at the registration counter, the preparation of the patient for the blood test, ensuring that the syringe and their equipment are sterilized, the actual

taking of the blood, the testing of blood as per the equipments of the doctor and submission of the results to the doctor.

Inspection of purchased inputs

The organization or firm must ensure that the inputs they have acquired meet the specifications stated in the original requisition. An inferior input would affect the quality of the product produced or the service delivered. Similarly, there must be inspection during and after the production process to assure that the product or service meets the requirements of the customers. For example the doctor who sent his/her patient to get a blood test must ensure that the patient blood test was done according to his/her specifications. He/she can make the correct diagnosis only if the blood test provides him/her with the information he/she had asked for.

Calibration of inspection

To ensure that the inspection process is reliable regular calibration of the measuring and test equipment used in the inspection process is necessary. These instruments must be calibrated at regular intervals to ensure that they give accurate readings and operate within tolerable limits. For example, the Road Transport Department must calibrate its weighbridges across the country to ensure that they give the correct readings when trucks or lorries are taken in for weighing.

Classification of inputs and products as acceptable or unacceptable

Inspecting in-coming inputs, product-in-process and the final product or the service provided would result in they being classified into acceptable or non-acceptable product or service. Only those that pass inspection and appropriate tests would be allowed to be used in production or be dispatched to the customers. Products that pass inspection and tests and those that do not would have to be labeled accordingly.

Preventing the use of unacceptable inputs and products

To ensure consistent quality an organization would have to develop mechanisms that prevent incoming inputs and products that do not meet specifications from being used in production. Similarly, a product that does not meet customer specifications would be prevented from being supplied to the customers. The organization must find alternative ways to dispose of non-conforming products. These products could be reworked, sold at a cheaper price

or be scrapped. For example, if a training institute finds that the paper it had commissioned from an outside expert does not meet its specifications, it can ask the expert to rewrite the paper. If a quality system had not been in place the paper would have been sent to the participants of the training without corrections.

Corrective measures

An organization would also need to identify and take corrective actions when the product or service does not meet customer specification. The blood test of the patient must be redone if the first sample of blood was contaminated in the test process. Similarly, a driving license that carries a wrong address must be re-issued. When defects are pervasive, the organization needs to identify the root causes to systematically prevent them from reoccurring. However, addressing problems when they become pervasive is not only inefficient, it is also very costly. Preventive actions should be taken when the trend indicates impending problems. For example a local government may install pumps to alleviate flooding of low-lying districts of the city during rainy season. If flooding is a perennial problem in the city, the local government would take preventive measures such as cleaning and repairing storm drains before the start of the rainy season.

Handling, storage and delivery of products and services

Efforts must be taken to ensure that out-going products are packaged, preserved and delivered without any loss of quality. For example, papers, publications and medicines must be stored in the appropriate place, at appropriate temperatures and delivered in a manner that will retain their original quality.

After sales servicing

Most organizations provide some form of service after the sale or the installation of the product. For example, a public service training and research institute may offer additional literature or organize refresher courses for its alumni. After construction is complete and the building has been handed over, the public works department may provide alteration services to the government department that commissioned its construction.

Organization-wide activities

ISO 9000 integrates the above process activities with organization-wide activities. As the name implies, organization-wide activities are more macro in

nature and cover the entire organization. These activities can be classified into five main categories as follows:

Management responsibilities

To ensure Total Quality Management, the management needs to set the quality policy and the quality objectives. It needs to organize itself to achieve these objectives (organizational chart); provide the necessary resources; appoint a senior manager as the management representative to plan, implement and maintain the quality system; and have regular management review meetings to review the effectiveness of the quality system based on internal quality audits, which must be undertaken regularly.

Documented Quality System

The organization must have a documented quality system consisting of quality manual, quality procedures and work instructions and related forms and supporting documents.

Training

The organization must have employees with the required competencies to perform the tasks assigned to them. Thus, management must:

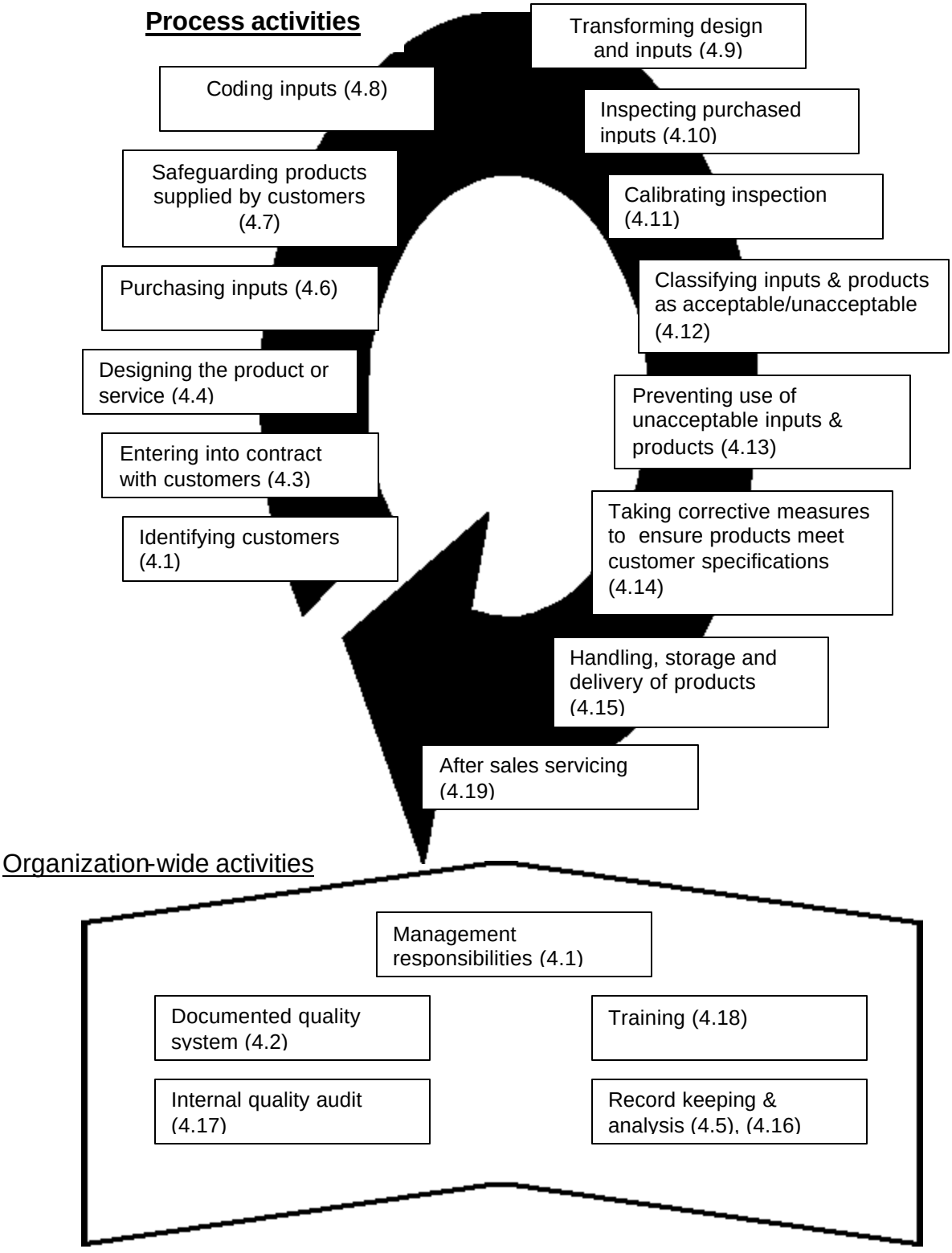
- Identify the competencies of all the critical jobs;
- Determine the competencies that incumbents of these jobs already have;
- Identify the additional training required to fill the gap; and
- Have the employees trained to fill the gap.

Training must be planned to meet the competency requirements of the officers and staff in line with the needs of the organization. Training should be not be seen just as a motivating mechanism. Nor should an agency send people for training on an ad hoc basis.

Internal quality audit

Another key feature of Total Quality Management System is the need for in-built and systemic follow-up and follow-through. Specifically a TQM system would require that:

Figure 2: Total Quality Management System and its linkage to ISO 9001 Clauses



- Corrective and preventive actions are taken on defects and non-conformances identified during inspection of inputs that are brought in during the production process and after the product or service is produced and delivered;

- Regular audits are undertaken to ensure that the procedures are properly followed and corrective actions are taken on non-conformances;

- Results of the internal quality audits are studied carefully by the management to identify trends that indicate impending problems so that preventive actions can be taken to avert them.

Record keeping and analysis

Records must be kept of all process activities, from the time of customer-request to product/service delivery, installation and after sales service. Records must also be kept of all organization-wide activities. These records provide the evidence that the quality system is being implemented. Some records will constitute the data for analysis and subsequent corrective and preventive actions. Statistical techniques must be defined and standardized to ensure that analyses done are comparable and verifiable.

The 20 elements of ISO 9000 cover both process and organization-wide activities, and form the core of a Total Quality Management system.

DEFINITIONS OF TERMS AND CONCEPT USED IN ISO 9000

Many of the terms used in ISO 9000 are defined differently than their common meanings in the English language. It is important to understand these terms and concepts before reviewing the twenty elements of ISO 9001. These definitions are covered more extensively in *ISO 8402: 1994, Quality Vocabulary and the series of ISO 9000 standards.*

Quality

ISO 9000 defines quality as, “the totality of features and characteristics of a product or service that bear on its ability to satisfy stated or implied needs.” In other words ISO 9000 defines quality as features and characteristic that satisfy the customer. Features and characteristics of a product or service are its usuability, availability, safety, maintainability, reliability, punctuality and costs. Stated needs are those that are spelled out in a contract. Implied needs are those that are understood as being necessary through common sense.

For example a local government carries out a survey and public hearings in a sub-district of a city, requesting the residents of the sub-district to identify their top three development needs. The residents identify installation of streetlights, repair of roads and more frequent garbage collection as their top three priorities. These would be classified as their stated needs. The fact that they want these needs met as soon as possible would be an implied need.

Quality policy

ISO 9000 defines quality policy as the "overall quality intentions and direction of an organization as regards quality, as formally expressed by the top management". A good quality policy has the following characteristics. It is:

- Simple;
- Consistent with other policies;
- Easily understood by staff and customers alike;
- Implementable;
- Maintainable;
- Related to the very reason of the organization's existence; and
- In line with the organization's vision and mission.

General terms such as "customers first", "best provider of services" are acceptable as long as they are accompanied by measurable quality objectives.

Quality objectives

Quality objectives should cover all key aspects of quality such as reliability usability, safety, punctuality etc. Objectives should also be quantifiable and measurable. Objectives that are general in nature do not lend themselves to quantifiable measurement. For example an objective merely stating "to provide economical, efficient and prompt service" is not enough, because it does not specify what is "economical", what is "efficient" and what is "prompt". Thus for example for a research and training institute, the term economical could be stated as "under US$ 200 per course". The term efficient could mean "complete 90 per cent of planned courses within one year". The term prompt could mean "reply to queries from participants within two days of their receipt."

Moreover, care should be taken to ensure that measuring the objectives is economical. An objective such as “to enable participants to apply their new knowledge in their work environment” may require extensive and costly tracer studies to measure.

Quality management

ISO 9000 defines quality management as “all activities of the overall management function that determine the quality policy, objectives and responsibilities, and implement them by means such as quality planning, quality control, quality assurance and quality improvement within the quality system”. In other words while quality management is the responsibility of all levels of management, leadership and commitment of the top management to Total Quality Management is absolutely necessary.

Quality system

Quality system is defined as, “organizational structure, procedures, processes and resources needed to implement quality management”. The quality system should be designed to meet all of the quality objectives. A quality system is designed as much for internal managerial needs as to meet the requirements of the customers.

Quality control

ISO 9000 defines quality control as, “the operational techniques and activities that are used to fulfill requirements for quality”. Quality control involves operational techniques and activities aimed at monitoring a process, reducing variations and unsatisfactory performance at all stages of the process. The key objective of quality control is prevention. If a defect is spotted early during the process of design, the quality control systems should stop this anomaly before it undergoes other stages and prevent the anomaly from occurring a second time.

For this, the organization must identify critical process parameters. For example a critical process parameter for a solid waste department of a municipality could be the number of out of service garbage trucks. To ensure the quality of garbage collection service, the management must monitor this parameter. For example if the parameter is 10 per cent out of service trucks and the actual number of out of service truck exceeds this number, then the management would have to identify the causes of this variation and take corrective and preventive measures.

Quality assurance

Quality assurance is defined as “all those planned and systematic actions necessary to provide adequate confidence that a product or service will satisfy given requirements for quality”. In other words quality assurance means that a given system is designed to produce a product or a service that would satisfy the requirements of the customer. Many of the activities of quality control and quality assurance are interrelated. Quality assurance serves both as a management tool within the organization as well as an assurance to the customers that their requirements would be met by the organization.

Quality plan

ISO 9000 defines quality plan as “a document setting out the specific quality practices, resources and sequence of activities relevant to a particular product, service, contract or project”. In other words, it is a work plan that outlines all the activities involved in producing a product or providing a service, including the quality objectives to be achieved, allocation of resources, responsibility and authority of individuals or groups, specific procedures, methods and work instruction, as well as appropriate testing methodologies at different stages of planning, design and production to ensure conformance to the quality objectives. All changes to a quality plan must be recorded as the project or production progresses.

Quality audit

Quality audit is “a systematic and independent examination to determine whether quality activities and related results comply with planned arrangement and whether arrangements are implemented effectively and are suitable to achieve objectives”. The purpose of the quality audit is to objectively evaluate, the need for corrective actions. Therefore, quality audits must be undertaken by trained professionals who are independent of those performing the job. The quality audit should not be confused with inspection, which is defined separately.

Product

ISO 9000 defines a product as “the result of activities or processes”. It includes service, software, hardware, processed materials or any combination of the above and includes tangibles and intangibles. For example for a research and training institute “tangibles” could be workshops, training manuals, whereas “intangibles” could be knowledge and consultancy advice.

Customer

Customer is defined as “the recipient of a product or a service”. A customer can be a private or public sector organizations, a group of people such as a civil society organization or an individual. A customer can be the final or intermediary consumer, user, beneficiary or purchaser. For example individuals or private developers who apply to local authorities for building permits are some its customers. Government departments or local governments requesting research and training institutes to develop specific courses for their staff are its customers, as are the staff being trained. There must be a direct relationship between the customer and the supplier because it is the supplier’s responsibility to ensure that the requirements of the customer are satisfactorily met.

Supplier

ISO 9000 defines the term supplier as “an organization that provides a product or service to a customer”. The supplier is an organization and not an individual. Under this definition all government departments and agencies are suppliers because they have customers who could be, communities, individuals private sector cooperation, and other government departments and agencies. The term supplier should not be confused with the term “sub-contractor,” which refers to an individual or an organization that provides an input to the supplier for use in the production of a product or provision of a service to the customers. The term “input” refers to any materials, ideas, supplies, finances and manpower that is added to the system by an outside sub-contractor, including consultants.

Service

ISO 9000 defines service as “the results generated by activities at the interface between the supplier and the customer and by the supplier’s internal activities to meet the customer’s needs”. Tangible products may form part of the service. Similarly the service may be part of a product. For example a supplier of office automation systems could provide a local government with personal computers and software as well as training to use the hardware and the software.

Process

ISO 9000 defines the process as a “set of interrelated resources and activities which transform inputs into outputs”. The process starts with the customer and ends with the customer. The process consists of several sub-activities and may includes such resources as personnel, finance, facilities, equipment, techniques and methods.

Inspection

Inspection is defined as “activities such as measuring, examining, testing, gauging one or more characteristics of a product or service and comparing these with specified requirements to determine conformity”. Inspection is normally done at three stages. Incoming inspection is done during the acquisition of inputs from the customer or the sub-contractor. In-process inspection is done during the production or delivery process. Final inspection is done to ensure that the product or service meets specification.

Traceability

Traceability is defined as “the ability to trace the history, application or location of an item or activity, or similar items or activities, by means of recorded identification”. Traceability can refer to products and services and must have a point of origin either in time or in place.

Non-conformity

Non-conformity is defined as the “non-fulfillment of specified requirements”. A deviation from specified requirements or absences of one or more quality characteristics is regarded as a non-conformity.

Defect

ISO 9000 defines defect as the “non-fulfillment of intended usage requirements”. In other words, defect is the failure of the product or service to function as it was designed. The difference between non-conformity and defect is that a non-conformity allows the product or service to performs below a specified quality standard while a defect does not permit the product or service to perform as designed. For example, a newly constructed municipal market with poorly painted walls would be a non conformity, while a municipal market with a collapsed roof would be a defect.

Specification

Specification is defined as, “the document that prescribes the requirements with which the product or service has to conform”. Specifications can include drawings patterns, sketches, and other written documents. Specifications should include the criteria and methodology to check conformance at a later stage.

Design review

Design review is defined by ISO 9000 as the “formal, documented, comprehensive and systematic examination of a design”. The process of examining whether a given product being designed will meet the customer’s requirements is called the design review. Therefore, specification provided by the customer becomes a core basis of the design review. Design review can be carried out at several stages and the design can be refined or modified to improve the quality of the product or service.

Quality Loop

The quality loop comprises various activities that are relevant in ensuring the quality of a product or service. It begins with the customer and ends with the delivery of the product or service to the customer. Activities such as market research, design and development, acquisition of inputs, process planning and development, calibration of equipment, testing and inspection, storage and packaging, sales and delivery, installation, technical assistance and after sales servicing are all part of the quality loop.

THE TWENTY ELEMENTS OF ISO 9001

ISO 9000 is divided into three quality assurance models: ISO 9001, ISO 9002 and ISO 9003. The difference between these three models is that of scope. ISO 9001 sets out the requirements for an organization whose processes range from design and development, to production, installation and servicing ISO 9001 has 20 elements. ISO 9002 is meant for organizations, which do not carry out design and development. ISO 9002 does not have the design control requirements of ISO 9001. Thus ISO 9002 has 19 elements. ISO 9003 is appropriate for organizations which basically uses inspection and testing to ensure final products and services meet customer requirements and whose processes do not include design control, process control, purchasing or servicing. ISO 9003 has 18 elements. Of these 18 elements 12 are different from those of ISO 9001 and ISO 9002. However, as ISO 9003 is rarely used this publication will concentrate on ISO 9001 and ISO 9002.

The twenty elements of ISO 9001 are explained below. The exact text of the twenty elements is contained in *ISO 9001: 1994 Quality Systems - Model for Quality Assurance in Design Development, Production, Installation and Servicing*.

Table 1: Twenty elements of ISO 9000

Clause No.	Clause Title	ISO 9001	ISO 9002	ISO 9003
4.1	Management responsibility	✔	✔	✕
4.2	Quality system	✔	✔	✕
4.3	Contract review	✔	✔	✔
4.4	Design control	✔	–	–
4.5	Document and data control	✔	✔	✔
4.6	Purchasing	✔	✔	–
4.7	Customer-supplied product	✔	✔	✔
4.8	Identification and traceability	✔	✔	✕
4.9	Process control	✔	✔	✕
4.10	Inspection	✔	✔	✕
4.11	Control of inspection, measuring and test equipment	✔	✔	✔
4.12	Test status	✔	✔	✔
4.13	Control of non-conforming products	✔	✔	✕
4.14	Corrective and preventive actions	✔	✔	✕
4.15	Handling, storage, maintenance & delivery of products	✔	✔	✔
4.16	Quality records	✔	✔	✕
4.17	Internal quality audit	✔	✔	✕
4.18	Training	✔	✔	✕
4.19	Servicing	✔	✔	✕
4.20	Statistical techniques	✔	✔	✕

Note: ✔ Indicates equivalent requirements in ISO 9001, ISO 9002 and ISO 9003

✕ Indicates ISO 9003 has different requirements from ISO 9001 and ISO 9002

– Indicates no requirements

Quality policy and systems (ISO 9001 4.1 and 4.2)

Clause 4.1 deals with management responsibility while clause 4.2 deals with the quality system itself.

Management Responsibility (ISO 9001 4.1)

This clause requires that management of the organization that is implementing IS0 9000 must:

- Define and document its quality policy and objectives.
- Organize itself to meet its quality objectives
- Review the quality system regularly.

In defining and documenting its quality objectives management must take note that there must be congruence between the organizational goals and the expectations and needs of the its customers. Moreover goals must be simple and easy to remember. The objectives must also be able to translate into clear and measurable actions. Having clear and measurable objectives helps the organization in the prevention and control of non-conformance and allows for continuous evaluation and improvements. Just defining and documenting the quality policy and quality objectives is not sufficient. Management must ensure that they are understood, implemented and maintained at all levels of the organization.

ISO 9001 also spells out the manner in which the management can organized itself. The management must define and document the responsibility and relationship of all the people who are involved in performing and verifying all work with regard to the quality system in the organization. This includes the responsibility for the prevention and recurrence of non-conformities, identification and recording of problems, initiation, recommend and/or provision of solutions; verification of remedial actions and assurance that non-conformance has been rectified. To meet the requirement on organizing itself for a quality system the management must have the following documented and on record:

- A current organization chart
- Approved duty list of each critical officer and staff

In addition management must ensure that sufficient resources are provided, including training, to ensure effective management, performance and verification activities, including the ability to carry out internal quality audits. Under this clause, management is responsible for the placement of the right person for the right job, creating the right work environment and reward and recognition systems, performance evaluation and adequate training. As per ISO requirements, all activities undertaken to improve quality systems need to be documented and filed.

A key requirement for the management is the appointment of a Management Representative from among the management team. The Management Representative has the following key responsibilities:

- Establish, implement and maintain a quality system in accordance with ISO standards.
- Report on the performance of quality system to the management for review as a basis for any improvements in the quality system; and
- Liaise with external parties on matters pertaining to the organization's quality system.

The role of the Management Representative is crucial in the development of a quality system in an organization. His role and responsibilities are clearly spelt out in the Quality Manual.

Quality system (ISO 9001 4.2)

This clause requires an organization to establish, document and maintain a quality system that is consistent with the quality policy and objectives. The quality system oversees the quality of the product or service produced by the organization and its conformance to the specified standards and levels of service. Thus quality system encompasses the organizational structure, responsibilities, procedures, processes and resources required for implementing the quality management program. The quality system requires the preparation of the following documents:

- Quality Manual
- Procedures
- Work instructions, including forms and other internal and external documentation; and
- Quality Plans

The establishment of the quality system as documented in the above documents is to ensure that there is adequate control and assurance over all critical operations and processes to prevent non-conformance.

The quality manual should explicitly state the actions that need to be taken by the organization to meet the requirements of all 20 or fewer elements as

applicable. The Procedures documentation describes the work processes to ensure that they meet the quality standards set out. It contains flowcharts, step-by-step explanations detailing who does what, where, when and how.

The documentation for quality planning includes the list of activities, officers responsible for the activities, as well as flow and PERT or Gantt charts. The aim is to control the processes to ensure quality of the end service or product. The documentation involved at this stage should ensure that all procedures and work instructions are clear, concise and cover all the applicable standards and reflect what happens or what should happen in an organization to ensure quality.

Contract review requirements (ISO 9001 4.3)

The Contract Review Clause (Clause 4.3) is drafted to ensure that the organization produces a product or a service that meets the needs of its customers. Therefore in order to comply with the requirements of this clause, the organization would need to identify its customers and their needs. In undertaking a commitment to provide a products or service that meets the needs of the customer the organization is also expected to evaluate its own capabilities to meet those needs with the quality characteristics agreed to by its customers. The contract review clause provides for changes to be made at the request of either party but these changes must be made with the agreement of both parties; i.e. the service provider and the customer.

Various methods can be used in identifying customer needs. These include market surveys and customer complaints. Before embarking on a mission to meet the needs of the customer, the organization has to ensure that the needs of the customers are very clearly defined and that it understands both the stated needs and implied needs of its customers. Once the customer-needs are identified and well defined, an internal analysis of the organization's capacity to meet these needs is required. This analysis should reveal the customer-needs areas that the organization can reasonably deliver and those that it cannot. This helps to prevent unduly high expectations from the customers. If there are differences in the needs and expectations of the customers and the capability of the organization, this has to be resolved and agreed to mutually. The contract between the organization and the customers forms the basis for the type and quality of service provided. However, the ISO procedures recognize that the customer needs may change; the standards to which the services are performed can also change for the better. In addition the organization, with its accumulated experience and with additional resources, may be in a better position to provide an improved service or a product. To take these developments into

considerations, ISO procedures allow for amendments to the contract (sub Clause 4.3). Either party can make the request for changes to the contract. The only requirement is that both parties agree to the changes.

Product design requirements (ISO 9001 4.4)

The main purpose of this clause is to ensure that the design process leads to the product or service that meets the specification of the customers. If the process is designed well and the design process is tightly controlled, the end product or service would meet the stated quality and specifications of the customers.

This clause requires the organization to have documented control and verify the design of the product or service to ensure that it meets the agreed -to-requirements of the customer. As this involves design of new products or service, it only applies to ISO 9001.

Clause 4.4 ensures that organizations take on a disciplined approach to the design of a new product or service. The design of any new product/service starts with the quality plan. This phase of product design maps out all the activities that need to be done in a sequential or simultaneous fashion. The officers responsible for the activities and the time-line that is applicable to the activities must be clearly defined. In addition, the quality plan should also identify all the groups of people that would play a critical role in ensuring the production of the final output. These groups include the various sections in the organizations that have a role in the design and delivery of the product/service. In addition, customers, regulatory bodies and contractors are also important contributors to the design control phase. All the points at which these groups interface (via provision of inputs and providing information) in the design has to be documented and records should show the transmission of information that goes into the design phase of the new product or service.

At each stage of the design process all the outputs that are expected need to be documented. At each critical stage of the design process, outputs have to be reviewed before proceeding to the next stage. This is to ensure all standards and expectations of the customers are incorporated at each stage of the process. This requirement prevents costly rework of the product/service when the final product/service does conform to the quality and standards agreed to initially. The next step is design verification and validation. This is the testing phase of the design to see if it conforms to the standards and conforms to user requirements. The feedback from this validation exercise is then fed again into

the design to incorporate changes. The design process also incorporates procedures to incorporate changes that may be required as a result of changes in customer's needs, from market surveys, design reviews, and verification and validation procedure. If these are major changes then again customers and all other groups are involved in the design review.

Document and data control (ISO 9001 4.5)

In ensuring quality control ISO 9000 system requires that all the processes be documented. To ensure the integrity of the documented processes, organizations need to have in place a system where all the documentation and data is kept and access to and changes are carefully controlled. This ensures that all the processes are current and that there is no confusion as a result of outdated processes, procedures and regulations.

The quality manual needs to describe how the documents are kept together with the system that ensures that all changes and reviews are kept updated. In general, a system that has the following processes will ensure the currency of the documents and data:

- Review and approval all documents and data
- Creation and maintenance of a master list of all documents and data
- Distribution of relevant documents and data to relevant users
- Withdrawal of obsolete and invalid documents.

All documents (Quality Manual, Quality Procedures, Work Instructions, etc) must be reviewed and authorized by the designated quality officer before they are distributed. The master list is an important document. It lists all the documents that are kept in the organization pertaining to the quality system. It contains the following information: - reference number of each document, title, date of issue, issue number and the revision number. An example of the master list is given below:

Table 2: Example of a master list of quality documents

No	Title/Issue	No. Amend	No. Issue	Date
1	Quality Manual	1	0	1 Nov 1996
2	Purchasing of Services	1	1	1 Feb 1997

The distribution of these documents is also subject to control. The number of people having copies of the documents needs to kept to a minimum. This is to ensure that any updating can be easily done. This also makes it easy to identify and withdraw copies of obsolete and invalid documents. A master distribution list kept by the Quality Department could be in the form below:

Table 3: Example of a master distribution list

No	Manual/Procedures No.	Document Position	Recipient No	Issue Date	Issue	Signature
1.	Quality Manual	1	Director	2/1/96	1	
2.	-do-	2	Dep. Director	2/1/96	1	
3.	-do-	3	Dep. Director	2/1/96	1	
4.	Procedures Manual	1	Dept. Head	3/1/96	2	
5	Procedures Manual	1	Dept. Head	3/1/96	2	

Purchasing (ISO 9001 4.6)

The purchasing of goods and services is also subject to quality processes under the ISO 9000 requirements. ISO 9000 requires quality control of purchasing because poor inputs will affect the quality of the final output. Therefore, specific procedures need to be established and documented that ensure consistently of high quality inputs. A well-defined purchasing system prevents the acquisition and use of poor quality inputs. The process involves the evaluation and selection of sub-contractors, well-defined specifications of the inputs and a system of verification of the sub-contractor's quality system.

The evaluation and selection of sub-contractors is based on the ability of the sub-contractors to meet the requirements of the organization with regards to the standards and timelines specified. As part of the evaluation process the organization needs to evaluate the reliability of the sub-contractor, the resources and equipment the contractor has at his/her disposal, his/her financial strength, and cost and time factors. Additional favourable conditions for the selection of a contractor are ISO 9000 or other quality certification and a good business reputation in the industry. The type and extent of control that will be exercised over the sub-contractor by the organization ought to be made clear. To facilitate speed and efficiency in the selection of sub-contractors, a list of approved sub-contractors needs to be established and maintained.

The quality of any input supplied by the sub-contractors is only as good as the clarity of the specification that is set by the organization. By setting appropriate and clearly understandable standards and specification it is easy for

the organization to identify and reject any sub-standard good or service. Clear specifications include drawings, process requirements, performance requirements, time targets etc. The clause also allows for the verification of goods and services supplied by a sub-contractor at his/her premises. However, such arrangements must prearranged and agreed to.

Customer-supplied product (ISO 9001 4.7)

The rationale for this clause is to ensure that inputs supplied by the customers are of sufficiently high quality and meet the requirements of the overall process. Typical example of a customer-supplied product is the application for licenses and permits by petty traders and businesses. In order to process these applications, customers need to provide copies of photographs and other documents and information. If these customer-supplied inputs are not in sufficient detail and of the required quality it may delay the processing of the permits and licenses. A record of these customer-supplied inputs should be maintained.

Identification and traceability (ISO 9001 4.8)

This clause requires an organization to be able to identify at any stage of a particular process the origin and current location of the input. This clause may not be equally applicable for all organizations and processes. Conforming to this clause is at times very costly and requires staff and management time. Its utility needs to be measured against the cost. In the case of hospitals, a very elaborate system of identifying patients, medications that are ordered, stored, issued and consumed needs to be established.

Process control (ISO 9001 4.9)

This clause requires the organization to identify and plan the production, installation and servicing processes that directly affect the quality of the products and services. This is to ensure that processes are carried out under controlled conditions. Control of the procedures is carried out through:

- Documenting the procedures on production, installation and servicing.
- Use of suitable production, installation and servicing procedures and a suitable working environment.
- Compliance to the recommendations, standards of manufacturers, international standards etc.

- Monitoring and control of suitable process characteristics that indicate quality of service delivered.
- Approval of the process and equipment used that will ensure consistency in the quality of service or product.
- The institution of clear criteria for workmanship in the form of written instructions, samples, illustrations etc.
- Proper and timely maintenance of equipment to ensure quality products and services.

Clause 4.9 requires documentation of the processes involved in the production of the service/product. However, organizations are reminded to be practical about documentation. Before committing any procedure in writing the following questions need to be answered in the affirmative:

- Is there a need for a procedure for a particular activity?
- Would the quality of the product/service be adversely affected in the absence of the procedure?
- Is the staff sufficiently trained to carry out the activity without a need to have a procedure for the particular activity?

Inspection (ISO 9001 4.10)

This clause requires the organization to establish and maintain procedures for the inspection and testing of services/products to ensure that they conform to the specified requirements. This includes the inspection and testing of all intermediate product and services. Such testing and inspection ensures that the final service/product conforms to all standards and specifications before it is delivered to customers. The type of inspection and the test that is carried out and the records pertaining to these must be defined in the quality plan of the procedures. Key aspects under this clause are:

- Inspection and testing
- Basis and responsibility for testing

- Exceptions; and
- Record keeping.

Inspection and testing is to be carried at the time of receiving, in-process inspection and testing and at the final stage of the process. The inspection and testing must also be based on some comparison with specifications and must be carried by authorized individuals. While inspection and testing procedures are strict stipulations, authorized staff can also make exceptions. Non-inspected and non-verified input of intermediate product may be accepted long as it is positively identified and recorded for easy recall and replacement in the event it turns to be the cause for non-conformance. As in any documented procedures the Clause 4.10 requires that organizations keep records of all inspection and testing, clearly indicating whether the product has passed or failed the inspection and testing.

Control of inspection, measurement and test equipment (ISO 9001 4.11)

This clause requires the equipment used in the inspection and testing is reliable and accurate within reasonable limits. It calls for the calibration of the equipment. Key requirements that organizations need to focus to ensure compliance with this clause are:

- The need for documented procedures
- Calibration
- And where calibration is needed

Organizations need to establish and maintain procedures to control, calibrate and maintain inspection, measuring and test equipment. Calibration is an expensive procedure. Therefore, organizations need to evaluate the cost and benefits of calibrations. Only equipment that contributes directly to the quality of product/service needs to be calibrated.

Test status (ISO 9001 4.12)

This clause requires that a product/service be identified by suitable means after inspection and testing to indicate if it conforms to specifications. To ensure that the final product/service conforms to specifications, care should be taken to ensure that intermediate inputs also meet specifications. This requirement for intermediate goods is fulfilled on compliance with Clause 4.10.

Control of non-conforming products (ISO 9001 4.13)

Non-conformities become apparent during testing and inspection stages and also in the process of compliance with Clause 4.10 of the intermediate goods. Customers' complaints are also a source of identifying non-conformance. Even though the status of the product/service is tested as per requirements of clause 4.12 and labeled accordingly, the intent of clause 14.13 is to prevent the roll out or use of products/services that have been labeled as non-conforming. To ensure that non-conforming products are not rolled out to customers, organizations are required to establish and maintain documented procedures. The purpose of documentation is:

- To prevent non-conforming inputs and intermediate products from being used in production and non-conforming final products from being rolled out to customers.

- To identify, document, segregate non-conforming products for disposal and notify those concerned about the non-conforming status of the product.

- To identify the persons/persons responsible to review and decide on how do dispose of non-conforming products in accordance with documented procedures. Non-conforming inputs, intermediate and final products may be reworked to meet specifications, accepted with or without repairs at special rates as long as this does not impair final quality of output. Non-conformities may also be regarded for alternative use or rejected or scrapped.

Records of non-conformities and the manner of their final disposal should be kept by the organization.

Corrective and preventive actions (ISO 9001 4.14)

Corrective and preventive actions, together with management review meetings (Clause 4.1), form the basis for quality improvements. Under clause 4.14, organizations are required to establish and maintain documented procedures for implementing corrective and preventive actions.

A corrective action involves the identification of causes of problem and taking actions to prevent the problem from occurring again. In the documentation of procedures the organization must explicitly state how it proposes to handle customer complaints and reports of product or service non-conformance. In addition, the causes of non-conformity need to be identified and the result of

investigations must be recorded. This is then followed up by identifying and implementing the corrective actions that are needed to eliminate non-conformity.

Preventive action involves the analysis of all non-conformances to identify the presence of any negative trends that indicate potential problems and taking actions to prevent the problem from reoccurring. Sources of information for undertaking corrective action include customer complaints, records of non-conformance at all stages, quality records, audit reports etc. The analysis and suggested measures to eliminate potential problems need to be discussed at the management review meetings.

Handling, storage, packaging, preservation and delivery (ISO 9001 4.15)

Organizations need to establish and maintain documented processes and procedures on the proper handling, storage, preservation and delivery of products. The intent is to prevent damage or deterioration of the product during handling, storage, packaging and delivery.

Quality records (ISO 9001 4.16)

The thread that binds the entire ISO 9000 system is the system of keeping records. Therefore, elaborate requirements have been written to ensure that records accurately reflect current procedures and practices. In addition, records are also instrumental in detecting deviations and undertaking corrective and preventive actions. The process requires the proper identification, collection, indexing, access, filing, storage, maintenance and disposition of quality records. Proper record keeping also provides documentary evidence of compliance with all ISO 9000 requirements.

Internal quality audit (ISO 9001 4.17)

Internal quality audit is first-line check to ensure that ISO 9000 procedures are adhered to. Organizations are required to establish and maintain documented procedures for the planning and implementation of internal quality audits. Internal quality audits are necessary to assess the effectiveness of the quality systems in place and it forms the basis for continuous improvements.

The organization needs to establish the frequency of internal quality audits. Internal quality audits are carried by trained and independent personnel. Independent personnel need not be external to the organization and could be those who are not involved in the activity that is being audited. The results of the

internal audit should be documented and presented at the management review meetings.

Internal audits form the basis for continuous improvements. This is achieved through an examination of records and discussions with employees. During these examinations, internal quality auditors can assess the extent to which the employees understand and follow the quality procedures. When there is non-conformance the auditee and his superior are required to rectify the non-conformance. The results of these internal audits are presented to management review meetings where causes of non-conformance and corrective actions are discussed. Analysis of internal audit reports can indicate any systemic breakdown of quality systems in the organization. It also serves as an important trigger for corrective /preventive actions. In addition, internal audit can point to areas where procedures and processes need improvement.

Training (ISO 9001 4.18)

Clause 4.18 requires the organization to establish and maintain documented procedures for identifying training needs and providing training for all personnel performing activities that have an impact on the quality of the service/product. Implementing the training requirements involve the following:

- Determining the competency requirements for each job to ensure quality and reliability of products and services produced.
- Determining the competency of each incumbent staff.
- Determining the competency gap.
- Planning and implementing training programs that help to bridge the competency gap.

At times, the due to staff movements, changing technology and changes in production process, etc. staff need to be re-trained. Internal Quality Audits would be able to provide information on new and additional training requirements for the staff. Organizations are also required to keep records of all training attended by each officer and staff.

Servicing (ISO 9001 4.19)

This clause applies to organizations that provide, maintain and support services after delivering a product or service. In most instances this applies to

after sales service and support. In government or public sector organizations this clause may be of limited application. However, it is important to set out the ISO requirements under this clause to see to what extent it can be applied in the public sector service organizations.

In order to provide excellent after sales support the following issues need to be taken into account:

- When, who and how often the after sales services will be provided?
- What are the elements that will be included in the service?
- What would be the obligations of the organization to which the service is provided?
- Keeping proper records of the type of services involved in maintenance and service activities.

Statistical techniques (ISO 9001 4.20)

Statistical techniques are tools used to analyze the data collected under the ISO 9000 requirements. These tools can provide useful information in the quality of service delivered, customer satisfaction levels, trends in non-compliance, process controls etc. These measurements can then be compared against targeted service levels and customer satisfaction levels.

IMPLEMENTING ISO 9000

While the case study on INTAN provides its experience of implementing ISO 9000, it would be useful to summarize the process for the reader. As stated earlier acquiring ISO 9000 certification, from which an organization may or not benefit, is just a part of implementing ISO 9000. The key benefits of ISO 9000 are derived from using the standards to improve the functioning of the organization.

An organization needs to undertake the following steps to implement ISO 9000. All ISO 9000 guidelines and publications are available from ISO headquarters in Geneva or from the national standard's institute in your country. Most organizations and firms in both the public and private sector seek the assistance of private companies to guide them through the process of implementation and certification. A list of such companies in the Asia-Pacific is

annexed. Please note that the addresses and contact telephone and fax numbers may have changed.

Identifying goals

Identification of goals is primarily the task of senior management. However, it is recommended that at least professional levels of staff are involved in the process of identifying goals. Typical goals may be:

- Be more efficient and effective
- Produce better products and services
- Achieve customer satisfaction
- Improve communication and morale in the organization
- Reduce costs and increase productivity

Several methodologies can be used to identify goals. These include strategic planning approach, focus group discussions, brainstorming etc.

Identifying expectations

The next step in implementation is identifying the expectations of the stakeholders or those interested or affected by the functioning of your organization. Among others, these include:

- Customers and end users
- Suppliers and sub-contractors
- Employees

Identification of expectations can be carried out by questionnaire surveys, focus group discussions or interviews.

Identification of core activities

After analyzing the expectations of the stakeholders the goals need to be revised and refined. At this stage in the process core activities of the organization need to be identified, and measurable objectives need to be determined. This can be done through brainstorming, focus group discussions or through using the strategic planning approach.

Assessment of current status

Once the core activities and measurable objectives of the organization have been determined, the organization needs to identify what resources, changes in management or working style, etc. are needed to achieve the objectives. This can be done through the gap-analysis approach either internally or by engaging the services of an outside expert or organization.

Information collection on ISO 9000

At this stage information on ISO 9000 needs to be gathered and studied carefully. The organization should appoint a team that will eventually serve as its quality auditors under a senior manager, to take the lead in studying the materials and identifying their implications for the changes in the way the organization operates. A one or two-day exposure seminar on ISO 9000 should also be organized for the staff either by the senior manager and his team or an outside expert familiar with ISO 9000. The key publications that need to be reviewed at this stage are: *ISO 9000-1, Quality management and quality assurance standards—Part I: Guidelines for selection and use*. This document establishes a starting point for understanding and selecting the appropriate standards that the organization needs to apply. *ISO 8402, quality management and quality assurance - Vocabulary*. As stated earlier ISO 9000 defines certain terms differently than their common usage. This document defines the fundamental terms used in the ISO 9000 family, which the organization will need to know to avoid misunderstandings both internally and externally.

Application of ISO 9000

After a preliminary understanding of the scope of changes and work needed in applying ISO 9000 the organization needs to decide whether it will apply ISO 9000 itself or engage the services of consultants to help it in applying the standards. *ISO 9004-1, Quality management and Quality system elements - Part 1: Guidelines* and *ISO 9004-2, Quality management and quality systems elements - Part 2: Guidelines for services* should be used. ISO 9004-1 provides guidelines to implement a quality system to satisfy the customers as well as the organization's own needs. ISO 9004-2 guidelines are similar to ISO 9004-1 but are designed with special regards to organizations providing services.

The organization will also need to decide whether it will use ISO 9001, ISO 9002 or ISO 9003. As stated earlier ISO 9001 are used if product or service design is part of the organization's work. ISO 9002 is used if the organization does not design its products or services. ISO 9003 is used for organizations that

are only involved in testing or final inspection of products. Most public sector organizations use ISO 9001 or ISO 9002. If the organization is relatively small, then ISO 9000 for small businesses can also be used as guidelines.

In addition to the above the organization will also need to use *ISO 9000-4, Quality management and quality assurance standards - Part 4: Guide to dependability programme management*. This publication provides guidance on how to plan, organize and control resources to produce reliable and maintainable products and services.

Once the organization initiates the development of a quality management system, topic-specific standards would be needed. These are:

ISO 10005, Quality management - Guidelines for quality plans. These guidelines will assist in preparing quality plans for control of specific products, projects or contracts.

ISO 10006, Guidelines to quality in project management. These will assist in ensuring the quality of project processes and the project product.

ISO 10011-1, Guidelines for auditing quality systems - Part I: Auditing. This publication provides guidelines for auditing a quality system and for verifying the systems ability to achieve defined quality objectives. These guidelines can be used both internally or for auditing the organization's suppliers or contractors.

ISO 10011-2, Guidelines for auditing quality systems - Part 2: Qualification criteria for quality systems auditors. The organization would have to train some of its staff to carry out both internal audits and audits of its suppliers and subcontractors. This publication provides guidance on the capabilities needed to carry out quality audits.

ISO 10012-1, Quality assurance requirements for measuring equipment - Part I: Metrological confirmation system for measuring equipment. These standards provide guidelines on the main features of a calibration system to ensure that measurements are made with intended accuracy.

ISO 10012-2, Quality assurance for measuring equipment - Part 2: Guidelines for control of measurement processes. This publication provides supplementary guidance on the application of statistical process control when this is appropriate for achieving objectives of part 1.

ISO 10013, Guidance for developing quality manuals. This publication provides guidelines for the development, preparation and control of quality manuals tailored to the organization's needs.

Demonstration of conformance

After the ISO 9000 quality system has been implemented the senior management needs to decide whether it needs to show conformance and apply for certification. There could be several reasons for applying for certification including contractual reasons, to compete in the market, regulatory reasons, and last but not least to continue improving quality of the organization's product and increasing efficiency and transparency within the organization, as well as, a means to build staff morale and pride in their work environment.

Independent audit and certification/registration

Once the decision has been taken to apply for ISO 9000 certification/registration the organization will need to engage the services of an independent auditors.

ISO 9000 certification/registration is provided by independent firms that specialize in this field. A list of selected firms and organizations is annexed for easy reference. Certification is normally provided for three years. However, the organization would be required to undergo independent audits either annually or biennially. The purpose of these audits is to identify areas for improvement. Failure to take actions on improvements may result in revocation of certificate.

Continuous review and improvement

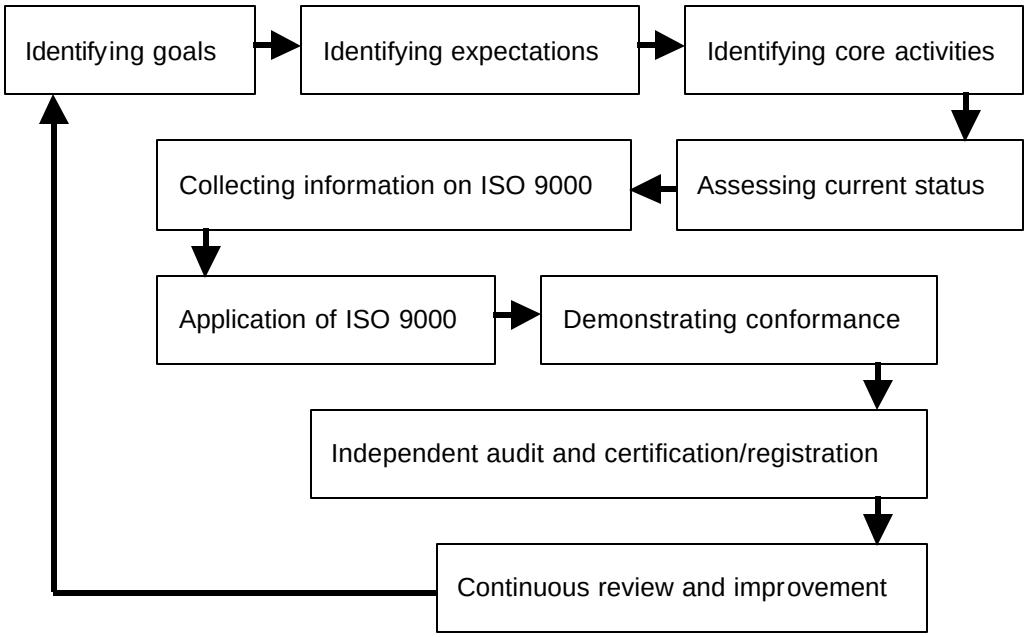
ISO 9000 requires organizations to continuously improve their management and operation systems. *ISO 9004-4, Quality management and quality system elements - Part 4: Guidelines for quality improvement* provide guidelines for implementing continuous quality improvement within the organization using tools and techniques based on data collection and analysis.

Organizations implementing ISO 9000 are expected to continue the process of self-assessment, reviewing their goals, objectives and management and production processes and learn from past experience. In short ISO 9000 expects organizations to transform themselves into "learning organizations."

Once a quality system has been put in place and starts functioning, organizations are encouraged to use "benchmarking" to improve their products

and services. Benchmarking involves identifying industry leaders, studying how they operate, comparing their processes with the organization's own processes and learning and adapting these "best-practices" to the specific needs of the organization.

Figure 3: Implementing ISO 9000



PART 2: INTAN'S EXPERIENCE IN THE APPLICATION OF ISO 9000*

* This case-study was prepared by Ms. Zailan Haji. Yussoff , Mr. Zulkefeli Jaafar and Mr. Mohammed Sufian Omar of the National Institute of Public Administration Malaysia (INTAN)

INTRODUCTION

The National Institute of Public Administration (INTAN) is one of the several divisions of the Public Service Department of Malaysia and was established in 1972. Its main function is to train the civil service in carrying out the policies and objectives of the government. It is also responsible for training public officials in various aspects of public administration and management, including mandatory courses for confirmation and promotions in the civil service. INTAN's success has been acknowledged not only by Public Service Department of Malaysia, but also by international organizations such as the United Nations Economic and Social Commission for Asia and the Pacific (ESCAP), the United Nations Development Programme (UNDP) and the Commonwealth Secretariat (COMSEC). In fact COMSEC's annual programmes include courses conducted by INTAN for the member countries of the Commonwealth.

INTAN has always tried to remain at the cutting edge of training, continuously improving its programmes and services. In 1995 it received the Quality Award of the Chief Secretary of the Government of Malaysia. In 1997 INTAN received certification for MS ISO 9001 from Quality Assurance Service (QAS) Malaysia, SIRIM. The scope of the certification covers training, INTAN's core activity.

Vision and mission

INTAN's vision and mission are as follows:

Vision

Towards a world class training institution.

Mission

To develop a world class public sector through the provision of quality and professional learning opportunities.

INTAN's quality objectives

- Zero complaints from clients
- Conducting at least 80 percent of scheduled courses; and
- Obtaining an average score of not less than 5 on a scale of 1 to 7 on course evaluation by participants.

INTAN's strategies

- Meet clientele needs
- Offer training, consultancies, research and publication towards accelerating public sector excellence.
- Develop a relevant organizational structure
- Develop a pool of expertise
- Improve efforts to create a learning and quality culture
- Stimulate creativity in all areas of training
- Develop physical infrastructure, technology and expertise
- Encourage systems development and networking

Administrative set-up

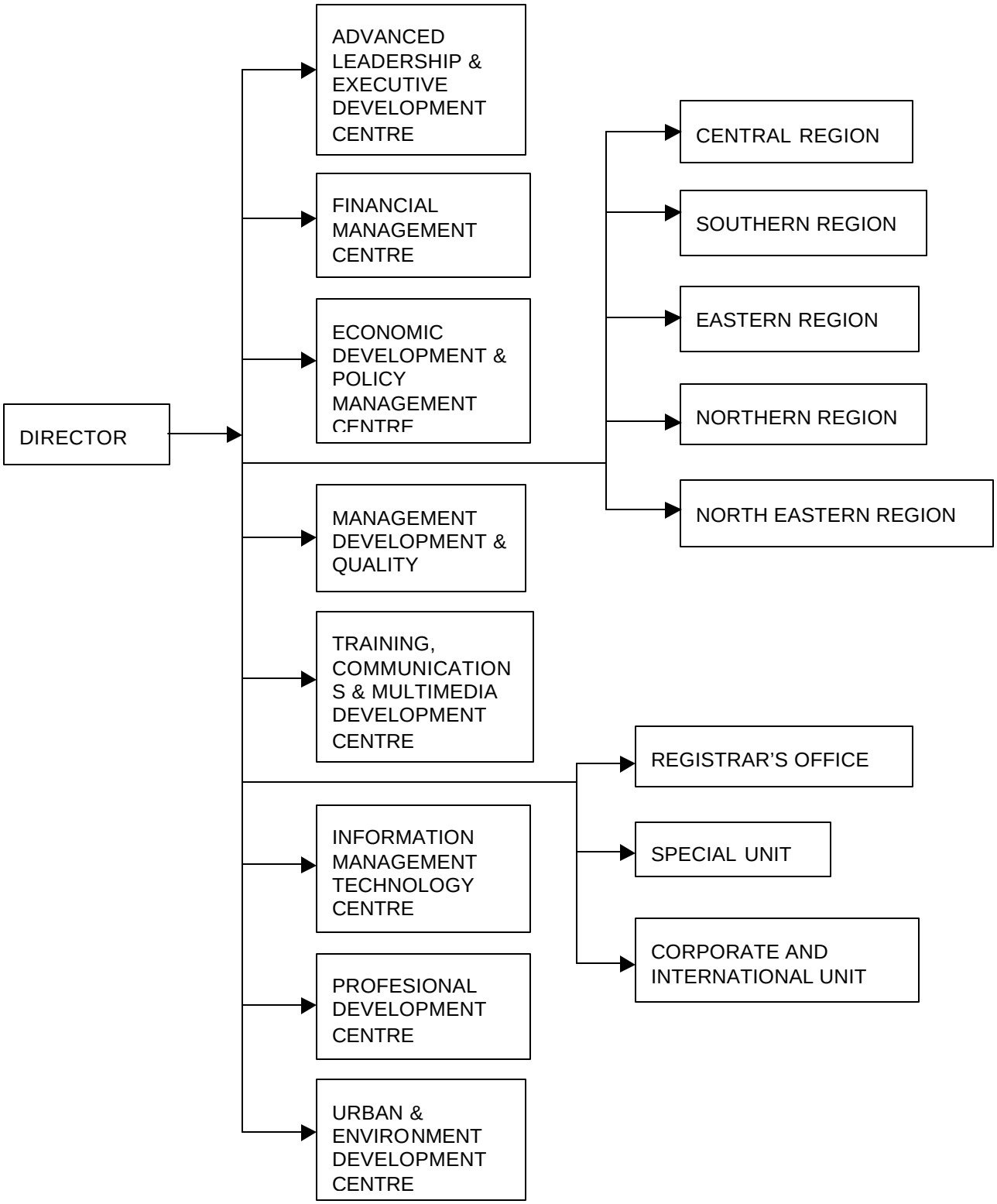
Before discussing INTAN's experience in applying ISO 9000 standards and acquiring certification, it would be useful provide a brief description of INTAN's administrative set-up.

INTAN has a total of 653 officers and support staff, distributed over its main campus Bukit Kiara, Kuala Lumpur and five other regional campuses in the south, north, east, centre and the north east of Malaysia. The Management and Administration of INTAN are under the Director, who sits at the main campus. Each Training Programme or Division at the main campus is headed by a Deputy Director,who is also the Head of Programme, while each regional campus is headed by a Regional Director.

Business profile

INTAN's main product is knowledge acquired by the clients through trainings conducted based on scheduled programmes. The market on INTAN's training programmes depends on government's need to initiate certain policies in the public sector, for instance the implementation of ISO 9000, electronic government, the Modified Budgeting System and other new policies to be implemented by the government agencies.

Figure 4: Management and functional structure and hierarchy



Source:Annual Report, 1999.

INTAN's core business and processes

INTAN'S core business is training of public servants required by the government. Effective training in both new and conventional areas requires extensive research to ensure that the selection of materials and approaches is up to date and relevant. Therefore part of INTAN's core bussiness is conducting researches and studies on cutting edge issues related to public administration and management. INTAN's training programmes also cover courses identified as mandatory courses for the purpose of confirmation of post and for promotions of the officers.

In pursuing it's quality objectives, INTAN not only focuses on training in Malaysia, but also extends its services overseas whereby INTAN's officers would be invited as trainers or coordinators/co-coordinators for certain allied programmes in the Commonwealth and ASEAN countries. Since 1999, INTAN has been providing training overseas to members of the Network of Local Government Training and Research Institutes in Asia and the Pacific (LOGOTRI), which was established by UNESCAP in 1999. INTAN also conducts training for international participants under the Malaysian Technical Cooperation Programme for Commonwealth and Least Developed Countries.

THE ISO 9000 JOURNEY

The motivation to go for compliance and certification

In the mid 1990s the Government of Malaysia decided that all Government departments and agencies must acquire ISO 9000 certification by the year 2000 to improve the performance of the Government and to serve the people of Malaysia more effectively. As its main task was training civil servants and assisting other Government departments and agencies develop a culture of continuous improvement, INTAN felt that it had to among the first public service agencies to acquire MS ISO 9000. Consequently a decision based on consensus was made by the INTAN Management Board to acquire MS ISO 9000 certificate was made by INTAN in February 1995. This decision was very much in line with INTAN's philosophy of being 'One Step Ahead'. Moreover, INTAN felt that institutionalizing continuous improvement and developing the characteristics of a "learning organization" were important if INTAN was to remain relevant and at the cutting edge of training. Another factor that contributed to INTAN's decision to implement ISO 9000 was to ensure uniformity, transparency and quality of some of its standard procedures such as development of new courses,

issuance of course certificates, evaluation of courses and trainers, both external and internal.

Getting started

The first step that INTAN undertook for implementing ISO 9000 was to convince its top management (the Deputy Directors and the Regional Directors) of the need for implementing ISO 9000. Given the motivational factors above this was not difficult to achieve. Once the top management was convinced a local consultant was selected and engaged to assist INTAN in implementing ISO 9000. Simultaneously the Deputy Director of Management Development and Quality Centre was appointed as the Management Representative.

After collecting relevant information with the help of the consultant, the Management Representative arranged a series of seminars, briefings and informal talks for the top management in order to explain what was required for the implementation of ISO 9000 and what specific benefits it would provide.

The next step was the acquisition of funding to support the whole ISO 9000 process. Since the idea to acquire ISO certification came towards the end of 1996, special funding was discussed and approved at the next annual budget meeting.

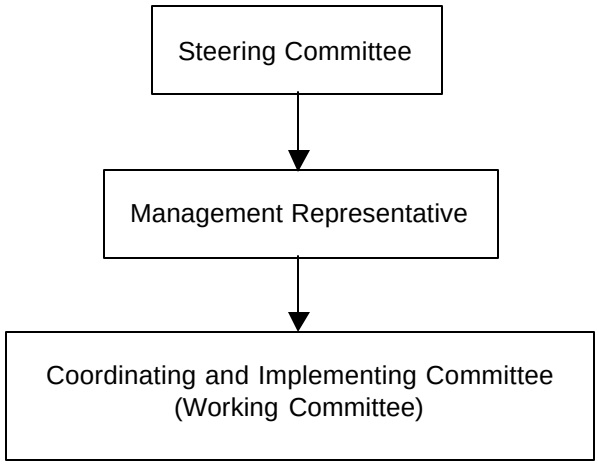
Formation of IS0 9000 teams

As required by MS ISO 9000 guidelines, INTAN formed teams comprising the Steering Committee, the Management Representative and the Coordinating and Implementing Committee (Working Committee). The Director heads the Steering Committee. The Steering Team comprises the Deputy Directors, the Regional Directors and the Registrar.

The Director appointed the Deputy Director of Management Development and Quality Centre as the Management Representative and established a Coordinating and Implementing Committee (Working Committee) comprising selected staff of the Management Development and Quality Centre and other departments.

The role of the Steering Committee is to monitor and ensure that the quality system is effectively implemented. The Steering Committee meets twice a year to discuss and review the effectiveness of the system. Although in the early stages of the implementation of ISO 9000, the Steering Committee met quite often to put the quality system in place.

Figure 5: MS ISO 9000 teams



Source: INTAN 2000

The role of the Management Representative is to oversee the implementation of ISO 9000. He is assisted by a team of auditors from his department (Management Development and Quality Centre) and by the Working Committee. In the early stages of ISO 9000 implementation, INTAN identified 32 Quality Procedures for its core process of training. The Working Committee was divided into working teams that prepared the 32 procedures, which were then reviewed by the Management Representative and a consultant that INTAN engaged to assist it in implementing ISO 9000 before these were finalized.

ISO 9000 training process

Before INTAN could start the process of the implementation of ISO 9000, members of the Steering Committee and the Working Committee had undergo various types of training conducted by the consultant. These included Appreciation of ISO 9000, Documentation of ISO and also Internal Quality Audit. Members of the Working Committee also had to pass the Lead Assessor test, which was conducted by the consultant and the BSI, London. Apart from local training, selected members of the Working Committee were sent overseas to gain experience would help them better understand ISO 9000.

Identification of the scope of ISO 9000 certification

Before ISO 9000 could be implemented the management systems to be covered by the ISO 9000 certification needed to be decided. To accomplish this

INTAN's core activities needed to be identified. With the help of the consultant the Steering Commitee and the Working Committee identified training as INTAN's core process and decided to limit the scope of ISO 9000 certification to training activities alone.

Table 2: Responsibilities for implementation of MS ISO 9001

Committee	Responsibilities
Steering Committee	Determine the objective for implementing MS ISO 9000 Determine the scope of implementation Provide resources for the implementation Evaluate and approve the action plan; and Determine the authority responsible for developing and documenting - Quality Manual - Procedures; And - Work Instructions
Management Representative	Evaluate the current quality system Plan and document the action plan Supervise the implementation Solve problems arising during implementation; Provide guidance and training
Work Teams	Prepare and implement the requirements of MS ISO 9000. accordingly, team members should have the knowledge and skills in various fields

Source: Development Administration Circular no.2 of 1996.

Gap analysis

The next crucial step was the gap analysis. The gap analysis was conducted by the Management Representative and the consultant to determine the practicality and suitability of existing processes and procedures and to see how INTAN's current management and quality assurance systems matched up to ISO 9000 requirements. Differences between what was practiced and what ISO 9000 required were regarded as gaps. INTAN had to make sure that these gaps were eliminated by developing new procedures. For example, INTAN did not possess any procedures that ensured the quality of new course development or evaluation of external lecturers or for determining the core-competencies of INTAN's own trainers. These were immediately identified by the gap analysis and necessary steps were taken to develop new procedures to cover these areas. Overall the gap analysis revealed that INTAN had basic processes and procedures such as the Manual of Office Procedures and Desk Files. Based on

the positive results of the gap analysis, the Steering Committee decided to pursue certification under MS ISO 9001.

Documentation process

Based on the Gap Analysis, the Working Committee headed by the Management Representative identified 32 procedures, which needed to be covered by the Quality Manual. The Working Committee prepared the first draft of the Quality Manual and Procedures in two months. Before preparing the first manual they underwent training in preparing documents by the consultant. The first drafts of the documents were then circulated to all Deputy Directors who were requested to review the documents and discuss their applicability and practicality with their staff. The Working Committee considered the comments of the Deputy Directors and where appropriate the documents were revised. This process was very stringent and time consuming. The documents were formally presented to the Steering Committee for its approval. Once the Steering Committee granted its approval INTAN was ready for certification.

Certification

The National Institute of Standards of Malaysia (SIRM) certified INTAN as ISO 9001 compliant. The certification process included the Adequacy Audit, the Internal Quality Audit, the Management Review Meeting, and the Compliance Audit.

Adequacy Audit

The Adequacy Audit was conducted by SIRIM to examine whether the documents prepared by the Working Committee and approved by the Steering Committee complied with the requirements of MS ISO 9001 Standards.

Internal Quality Audit

INTAN's own quality auditors conducted the Internal Quality Audit. Their task was to see that various departments within INTAN were adhering to the Quality Manual and Procedures.

Management Review Meeting

The Management Review Meeting reviewed related issues raised through reports on:

a) The achievement of the quality policy and objectives.

b) The internal quality audit.

c) Customer complaints.

d) Corrective actions on discrepancies identified through the internal auditing.

e) Suggestions for improvement of the Quality Manual and Procedures.

Compliance Audit

The Compliance Audit was conducted by SIRIM to verify INTAN's compliance to documented procedures. The audit focused on the Internal Audit Report and the Management Review Meeting, which served as a mechanism for SIRIM to authenticate the effectiveness of INTAN's quality system.

Maintenance of the system

Maintenance of the quality system depends on the commitment of the top management, the staff of INTAN and the effectiveness of the internal quality audits.

Commitment of the top management and staff

The effectiveness of quality system depends very strongly on the commitment and support of the Director, the Management Board, the Deputy Directors. The Director and Deputy Directors and the heads of divisions under the Deputy Directors are pivotal to ensuring that the 32 procedures are implemented smoothly and that officers and staff under them are properly briefed on the correct and effective use of procedures. Similarly the commitment of each INTAN staff is necessary to maintain the system because they are the major users of the procedures.

Effectiveness of internal quality audits

The Management Representative who supervises the performance of INTAN's internal auditors, needs to ensure that the whole auditing process achieves its objectives. For internal audits to be effective, he/she must ensure that scheduled audits are conducted, reported and submitted on time and corrective measures, if any are taken and also reported. Failing to manage the internal quality audit would result in a major non-compliance of the MS ISO 9000 requirements.

Surveillance Audit

At regular intervals the certifying authority conducts Surveillance Audits to ensure that the organization is adhering to the requirements of ISO 9000 and to renew certification. SIRIM has so far conducted two Surveillance Audits of INTAN. The first one was done in March 1999, while the second one was done in June 2000. SIRIM found a few minor non-conformances and on their rectification renewed the certificate.

BENEFITS

When INTAN first decided to acquire ISO 9000 certification, there was considerable internal resistance and problems. The idea was initially rejected by some professional and support staff, as being "one of those things" to which considerable resources would be devoted, without any tangible benefits. However, these skeptics were won over when they saw that the implementation of MS ISO 9000 changed many of INTAN's negative practices such as 'putting things together'. It succeeded in providing discipline in the work process and to the people involved in the process. Some of the major benefits of implementing MS ISO 9001 were:

Discipline

Procedures were developed systematically to guide the staff in doing their work. With internal audits conducted regularly to see that the procedures were being followed, the discipline in the how and when the work was done was increased.

Togetherness

Despite the initial resistance faced by the management, staff realized that following the procedures would result in improving their own performance and reducing non-conformities. As a result, the internal auditors faced fewer problems in conducting the inspection of the records, because during the process, the auditee and the auditor helped each other. Moreover, after the staff had accepted ISO 9000 procedures as beneficial to their work, they started to share a common objective - to assure quality in INTAN's training programmes.

Systematic work

Prior to the implementation of MS ISO 9000 work done at INTAN was not systematic. There were instances where no proper records were maintained for

courses being conducted. Similarly evaluations of the courses conducted were not properly recorded. Lack of inspection during the process thus resulted in the lack of control of the process and affected the quality of the products. The procedures developed during the implementation of MS ISO 9000 and maintenance of proper records were the key to ensuring that the work done fulfilled the requirements of INTAN's customers.

Identification of strengths and weaknesses

By checking and inspecting the production process at three stages i.e. incoming, in-process and outgoing, INTAN was able to identify its strengths and weaknesses. Measures were taken to overcome its weaknesses and build further on its strengths through improved procedures. Procedures which were 'loose' or not practical were reviewed and amended where necessary to suite the requirements of both the management and the users.

Clearer instructions

All instructions were clearly defined in the procedures. This overcame the problem of "overlapping instructions" and delays caused by not following procedures properly.

Clearer understanding of INTAN's objectives and policies

The objective and the policy of INTAN were clearly stated in the Quality Manual and were made known to everyone in INTAN through briefings and announcements.

Transparency and Uniformity in the decision making process

Work became easier and clearer as a result of developing transparent, easy to understand standard procedures. Uniformity in procedures led to the avoidance of "overlapping decisions" and the whole process of decision-making became more transparent and easier. Prior to implementing the quality assurance system, decisions and results of a process varied depending on the persons and units doing the job. With the standard procedures, the process of decision-making was made clearer.

Awareness of quality assurance by the customers

'Quality' became the focus of all aspects of INTAN's training delivery to its customers. The objective and the policy outlined in the Quality Manual stated

INTAN's commitment to quality. INTAN's customers were assured that all INTAN staff conformed to the quality procedures and the work instructions and ensured that the quality of the products delivered to the customers. The adherence to the ISO 9001 process elements such as 4.10 (inspection and testing), 4.12 (status of inspection and testing) and 4.14 (corrective and preventive action) provided evidence of quality assurance practiced by INTAN.

Well maintained records

ISO 9001 Elements 4.16 (Control of quality records) acted as a guide for INTAN to ensure that all records pertaining to the process were well documented and maintained. In each section/units, a record officer was put in charge of all records, be they in hard copy or electronic files. Proper filing system became necessary since the evidence of conformity to the procedures was identified through records. If records were not properly maintained, difficulties in proving that the work was done according to the procedures would arise, and if there was any discrepancies in the products delivered, it would be difficult to trace what went wrong. Through the documented procedure on records keeping, INTAN's system became more efficient and transparent and helped the senior officials to manage the organization more systematically.

One of INTAN's quality objectives was to secure "zero complaints" from the customers. In cases where the customers were dissatisfied with the service rendered by INTAN, the customers were given the opportunity to evaluate the service and pinpoint deficiencies. This made the system more transparent to the customers.

PROBLEMS ENCOUNTERED

There were times when the management had to face some constraints.

Time

The time frame decided by the Steering Committee was about one year. INTAN started the process in March 1996 and received its certification in March 1997. The implementation of ISO 9000 had to be done concurrently with INTAN's training and research activities to meet the target date.

Workload

Workload was the greatest barrier, next to the resistance from staff. Since INTAN's regular training programme had to continue undisturbed, much of the

ISO 9000 implementation work had to be carried out after office hours, placing considerable stress on officers and support staff.

Lack of knowledge

Since INTAN was a pioneer in applying ISO 9000 in the public sector its management and staff on Steering and Working Committees lacked knowledge of ISO 9000. Not only did they need training but other staff also had to be trained on how to use the procedures.

Resistance from staff and officers

Since ISO 9000 meant review and objective performance audits a few officers and staff rejected the change process and at times created problems in the implementation process. However, initial resistance reduced as commitment of other staff members to the document process increased and gained momentum. The personal commitment, support and motivation by the Director contributed considerably to reducing staff resistance.

Commitment by the staff

When INTAN initiated the implementation process the commitment of staff towards ISO was not clearly evident. This was because in the initial stage, only a small group was involved in the preparation of the documentation. Commitment started increasing from August 1996 when SIRIM came for its Adequacy Audit and staff could see achievements being made.

Budget allocation

At the initial stage, especially during the preparation of the first and second draft of the documentation, considerable amount of funds had to be allocated to the implementation of ISO 9000. The extra expenditures were needed for hiring the consultant and for and for sending staff for training. However, the management saw ISO 9000 as an investment in INTAN's future so it allocated the necessary financial resources.

IMPLEMENTING THE TWENTY ELEMENTS OF ISO 9001

This section provides a detailed description of INTAN's experience in implementing the 20 elements of ISO 9001

Quality policy and system (ISO 9001 4.1 and 4.2)

The quality policy was developed from INTAN's existing policy and was adjusted to suite the requirements of ISO 9001. The Quality Policy of INTAN is 'To develop the potential of human resources in the Public Service towards excellence through training'. This quality policy caters the requirements for:

- Clear objective;
- Commitment to quality;
- Customers satisfaction

In meeting the requirements of its quality policy, total re-engineering of the organizational structure of INTAN was not required. However, some staff were redeployed and put in charge of monitoring the quality of the overall system, the quality documents and records as well as to conduct internal audits.

To ensure the quality and the effectiveness of the system, a committee known as The Management Review Committee was appointed. This committee, comprising the heads of the departments, met at least twice a year to review the system. The Director of INTAN, who was the chairman of the committee, led the discussions on matters presented by the Management Representative through a written report. The Management Representative is a senior official in charge of the Quality Assurance. In INTAN this is the Deputy Director of Quality Programmes. The report covered:

a) Achievement of INTAN's quality objective;
b) Customers complaints;
c) Improvement of the system;
d) Corrective action taken to overcome the non-conformances identified by the auditors during the audit session; and
e) Internal quality audit report.

To assist the Management Representative in assuring the quality system and also to adhere to the requirements of the standard ISO 9000 Element 4.17, a group of staff was appointed as Internal Auditors. These officers were then trained by INTAN's consultant. A team of 27 trained auditors conducted the audits with the objective of ensuring compliance to the documented procedures and also to the requirements of ISO 9000 elements. The output of the audits became part of reports presented and discussed at the Management Review Meeting.

Because INTAN had set measurable quality objectives, fulfillment of these objectives became a mechanism for measuring the effectiveness of the quality system. The quality objectives of INTAN focus on ensuring:

a) Zero complaints from the customers;

b) Completion of a minimum of 80 percent of the total course planned for the year;

c) An overall minimum score of 5 points on a scale of 1 to 7 obtained by each completed course.

In preparing the quality policy and the quality manual, a group of top and middle management were consulted for their ideas. However, the process of documenting the quality procedures included not only the top and middle managers, but also the lower staff who were more familiar with the work process since they were the owners of the procedures. Their contribution to the process in fact helped them to understand their work process better and at the same time helped the process of documenting the quality procedures.

Contract review requirements (ISO 9001 4.3)

This ISO section primarily deals with issuance of contracts before the process of planning and design to deliver the products commences. Planning and design of INTAN's training depends on two sources: the requirements of the Government of Malaysia, which are conveyed through circulars and memoranda, and contracts with international organizations such as the Commonwealth Secretariat. Once these are received, INTAN prepares an Annual Project Book that consists of a list of courses/programme offered by INTAN in-line with the needs of the customers and also the requirements of the stakeholders.

INTAN's direct clients are civil service officers and international participants. INTAN considers a contract to be in force only when its clients have agreed to attend a course offered by INTAN. Assurance of the quality of the course provided by INTAN and the satisfaction of those attending the course is considered as a contract between INTAN and its clients. These assurances are stated in the quality objective as well as in the Client's Charter.

Product design requirements (ISO 9001 4.4)

There are three types of courses conducted by INTAN: Generic, Standard and Modified. Planning and designing is involved for only new programmes or courses that have never been offered before by INTAN. The process of designing a new course comprises the following procedures:

a) The new course is identified from various sources such as the directives from the government to conduct training on a new topic or requests from the international organization for a new programme;

b) A curriculum paper that provides the title of the course, the course content and the structure of the course is prepared for review by the Curriculum Committee;

c) After getting the approval from the Curriculum Committee, the module is then tested through a “dry-run” in the presence of an appointed expert panel who verify the course package;

d) The first course is conducted to validate the programme. A selected group of participants is involved. An analysis is made based on the evaluation made by the participants. The analysis determines whether the course package is suitable.

e) If the course package is found suitable, the course is then included in the Annual Project Book.

The quality of the planning and designing of an INTAN course is ensured through agreed criteria. A course would only be accepted as an INTAN training course if it passes the process of verification and validation. To ensure impartiality, the panel of experts and the participants involved in the verification and validation processes are chosen from outside INTAN.

The opinions and evaluation of the trainees on the newly designed training course is of great importance. Thus the involvement of INTAN’s clients starts when the first course is conducted for the purpose of validation. If deficiencies are identified by the clients in the training course, INTAN ensures that these are corrected before the next course. This is a continuous process with adjustments and improvements made at the end of each course.

Document and data control (ISO 9001 4.5)

In order to control the quality system documents and data, a set of procedures were developed. These are described below:

Developing a quality system document

When a new quality system document is developed, it has to go through a process of document review by a group of staff who are the owners of the procedure as they have to use and apply the procedures in their day to day work. A committee led by the Management Representative then reviews the document, as well as, the comments of the procedure owners and changes made to reflect their views before approving it. The document is then forwarded to the Director

for his approval. Once the Director has approved the document a list of recipients is prepared. The documents are then marked as "Controlled Document" and are ready for distribution.

Distribution of documents

The documents are distributed to the officers/staff as approved by the Director. The distribution is made according to the copy number stated on the main list. Both the main list and the copy number on the document must tally. Since it is a controlled copy, the number of copies being distributed is limited to only those concerned.

Amendments to documents

If there are any amendments to the documents, the process involves approval from a committee, which decides whether the amendments are suitable. The Management Representative reviews the proposal before the documents are forwarded to the committee for approval. After obtaining the approval, the documents are amended by an authorized person appointed by the Director as a Document Control Officer. The obsolete document is recalled or those that possess a copy are instructed to destroy it and replace it by the current copy.

The document control procedures have become easier with computerization at INTAN and the development of INTAN's Local Area Network. INTAN uses "Network Nieghbourhood" software and the Local Area Network is set up in such a way that anybody in INTAN can access the quality documents, but as "read only". This saves INTAN from wasting paper (hard-copy). Amendments to the Control Documents can only be done from the terminal controlled by the document officer.

Purchasing requirements (ISO 9001 4.6)

To ensure that purchased products meet all the requirements, INTAN developed specific and documented procedures. INTAN's ISO 9001 certification only covers the purchase of services of lecturers invited to assist INTAN conducting its training. The process of selecting the invited speakers/lecturers involves acquiring curriculum vitae from the potential lecturers. Information from the CV helps INTAN to identify the right speakers for the right subjects.

An evaluation by the participants on the performance of the speakers is made during the course. If a lecturer obtains a score below 5 on a scale of 1 to 7 where 7 is the highest score, then that particular speaker is not included in the

INTAN's Bank of Lecturers (sub-contractors). The lecturers whose scores are above 5 are registered in the Bank of Lecturers. They are invited again for future courses.

The performance of the invited speakers is documented in the 'bank' and is up-dated regularly to ensure quality. INTAN's clients play a crucial role in determining whether a speaker is capable of giving good service to them. This system ensures client-based quality assurance. If a particular lecturer fails to satisfy the clients, then INTAN finds a substitute. These practices have greatly improved the quality of INTAN's training courses.

As a government agency, INTAN is subject to the standard financial regulation and procedures set by the Treasury Department. Therefore a standard purchase order form designed for the purpose of procurement of products or services is used. Details on the form include the type and name of the product, price per unit, the amount required and the date the product or service must be delivered on. Basically, the purchase order is prepared and sent to the sub-contractor prior to the date of the delivery. After the delivery of the products or services, INTAN verifies whether the products or services were delivered according to the specified requirements. The verification also takes into account the quality of the products or services. In case of any discrepancies in the products or services delivered and the specified requirements, INTAN informs the sub-contractor concerned and asks for remedial action.

Control of customer supplied products (ISO 9001 4.7)

Generally the development of INTAN's training activities does not involve specific submission of client's requirements. Therefore there is no necessity for INTAN to develop a procedure on how to ensure that the requirements are noted and taken into account in the design and development phase.

Product identification and traceability (ISO 9001 4.8)

INTAN's products are its training programmes. For the purpose of identification and traceability of the various training programmes, a procedure was developed and is followed. Each programme is given an identification code number. The list of codes is controlled by the Document Officer to avoid overlapping codes. All certificates of attendance issued to the participants are also numbered according to the given programme code number.

Process control (ISO 9001 4.9)

Procedures in compliance with ISO 9001 Clause 4.9 were developed to plan, monitor and control the development of INTAN's training courses. The procedure to conduct a Standard Generic Course for INTAN is divided into three stages, preparations before the course, during the course and after the course.

Preparation before the course

In order to conduct a course which is not planned but requested by an agency, after receiving the request from the customer and reviewing the needs of the customer, the officer concerned instructs the course secretary to register the application and open a file to that effect. The officer fills the "Request Form", which states the details of the course as required by the customer and forwards it to the Deputy Director.

The officer further discusses the details of the course with the customer including the date, course content, topics, participants, place, expenses and other matters. These details are written on the "Summary Form" and submitted to the Deputy Director.

Upon approval by the Deputy Director, the officer sends the course "Offer Letter" to the agency/participants. Upon instructions by the officer, the course secretary makes bookings for facilities and equipment based on the "Facilities and Equipment Reservation Form", which includes requirements for lecture rooms, refreshments and accommodation. This booking is made through the SPI computer system. Other bookings are made through the Administration Unit.

Preparation of course materials is based on the "Course Materials Checklist Form". Course materials include folders, notes, registration and evaluation forms and other materials. All these materials are incorporated in the folders before the commencement of the course.

One to three days prior to the course, the course secretary checks the readiness of the facilities and equipment required. If these have not been provided, the secretary informs the Administration Unit for correction. The course secretary also prepares the final list of the participants after receiving the confirmation letters.

During the course

On the first day of the course, the course secretary attends to the registration. She/he collects the registration forms, registration fees and

distributes the daily attendance list. An introductory briefing is conducted by the officer. Based on 80 percent attendance, the officer instructs the course secretary to prepare the list of certificate recipients and certificates.

At the end of the course, the course secretary collects the evaluation forms and ascertains the correctness of its numbers and the relevancy of their comments. These forms are submitted to the Corporate Unit for scanning and printing of evaluation.

After the course

The officer reviews the computer printout report received from the Corporate Unit and determines the strengths and weaknesses of the course before preparing the "Course Reporting Format" and submitting it to the Deputy Director. The Deputy Director reviews the report to ascertain that no aspect had a score of 4.0 and below on a scale of 1 to 7 where 7 is the highest score. If an aspect of the course is rated below 4, the Deputy identifies the reasons and ensures that corrective action is undertaken.

Process personnel and equipment records

Personnel and equipment records pertaining to the work process were developed and are maintained by INTAN to ensure that work is done properly and monitored effectively. Records of invited trainers are also maintained. The use of the equipment such as the audio-visual equipment, the folders, hand-outs, stationary is also recorded for evidence of issuance. Maintenance of the equipment is also monitored regularly and recorded.

All the records mentioned above are documented either in the "Network Neighborhood" system for easy assessment by the staff, or recorded manually in registration books.

Inspection and testing (ISO 9001 4.10) and the status of inspection and testing (ISO 9001 4.12)

INTAN's procedures of inspection, testing and verification of products were developed for three stages, namely incoming (inputs), in-process, and final products (outputs).

Incoming (inputs)

The application forms and letters from the applicants are checked for any non-compliance to the requirements of the course. The application passes through a process of selection to ensure that the right candidate is selected to attend the course. The forms are also checked to ensure that they are complete. Successful applicants are notified by letters or phone.

In-process

During the running of the course, the inspection and testing involves inspection of the equipment used for training, including the folders and hand-outs. A standard checklist acts as a tool in ensuring that all requirements needed to conduct the course are in place.

Final products (output)

The certificates of attendance are checked prior to the delivery to the clients to ensure that the clients get the right certificate. A list of the recipients of the certificates is maintained and documented together with the list of attendance. The evaluation made on the overall performance of the course by the clients (participants) is also a part of inspection status and the evaluation forms filled by the customers are analyzed for the strengths and weaknesses of the course.

Control of inspection, measuring and test equipment (ISO 9001 4.11)

INTAN's products are its training programmes which do not require any process involving equipment to be tested and calibrated for its accuracy in reading. Therefore element 4.11 is not relevant and is not included in the quality system. However, there will be in future the need to have this element included when the scope of registration for INTAN ISO 9001 is extended to programmes, which involve calibration of the examination package.

Control of non-conforming product (ISO 9001 4.13) and how they are corrected (ISO 9001 4.14)

There may be instances, at the three stages of inspection and testing, where non-conformities are identified. For example, incomplete application forms are rejected. The non-functioning equipment is sent for repair or replacement. The invited speakers who score less than 5 are not registered in the INTAN's Bank of Invited Speakers. Some of the non-conformities can be corrected immediately

while others take time to correct. Thus the period taken to correct the non-conformities varies according to the complexity of the non-conformance.

Handling, storage and delivery (ISO 9001 4.15)

This element is very much applicable to INTAN's training process. The products used for training such as the equipment, hand-outs and folders, requires proper handling to ensure that there is no deterioration in the quality of the products. These products require a proper storage system. Therefore, INTAN developed a procedure on storage whereby requisition forms need to be filled up and approved prior to the issuing of the products from the store. All hand-outs and other training packages/materials are delivered to the clients in a folder upon registration.

Control of quality records (ISO 9001 4.16)

This element requires an organization to keep all quality records. These records can include such mundane matters as minutes of meetings to quantitative records such as the evaluation of non-conformances and the corrective and preventive actions that were taken. All information that an organization regularly needs must be built into the design of the system and be made a part of the quality record system.

In INTAN quality records are developed and maintained as and when needed. INTAN runs two types of records systems. One is the on-line system whereby the information on quality is available to all those who are authorized to access it. This includes, for example, the data bank, which consists of the list of qualified invited speakers. If anyone would like to run through the list, all they have to do is to access it through the "Network Neighborhood". The other records, which run on a similar system, provide the details of the weekly programmes conducted by INTAN and are monitored by the Public Relation Officer.

Hard copy quality records on the training packages, lesson plans, application letters from agencies, proposals to conduct courses, checklists, lists of attendance and lists of certificate receivers etc. are kept in various files in the relevant units and sections of INTAN. The responsibilities of the maintaining of these records are shared among the sections i.e. each section/unit would look after their own files and are answerable to the auditors. All records, whether in hard copy or in electronic format, are subject to a minimum retention period of 5 years.

The Internal quality audit (ISO 9001 4.17)

The procedure for conducting internal audit comprises four basic processes:

a) Planning of sources involved in the audit exercise;

b) Execution of the audits;

c) Reporting the findings of the internal quality audits; and

d) Taking corrective/preventive action on the non-conformance identified.

The internal quality audits are scheduled for a minimum 4 times a year. There are 27 trained auditors at INTAN and some of them have obtained a certificate for Lead Assessor ISO 9000. At present, INTAN runs 32 procedures. The audit team goes to the various sections to verify the effectiveness of the system. The auditors focus on the compliance to the documented procedures and also the requirements of ISO 9000.

Prior to the exercise, the auditors familiarize themselves with the section heads and set-up and the procedures related to the audit. The auditors then prepare the necessary tools for conducting the audits.

Records are the key targets of the auditors since records are the prime evidence of compliance. Therefore during the session, auditors request the files and check them against the documented procedures. If there is any non-conformance in the procedures, then a non-conformance report is issued to the auditee. If there is any non-conformance, the auditors determine whether it is a major or minor non-conformance.

Audit reports are prepared based on the findings. Any kind of proposal for improvement is discussed during a Management Review Meeting. All audit reports become the input for the meeting.

Training requirements (ISO 9001 4.18)

Training needs of INTAN's staff are identified through a documented training needs analysis maintained by the Corporate Officer. The Corporate Officer searches for information on trainings offered by either private consultants or other government agencies. He then matches them with the requests and proposals coming from the other sections in INTAN. In addition, officers and staff can find suitable courses which they are interested in attending, and submit the proposals to the management for approval.

All new INTAN staff is also given a half-day briefing on the quality system. After 3 years of ISO certification everyone at INTAN is familiar with the quality system. From time to time informal training is also conducted, through which staff can learn about the system at any time as they come across a problem.

Servicing requirements (ISO 9001 4.19)

Even though INTAN is customer oriented, INTAN does not cater for after sales service unless specifically required by the customer. This has happened in some programmes conducted by INAN such as the MS ISO 9000 workshop, the Internal Quality Audit Workshop and Quality Control Circle Workshop.

Statistical techniques (ISO 9001 4.20)

As a mechanism to indicate and verify the quality of products and processes, INTAN uses normal statistical techniques such as the histogram, bar graph and pie chart to monitor performance of INTAN's programmes. The computer programme used for this purpose is called Statistical Process Of Social Science (SPSS). The evaluation forms acquired from the participants are submitted to the officer in charge of keying-in the data into the system. A report is compiled and documented.

OWNERSHIP OF THE QUALITY SYSTEM

The responsibility to vet and maintain INTAN MS ISO 9000 quality system standard is entrusted to the Deputy Director of Quality Program who also acts as the Management Representative. Even though during the early process, the work groups comprising of representatives from all programs prepared the documentation, after being certified the job is left entirely to Quality Program.

CONTINUOUS IMPROVEMENT AND EXPANSION OF SCOPE

One of the conditions set by SIRIM for renewing INTAN's certification is to have continuous improvement. To achieve this, INTAN has undertaken several quality improvements in its documentation such as providing officers unhindered and immediate access to the quality system through the Network Neighborhood in their computers. In addition, INTAN is expanding its scope by extending the implementation of ISO 9001 to the Domestic Division.

CONCLUSION

Implementing MS ISO 9000 was time consuming and required sustained effort. A balance between the desire to re-engineer the entire organization and implement the systems on time had to be maintained. INTAN's experience suggests that:

a) An organization should implement MS ISO 9000 to improve its operating efficiency and effectiveness and not for mere certification.

b) There is an absolute need for the top and middle-level managers to understand and be committed to ISO 9000, and help in its implementation by ensuring that other officers and staff understand ISO 9000.

c) An organization should choose the preferred implementation strategy before defining the scope of registration and ensure that the core business of the organization is included in the scope of registration.

d) The CEO and the second level managers must be able to manage change by allaying fears that ISO 9000 stifles creativity and flexibility.

e) There must be a systematic integration of interfaces with those who can provide input into the design of a product or service from outside the organization and more integration of structures, procedures, processes and management responsibilities within the organization.

f) Organizations should not take too much time to put the quality assurance model in place and yet not rush through without the staff really understanding what ISO 9000 is all about.

PART 3: EXPERIENCE OF THE KUANTAN MUNICIPAL COUNCIL IN THE APPLICATION OF ISO 9000*

* This case-study was prepared by Dr. Mohd. Zin, Head of the Local Government Unit, National Institute of Public Administration of Malaysia (INTAN) and Mr. Abdullah Shukor of the Total Quality Management Section, Kuantan Municipal Council, Pahang, Malaysia.

INTRODUCTION

Malaysia is a Federation of thirteen states. It has three-tier system of government: Federal or Central government, State governments and Local governments. Each level has its own specific powers. The Federal Constitution forms the basis of division of powers for the Federal and State Governments. Based on the Constitution, local government administration falls under the state jurisdiction. As a decentralized corporate body, local government management system and authority, derives its power from three major acts – the Local Government Act of 1976 (Act 171), the Town and Country Planning Act of 1976 (Act 172) and the Street, Drainage and Building Act of 1974 (Act 133). These Acts provide local governments with vast powers, scope and responsibilities in discharging their functions as the main grass-root organizations, which are closest to the urban communities.

FUNCTIONS AND TYPES LOCAL GOVERNMENT SYSTEMS IN MALAYSIA

In the era of globalization, local governments play a crucial role in the development of a nation. While their traditional functions of system maintenance such as ensuring urban cleanliness, collecting garbage and development control are still very important, some local governments are moving towards assuming a more developmental role–as a catalyst, facilitator and promoter of local economic growth. This trend is noticeable in Malaysia. Many administrative reforms, which are initiated at the central level are now being pursued actively at local level in order to make local authorities more receptive to the people's needs as well as becoming more attractive to both domestic and international investors. Basically, the specific functions of local governments will vary according to scope and size of the local governments. Briefly, the current functions of the local authorities are as follows:

- Provider of urban services and facilities;
- The authority in local planning and development control;
- Regulator of public cleanliness and health;
- Local collector of property tax or assessment rates;
- Facilitator of socio-economic development;

- Protector of urban environment; and
- Catalyst of local economic growth.

Given their extensive responsibilities, local governments in Malaysia are not only instrumental in shaping the landscape of the urban environment but also assume a pivotal role in socio-economic engineering of the Malaysian society. Table 6 shows the distribution of local governments in Malaysia by types.

Table 3: Distribution of local governments in Malaysia Breakdown by Types

	City	Municipal Council	District Council
Peninsular Malaysia	3	19	75
Sabah	1	2	19
Sarawak	2	3	20
W.P. Labuan		1	
Total	6	25	114

Note: This figure excludes other special local authorities such as Pasir Gudang Corporation, Kulim High Tech Corporation, Putra Jaya Corporation and other agencies. These agencies are established by the authorities to manage certain development areas and given responsibilities similar to local authorities.

Source: MHLG (1999) Statistics on the Ministry of Housing and Local Government.

In order to strengthen the local government system in Malaysia, the government has embarked a series of administrative reforms over the past few decades. The first major reform was undertaken through the enactment of the Local Government Act, 1976 (Act 171). This act was based on the recommendations of the Athi Nahappan Report of 1970 and led to the restructuring of local government system and the consolidation of the several hundred existing local authorities to a mere 145. Prior to this restructing, there were 12 categories of local governments. Under the Local Government Act these were consolidated into city, municipal and district councils.

Kuantan Muncipal Council (KMC) used to be a dsitrict council but was upgraded to a municipal status later. Given the importance of Kuantan in the state and regional development context of Peninsular Malaysia, efforts are being made to upgrade KMC to the status of a city. The elevation would enable Kuantan to play a much bigger and more effective role in national development.

A BRIEF HISTORY OF KUANTAN TOWN AND THE KUANTAN MUNICIPAL COUNCIL

Like any urban settlement in the world, the town of Kuantan grew from a small river settlement in 1850s. In the early part of its development, Kuantan was known as Kampung Terumtum. Some people believe Kuantan got its name from a group of settlers who came from a remote district of Kuantan in Sumatra and decided to settle down in the north of Kampung Teruntum in 1854. With the opening of tin-mining operations in Sungai Lembing and Gambang in the 1880s, there was an influx of Chinese workers who were encouraged by the British to come to work in the tin-mining sector. The in migration of the Chinese as well as Malays to work in tin mining had a great impact of the development of Kuantan as it resulted in rapid expansion. While the Chinese preferred to reside in the town centre, the Malays opened new settlements around Kuantan such as in Tanjung Api, Beserah, Tanjung Lumpur and Tanah.

Kuantan had become a sizable town in the early 1950s and the State Government at the time moved the state capital of Pahang from Kuala Lipis to Kuantan on 27 August 1955. Long before it became state capital, Kuantan had a small local authority to oversee the development of the urban area.

Local government administration in Kuantan was initiated on 1 August 1913 with the establishment of the Kuantan Sanitary Board. The Board was made responsible for controlling cleanliness, health and development. In 1937, the local authority was upgraded to the Kuantan Town Board, and in 1953 it was upgraded again to Kuantan Town Council. Fnally in 1979, Kuantan Town Council was upgraded to the municipal status as recommended by the Athi Nahappan Report. Kuantan remains a municipal council to this day.

At present the area under the jurisdiction of KMC is about 2,058 sq. km covering four ‘mukims’ or sub-districts. Only about one-tenth of the area under its control is being serviced. Based on the 1998 survey data, the total multi-ethnic population size under the KMC’s jurisdiction is 310,000 comprising 63 percent Malays, 31 percent Chinese and the remaining Indians and others.

The main economic activities of Kuantan are in service and manufacturing sectors. As the only local authority in the state capital of Pahang, KMC plays an important role in ensuring that Kuantan effectively serves as the administrative, financial and investment centre of the state. In line with this role, KMC aims to:

a) To support the development and facilitate the public-private sector involvement;

b) To turn Kuantan into a conducive centre for investors;

c) To develop Kuantan into a financial, commercial and retail hub for the region;

d) To mark Kuantan as an important destination on the tourism map; and

e) To develop Kuantan into a green and environmentally sustainable city.

In line with the above goals, KMC has undertaken a number of concrete steps to improve its administrative system in order to provide better and efficient services to the people of Kuantan. As a result of administrative improvement, KMC was awarded the prestigious ISO 9001 certification. It has also earned international recognition as an innovative local authority. It was considered as one of the ten best local authorities in Asia and its work procedures were used as a benchmark for other local authorities in the Asia-Pacific region. KMC also recieived the Prime Minister's Award in 1997. These awards underline KMC's status as one of the most progressive and active local authorities in Malaysia.

OBJECTIVES OF KUANTAN MUNICIPAL COUNCIL

According to its mission statement, which was developed in 1979, KMC intends to turn Kuantan into 'a growth centre which is developed, beautiful, clean and orderly.' To turn this into reality, KMC must ensure that this would-be city becomes a healthy and dynamic city. From administrative and management perspective, KMC has identified five key areas that needed immediate strengthening: finance, urban services, physical development, human resources management and development of information technology in its management.

In this connection, it undertook a regular series of strategic planning exercises to identify its stakeholders and customers. The stress in these exercises was on providing quality services to customers. To further reinforce its commitment to serve the Kuantan community, KMC has formulated its policy on quality, which is "to create an administrative system that is committed to provide efficient urban services to the satisfaction of urban and rural residents, according to approved standards."

ADMINISTRATIVE AREAS OF KUANTAN MUNICIPAL COUNCIL

The total administrative area covered by KMC is about 324 sq.km. This includes sub-districts of Kuala Kuantan, Ulu Kuantan, Beserah and Karang. This administrative area represents only 10 per cent of the Kuantan District, which

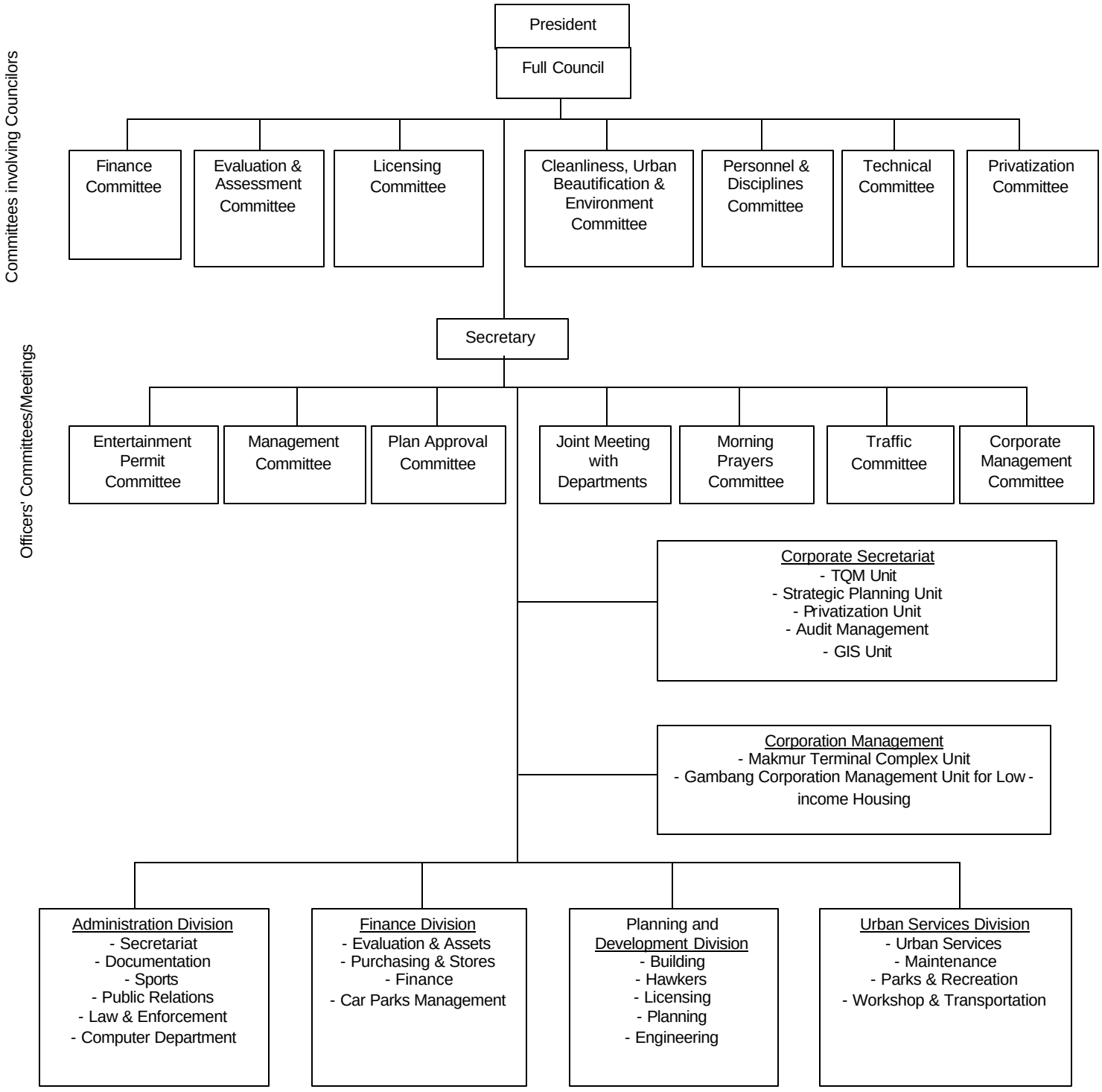
totals to about 2,453 sq.km. Prior to 1979, the area under KMC was only 26 sq.km and basically covered only the town centre. With the upgrading of its status from a local council to a municipal council, a number of smaller local councils such as Gambang District Council, Beserah District Council and Tanjung Lumpur Local Council and their areas of administration were brought under the administration of KMC.

While the total area of 324 sq.km is now the responsibility of KMC, it must be noted only 65 sq.km is considered to be under its areas of operation, i.e. areas which are provided with urban services and hence taxed. The rest is considered as administrative areas whereby KMC exercises development control. Nevertheless, with the rapid development of Kuantan as the regional growth centre for the east coast of Peninsular Malaysia, these areas keep on changing from time to time to suit the socio-economic and political development needs of Kuantan and the demands of its urban community.

THE ORGANIZATIONAL STRUCTURE OF KUANTAN MUNICIPAL COUNCIL

An effective and efficient organization needs a clear and systematic structure backed by good leadership. KMC is headed by a full-time president who serves as the chief executive officer and the chairman of the full board council. The president is appointed by the state government. Among other appointees are 24 councilors who represent the local residents. As of 1998 KMC has a workforce of 1,133 permanent staff, 93 contract employees and 410 temporary workers. The management structure is shown in Figure 6. There are two committee levels, functional departments and divisions. At the first level, headed by councilors, the committee determines respective policy matters before they are presented at the full board meeting for endorsement. At the lower level, KMC officers and staff carry out their duties on processing applications before they are submitted to the respective committees comprising councilors, in level one.

Figure 6: Organizational chart of Kuantan Municipal Council



FINANCE

One of the major challenges facing local authorities in Malaysia is financing maintenance and development efforts for their respective localities. Table 4 shows the financial standing of KMC in the 1990s. It indicates that its main source of revenues is assessment rates. As allowed under the Local Government Act of 1976, revenue from rates can be increased significantly based on a revaluation exercise of the properties, which is normally done every five years. Under the present economic slowdown, such a measure may be considered inappropriate and politicaly insenstive. Like any other local authority in Malaysia, KMC also suffered a dip in revenue collection as a result of the Asian economic crisis. The table also shows that, using the current rates KMC will incur deficits if it were to carry out further aggressive development programs (see fiscal account surplus/deficits). In most instances, KMC had to seek loans or use savings to cover the deficits. Hence, KMC has to explore other forms of revenue to meet its increasing expenditures.

Table 4: Financial status of KMC (1990-1998)]

Current Prices US$ ('000)									
	1990	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**
Revenue									
Taxes	3,361.0	3,228.6	3,809.4	4,277.7	4,927.7	5,168.5	3,718.6	6,755.6	7,362.8
Assessment Rates									
Non Tax Revenue	1,546.9	1,820.3	2,153.4	2,307.6	2,715.7	3,170.5	3,487.6	4,301.6	3,804.1
Grant-in-aid	59.8	342.6	481.9	337.2	409.7	470.2	620.9	592.2	584.3
Total Revenue	4,967.7	5,391.5	6,444.7	6,922.5	8,053.1	8,809.2	9,827.1	11,649.4	11,751.2
Expenditure									
Overhead	4,218.1	4,609.1	6,053.3	6,351.8	7,574.1	9,383.6	11,419.6	10,999.2	11,181.5
Development	1,115.4	718.7	1,660.7	538.1	708.8	1,423.3	670.2	1,127.4	274.3
Total Expenditure	5,333.5	5,327.8	7,713.3	6,889.9	8,282.9	10,806.9	12,090.2	12,126.6	11,455.8
Current Account Surplus/Deficit	749.6	782.4	391.4	570.7	479.0	574.4	(1,592.5)	650.2	569.7
Fiscal Surplus/Deficit	(365.8)	63.7	(1,269.3)	32.6	(229.8)	(848.9)	(2,262.7)	(477.2)	295.4

Source: KMC, Jaya Gading – Gambang Local Plan

MANAGEMENT REFORMS

Under the present leadership of its President and backed by its committed staff, KMC has also launched a series of administrative, as well as, management

reforms to improve its services to the public. Aside from adopting several reforms as put forward by the Management and Manpower Planning Unit (MAMPU) of the Prime Minister's Department, KMC has also taken initiatives to introduce new administrative and management efforts aimed at enhancing its capacity and capabilities. Since the 1980s, KMC has introduced paradigm shifts in its attitude towards the public and in its management. These include introducing an open concept in the layout of the office in which all departments, except the office of the heads of department, are left open to encourage staff cooperation and interaction with customers or clients. It promotes customer-friendly environments and approaches as opposed to the traditional authoritarian and bureaucratic ways of doing things. Some of these management reform initiatives are:

The Radio Malaysia Pahang slot

KMC has started a radio talk show to inform the general public of programmes that are in place in their vicinity and the role of KMC in these programmes. It also provide the residents of Kuantan an opportunity to channel their complaints or suggestions directly to KMC. During the show, KMC staff take note of the complaints and take immediate actions to rectify the problems raised.

The Publication of "Titian" Bulletin, flyers and booklet

Initiated in 1987, the bulletin is produced four times a year, and contains information on public programmes in Kuantan as well as articles that educate and increase public awareness especially on the role of residents in urban cleanliness. The bulletins are distributed free to the people.

Health education programme

This programme is targetted to new holders of business licenses to inform them of their responsibilities, such as:

a) Display their license and price list of goods sold;

b) Renew their license annually;

c) Food handlers must always be clean and hygienic;

d) Effluents froms such entreprises as photo studios should not contain toxic or polluting materials;

e) Any extensions to building must be approved by the authority; and

f) The need to manage solid wastes systematically.

Civic consciousness programmme for school children

KMC has been instilling civic consciousness among school children because it felt that this target group could bring significant results in the long run. KMC officers have conducted many such awareness programmes since 1989. The programmes mainly focus on the need to keep themselves and their environment clean, and on their roles in addressing urban problems. As there are many schools in Kuantan, KMC could not extend this programme to all schools. Instead, it encourages schools to visit KMC for a tour and briefing on urban services and the need for school children to be more civic minded.

Interactions with civil society organizations

Since 1984, KMC conducts a meeting with civil society organizations (CSOs) every three months. The CSOs include associations of housing developers, engineering consultants, architects, the Bar Councils, and the various Chambers of Commerce representing ethnic groups, industrial sectors and media. Through these interest groups, KMC manages to get cooperation and feedback on its services and programmes.

Courses for residents

KMC conducts informative courses aimed at upgrading knowledge and skills of its residents. Topics include landscaping and managing small businesses.

Under a special programme to interact with the people, the President as well as the top management officers visit residential areas to meet, discuss and to listen to issues and complaints under regular ‘meet the people programmes’.

At the same time, the administrative machinery has been tuned towards efficient and effective management. These include systematic filing, standard operating procedures, and work performance indicators. In addition to this, a Client Charter has been introduced and implemented. The number of quality control circles (QCCs) in the organization has increased from only four in 1983 to 33 today. These QCCs have recommended about 180 projects to improve efficiency and have saved about US$4 million thus far.

Privatization and smart public-private partnerships

In line with the current emphasis on the need to involve the private sector in national development, through the “Malaysia Incorporated,” a lot of local government functions or operations are being privatized or contracted out. This privatization exercise has not only helped to relieve the government of financial

burdens but also promoted entrepreneurial development at the local level. KMC has implemented the win-win concept in many aspects of its operation since the mid-1980s. KMC has provided opportunities for the private sector to participate in:

Table 5: Parties in the Kuantan Municipal Council-private sector partnerships

Opportunities	KMC	Private Sector	Examples of Projects/Programmes
Planning process	Preparation of development Plans	- Planning consultants - Engineering consultants - Environmental consultants - Economic consultants	- Kuantan Structure plans - CBD Local Plan - Kuantan Central Area Local Plan - Seberang Kuantan Local Plan - Jaya Gading-Gambang Local Plan
	Planning Control - Preparation of planing evaluation report - Preparation of EIA report - Preparation of related plan for example, hydraulic calculations, landscape plans	- Planning consultants - Surveyors - Engineers - Landscape architects	- Development incentives - Expedite applications - ISO procedures - Organized meetings with HDA consultants and contractors - Publish bulletins
	Development Charges Infrastructure Contribution	- Landowner - Developer - Housing Developer Association (HDA) - Chamber of Commerce and Industry	- Change of land use - Change of building use/activities
Revenue Generation	Privatizing Projects Joint Venture Lease Out Building Social Facilities	- Investors - Developers - Bankers - Small scale entrepreneurs - Contractors - Proprietors - Hawkers - Sport Promoters	- Bus terminal - Commercial and office buildings - Marina - Apartments - Hotels - Hawker centre - Building for industries - Rest house - Sports facilities - Convention centre

Source: Mohammad, S., Roslan, A. and Kuppusamy, S. (2000)

a) The planning process;

b) Revenue generation;

c) Municipal services;

d) Community development; and

e) Event promotion.

The parties that take part in the public-private partnerships with KMC are indicated in Table 5.

KUANTAN MUNICIPAL COUNCIL AND TOTAL QUALITY MANAGEMENT

The Civil Service has a pivotal role in the development of a nation and is instrumental in implementing various government policies. The public also expects professionalism among the civil servants and expects very high quality of service. Aspirations of the nation and the expectations of the public can only be achieved with new and greater emphasis on quality in all aspects of service delivery by the civil service. In order for the entire civil service to move towards such an environment, it needs to embrace a new service-oriented culture that celebrates quality and takes prides in providing effective and efficient service. The aspirations of the government to develop Malaysia into a fully developed country require high standards of services to the public.

The Prime Minster of Malaysia launched a movement towards a culture that is based on quality on the 27 November 1989. This movement was aimed at creating and enhancing quality of public service at all levels of the civil service. In support of this movement, the government introduced a number of circulars aimed at improving the quality and the productivity of the civil service. In all, 26 such circulars were issued. One of the Circulars that had direct relevance to the quality initiatives taken by Kuantan Municipal Council was the circular on guidelines on Total quality Management in the Public Service. This circular mandated all Ministries and Departments to work towards obtaining ISO 9000 certification by the year 2000.

Kuantan Municipal Council as the third tier of the Public Service embarked on a programme to obtain ISO 9000 certification by the year 1997. The planning process started in 1996.

PLANNING TIME LINE FOR ISO 9000

The Kuantan process by which Municipal Council implemented ISO 9000 had four distinct phases. These were:

Phase I: Training to create awareness on ISO 9000

Phase II: Launching and Internalization of ISO 9000 among staff through introductory question and answer sessions.

Phase III: Establishment of a Steering Committee

Phase IV: Documentation for ISO 9000

Phase I

In the first phase five officers from the council were sent for training to obtain certification as "Lead Assessors." These 5 officers served as the key personnel to guide the process of implementing ISO 9000 in the Municipal Council. With lead assessor certification, they were qualified to conduct quality audits.

Phase II

The second phase was launched on the 8 April 1996. The Council showed its seriousness and commitment towards its quality initiatives by inviting the Chief Minister to launch the ISO 9000 programme in the Kuantan Municipal Council. Consultants were then appointed to assist the Municipal Council in obtaining ISO 9000 certification. A series of dialogue sessions were organized by the consultants and it was made compulsory for all senior officers to attend these sessions. At this stage it was very important that every member of the organization understood the principles behind the ISO 9000 programme and their role in ensuring the success of the programme in KMC. Another reason for holding these sessions was to dispel any apprehensions and doubts about the applicability of the system in a public sector organization. Post session evaluation indicated a very high level (90 per cent) of understanding and appreciation of the ISO 9000 system.

Phase III

Once the management was convinced that they had the support of the staff, they set up the Steering Committee to oversee the implementation of the ISO 9000 programme. The Steering Committee was chaired by the Council's Secretary, with 14 senior officers of the Council as its members. This Steering Committee had a broad mandate to ensure that the Council obtained ISO 9000 certification as planned.

Phase IV

During phase four of the process, the documentation of The Quality Policy, Quality Objectives, all the processes, procedures, responsibilities, structures etc were developed. Specifically the following documents were prepared.

- Quality Manual- explains the Quality Policy of the Council and its quality Objectives.
- Procedures- explains the processes involved in implementation of the quality system.
- Work Processes/Directives- explains how tasks are to be performed in the Council.
- Supporting Documents - comprising records, administrative circulars and forms

COMMITMENT TO QUALIT Y

The progress towards obtaining ISO 9000 certification was largely due to the commitment of the management of KMC and due to an administrative system that encouraged and supported quality and productivity.

The Kuantan Municipal Council's success in obtaining ISO 9000 certification was based on careful strategic planning and the will to make Kuantan a model Municipal Council. The seeds for the ISO 9000 certification can be traced back to two strategic planning documents. The first strategic planning document covering the period 1990-1994 focused on making Kuantan a Growth Centre that was planned, clean and beautiful. The key areas for improvement were:

- Financial management,
- Services provision,
- Physical development,
- Manpower management,
- Information system development.

The second strategic planning document for the period 1994- 2000 built on the mission set forth in the first planning document. The focus was still to develop Kuantan as a Growth Centre that was bautiful, clean and planned with all facilities and infrastructure befitting a city that was based on industrial Development, tourism and business.

To ensure that the vision as outlined in the first and second planning documents was achieved, a committee was established to monitor all aspects of

implementation of the plans. In addition, a secretariat was also established within the Kuantan Municipal Council to co-ordinate all the activities under the Strategic Plans.

PRIOR MANAGEMENT PRACTICES

The process towards obtaining ISO 9000 certification was also greatly assisted by some established management practices in the Municipal Council. This included the implementation of "Office Procedure Manual", "Standard Operating Procedure"", "Daily Work Reports" etc. These work procedures had already established workflow processes, achievement and performance targets and standards. Therefore, the migration to ISO, which required process mapping and workflow documentation, was relatively easy.

Apart from office manuals and work-procedures manuals, Kuantan Municipal Council relied on Kuantan Structure Plan that was gazetted in 1994 and detailed planning documents for selected areas. In addition the Municipal Council also produced a "Landscape Characteristic Plan", to guide the Council in implementing "landscape character" for specific areas within the Council's jurisdiction. The Council with the cooperation of the Forest Research Institute also introduced a programme called "Bring Back the Birds" as part of the mandate to make Kuantan a Planned, Clean and Beautiful City.

KUANTAN MUNICIPAL COUNCIL'S ORGANIZATIONAL STRUCTURE FOR QUALITY PERFORMANCE

ISO 9000 implementation was controlled by the Steering Committee headed by the Council President as the Patron and the Council's Secretary as the Chairman. Heads of Divisions and Departments were members of this Steering Committee. To monitor and advise on aspects of the implementation process, eight qualified Lead Auditors were also appointed. These lead auditors were also involved in all aspects of internal audits.

During the implementation phase, the Steering Committee met frequently to discuss findings by both the internal and external auditors and the corrective actions that needed to be taken. The Committee also reviewed all requests to make changes to current work practices and procedures.

The organizational structure of Kuantan Municipal Council was restructured and a few new units were created to ensure proper coordination among the various departments and the delivery of quality services. Departments that had

related functions were placed under the same division to facilitate coordination and control of the activities. In addition, new units were created under the Office of the Council Secretary. The units created include the following:

Total Quality Management Unit

The Total Quality Management Unit was created to implement activities related to total quality management, ISO etc.

Strategic Planning Unit

This unit was created to undertake all aspects related top strategic planning.

Internal Audit Unit

The Internet Audit Unit is responsible for internal audits and also to coordinate external audit activities.

In addition to these units a number of Committees are also actively involved in ensuring quality requirements under ISO 9000 were adhered to. These include the Managers Quality Team at the Division Heads level and the Quality Improvement Circles within each Department. The Managers Quality Team meets every week while the Quality Improvement Circles meet on a monthly basis.

BENEFITS OF THE QUALITY INITIATIVE OF KUANTAN MUNICIPAL COUNCIL

The sum total of all the benefits of the quality initiatives is the overall improvement in the quality, efficiency and effectiveness of the programmes and services by the Municipal Council. During the period 1990-1995, the number of audit queries reduced from 15 to 2. In 1996, KMC received a clean audit report. In 1997, its Quality System was audited by private sector auditors and it was also given a clean report.

In 1997, the 88.59 per cent of customer complaints were resolved. The Council's health, safety and environmental programmes were also well received by the public. Communal cleaning, cleanliness campaigns, planting of shady trees, and fogging were all programmes geared towards maintaining a clean and healthy living environment.

Financial records keeping, currency and retrieval became much more efficient with the computerization initiative. Among the records, important to the public, that were computerized, were the Assessment Tax Records, Rentals of Stalls and Buildings, Licensing, Compounds and Fines. The target was to computerize all record keeping as the Council got more experience and expertise in managing and maintaining computerized records.

The management function was also an important beneficiary of the quality initiative. One of the perennial problems of local authorities is the finalization and tabling of financial accounts. The Council improved record keeping and processes for the preparation of financial statements. With these improvements, monthly financial statements were prepared and tabled at the Council Meetings. For the financial year 1997, the financial statements were prepared well before 30 March 1998 the stipulated date in the Act. In future all financial management functions will be computerized.

Inventory records were also managed with professionalism. The Finance Department managed the Registry of Fixed Assets and all other store records were kept and maintained by the Purchasing and Stores Unit according to the procedures and processes specified by ISO 9000 requirements.

CUSTOMER SATISFACTION

As an organization that had obtained ISO 9000 certification, customer expectation of the quality of services provided by KMC was very high. Every effort was made to meet those needs and provide services that provided maximum satisfaction to the customers. In order to continually provide high quality service, KMC adopted a number of innovative approaches to obtain direct feedback from users of its services. Such feedback provided information about current levels of service, customer's expectations of service levels and also identification of new needs. Some of the approaches taken were:

Local radio programme

KMC obtained a one-hour weekly radio slot every Tuesdays from 9.00-10.00 a.m. The radio programme titled " Kuantan Our city" provided an avenue for the public to communicate their needs directly to the management of KMC. Through this programme, KMC was also able to communicate new programmes and activities planned for the community. This radio programme opened up an additional channel for effective communication between the management and the local community.

Electronic mail

In line with recent developments in information technology, KMC also added an additional channel of communication with the local community. It set up a special e-mail address called complaints@MPK.gov.my to enable and facilitate the flow of feedback, complaints and needs to KMC. With the setting up of the e-mail communication medium, KMC also appointed a staff dedicated to look at the e-mails and letters received on an hourly basis.

Letters/telephones/oral/newspapers

These more traditional forms of obtaining feedback and suggestions were of no less important. The local community was still comfortable with these modes of communication. KMC set a benchmark standard with respect to handling of complaints. All complaints had to be resolved within 7 days or less. The exception was when it involved detailed planning and financial commitments.

The table below illustrates Feedback profile for the years 1996-1998.

Table 6: Feedback profile from 1996 to 1998

No	Media	1996	1997	1998
1	Newspapers	2	-	-
2	Oral	2	-	-
3	Radio	-	39	4
4	Letters	7	1	2
5	Telephone	5	1	-
6	E-mail	-	1	-
	Total	16	42	7

KMC was also mindful of the apathy of most local communities with regards to complaints. Generally, the local communities were reluctant to make a formal complaint. Consumer research had shown that 95 per cent of customers who were dissatisfied did not complaint. The radio program proved to be a very popular source of obtaining feedback.

Dialogues

Apart from seeking individual feedback, KMC also set a mechanism to obtain feedback from interested organizations, business groups and community groups. In 1997 and 1998 a total of 61 dialogues session were held with these interest groups.

Village Development Committees (VDC)

In addition to the above, special mention must be made of the existence of Village Development Committees. These Committees were formed to look into the development needs of village communities. Their needs were passed on to the relevant Municipal Councils for further action. In the case of KMC, it made a special provision for these VDC to submit the minutes of their meetings where their needs and expectations were discussed and documented. Based on these minutes, KMC initiated appropriate actions to resolve them if these came within its jurisdiction and scope of responsibilities.

Surveys

Twice a year, KMC conducts customer surveys in selected areas. These surveys are targeted to obtain feedback from a larger segment of the customer base. Feedback obtained from these surveys is very helpful in providing improved services to the customers.

Counter service

Two types of counter service are provided for the convenience of its customers. One counter is dedicated to payments and the other is set aside for services. All 14 departments provide these two counters. These counters are provided with basic comforts such as comfortable seating, televisions and mineral water. In addition, mobile counters are also made available. These counters move to different areas according to a fixed schedule to enable ratepayers to pay their rates with minimal hassles.

On a normal working day a customer needs to spend only 5 minutes at the payment counter. During peak periods in January and July the maximum period spent is only 30 minutes.

Operational and physical changes alone did not ensure provision of excellent service. The staff manning these service counters attended formal courses relating to handling counter services and dealing with customers. In addition these staff were also trained informally to improve their understanding of the various circulars, departmental regulations and procedural matters to ensure that they provided quick and accurate information to the customers.

PROOF OF EXCELLENT SERVICE

The management of KMC believes that there is always room for improvement in any service it delivers. Therefore, every effort is made to find new ideas and approaches to improve service delivery. Over the years, KMC has succeeded in winning a number of awards that acknowledge the quality of services it provides. These awards include:

- State Level Innovation Award
- National Level Quality Control Circle Award
- ISO certification in 1997
- Local Government Quality Award (1998)
- Prime Minister Quality Award (1998)

In addition, KMC played host to a large number of study visits from government agencies/departments, educational institutions and private sector organizations. These organizations showed keen interest in learning about the factors that contributed KMC success in providing to the high quality and level of services. These visits are evidence of recognition for the high standard of services delivered by KMC.

KMC receives a large number of letters and faxes from its satisfied customers. These letters of appreciation come from individuals as well as private and public sector organizations.

IMPLEMENTATION OF THE TWENTY ELEMENTS OF ISO 9001

This section explains how Kuantan Municipal Council meets the requirements of the twenty elements of ISO 9001.

Quality policy and system (ISO 9001 4.1 and 4.2)

In accordance with the requirements of clause 4.1 and 4.2 of the ISO procedures Kuantan Municipal Council undertakes the following measures.

Management responsibility (ISO 9001 4.1)

The management of Kuantan Municipal Council takes direct responsibility for ensuring that services provided are of a high quality, efficient and effective. The

quality standards and quality objectives are documented in the Quality Manual of KMC.

The Management ensures that all officers are aware of the quality policy and objectives of KMC. It undertakes a comprehensive audit to ensure that the quality system is evaluated and strengthened in KMC. All new officers are required to undergo training to ensure that they understand and appreciate the Quality Policy and Quality Objectives and the commitment to quality in KMC. It is the responsibility of the Training Office to ensure that this training takes place within two weeks of the new employee reporting for work in KMC.

Appointment of Management Representative (ISO 9001 4.1.2)

The Quality Officer who reports to the Secretary of the Council is appointed as the Management Representative. As the Management Representative he is responsible for the establishment, implementation and maintenance of the Quality System in KMC. He is also responsible for the identifying problems encountered and taking remedial or corrective actions with regards to these problems. The Quality Department in KMC is responsible for the evaluation and strengthening of the Quality System in KMC.

Organizing the structure for quality systems (ISO 9001 4.1.2)

The organizational structure clearly identifies the unit in KMC that is responsible for the implementation of the quality system and is included in the Quality Manual. The duties and responsibilities of officers who are responsible for the quality of services provided are also clearly identified and documented. The Quality Officer who reports to the secretary of the council is responsible for the quality system in KMC.

Review of the quality system (ISO 9001 4.1.3)

While there is on going evaluation of the quality system in KMC, the Quality Manual provides for formal evaluation of the quality system in place. This review takes place twice a year and is chaired by the President of the Council or the Secretary to the Council. All the heads of departments/divisions and units that have the responsibility for the quality system and its implementation in KMC attend the review meeting. The agenda for the meeting and the format for the review are documented in the Quality Procedures.

The quality system (ISO 9001 4.2)

The Quality System of Kuantan Municipal Council contains all the processes and procedures that contribute to achievement of the Quality Policy and Quality

Objectives of KMC. The Quality System Manual is the under the control of the President and the Secretary to the Municipal Council. The Quality System in KMC incorporates the following elements:

- The ISO 9001 Quality Manual
- Quality Procedures of the Council
- Procedures of the Divisions/Department/units
- Registered Local Procedures
- Internal Audit Schemes
- Process for Corrective action
- Concessions
- Audit by Accredited Agency
- Training on the Quality System ISO 9000:1994 for all staff
- Internal and external communication system for the purpose of promoting and publicizing the cause of quality
- Quality Award
- Work Procedures/Responsibility Guides
- Work Standards

The Quality Officer reports directly to the President or the Secretary of the Council on all matters pertaining to the Quality System. The Quality Review Meetings take place twice a year.

<u>The procedures to ensure quality (sub Clause 4.2.2)</u>

In order to ensure that all the procedures are geared towards achieving the Quality Policy and Objectives of the Council, the Quality System ensures that the following activities are carried out:

- Preparing and maintaining manual for quality planning and quality control
- Identifying and monitoring all processes, equipment, resources and the skills needed to ensure quality service.

- Updating the system of quality controls, if necessary
- Clarifying standards that are acceptable for all application and needs
- Determining the suitability and acceptability of the processes leading to the delivery of services, production, installation, inspection and testing procedures and related documents
- Identifying and preparing quality records.

The ISO 9001:1994 Quality System in place in the Council contains four levels of documentation. These are:

- The Kuantan Municipal Council Quality Manual
- Manual on Quality Processes and Operations of the Council/Divisions/Departments/Units
- Manual on Work Processes and Work Responsibilities
- Manual on Documentation of Records

Contract review requirements (ISO 9001 4.3)

The responsibility to review the contract as required by Clause 4.3 lies with the Heads of Divisions in KMC that are directly involved in the delivery of services. Contract documents that specify the conditions and standards of the services delivered are reviewed once a year. The review is carried out to ensure that the services provided are still relevant and meet the needs of the customers. This review process is thorough and involves looking at all aspects of the existing contract. KMC takes a stringent approach to the review process because it is this process that provides the initial and continuing link between KMC and its customers. In reviewing contracts KMC looks into the following matters:

- Reviewing contract specifications to determine whether they are well defined and documented.
- Taking into account the conditions and standards that can be improved and are appropriate to the type of service provided.
- Ensuring that the charges for the services provided are at the agreed rates and follow procedures on the establishment of the rates.

- Checking whether any deviation from the tender documents have been rectified

- Accessing the capability and capacity of Kuantan Municipal Council to fulfill the conditions of the contract.

The Kuantan Municipal Council keeps all records of this review process as provided for in the procedures.

Delivery of new services

The Departments that have direct dealings with the public are expected to design and deliver new services that may be needed by the customers. All new services that are to be introduced by KMC are thoroughly analyzed. Market surveys are undertaken and feedback obtained from customers. Feedback is obtained from letters to the newspapers, written complaints, radio programmes and oral feedback. Feedback is also obtained from the regular meetings with representatives from the business community, the Village Development Committees and sometimes also through the elected representatives in the area. In addition to this feedback on the new needs of its customers, the KMC's ability to deliver these new services is also analyzed keeping in view KMC's human and financial resources. New services are not made available to the general public unless at least two trial runs are carried out for three months. During the trial runs if the service delivery is found to meet all the quality and efficiency criteria then it is provided to the general public. The delivery of new services also has to be sanctioned by the Board of Councilors

On certain occasions the Kuantan Municipal Council gives out contracts that are designed to provide some special services. These services are those that are not within the scope of current services. If there is a demand for these services a similar review process is undertaken. These special service contracts are reviewed after 6 months of implementation to ensure that changes can be made during the annual contract review process.

Contracts for special projects

These contracts are defined as services needed for one customer or class of customers. Here the involvement of the client is total. There is direct discussion with the client with regards to the service that he/she needs. The specifications and the standards are all agreed with the client. In addition, KMC's ability to deliver this service is also a paramount consideration before final agreement is reached. Once specifications and service delivery levels are reached and all

relevant KMC departments agree to the cost of providing the service, the client is given a quote. Once the client accepts the quote, the service is provided.

Information to the clients

The various Departments inform clients at least one month ahead of the conditions, amendments and prices for the services. If the clients agree to the changes, all they have to do is to sign the original/amended contract and return it to KMC. The above procedure for the contract review is defined and documented in the Quality Manual.

It is important to note that there are two classes of clients that are addressed here. The ultimate users of these services are the citizens within the jurisdiction of KMC. The needs of this client group are fulfilled by KMC through the engagement of service providers. These service providers the second class of clients and are very much involved in the contract review process. However, as the ultimate users of these services are the residents of Kuantan, KMC makes use of the extensive feedback systems it has put in place.

Product design requirements (ISO 9001 4.4)

The product/service design requirements of Clause 4.4 are closely followed. The design of a new product/ service must satisfy the criteria below:

- It must result in an improvement in performance/or lead to a reduction in the cost of service presently offered.
- It must incorporate specifications that are better than current service specifications
- KMC must be able to support the delivery of the service from its inception, taking into account the logistical and technical capability of KMC.

Design of products and services in Kuantan Municipal Council

As per the requirements of product/service design, all inputs are identified and documented. At this stage, KMC takes the opportunity to once again clarify the needs of the customers and if there are any conflicting issues with regards to needs and standards these are referred to the relevant units/departments that drafted the needs and standards.

Design outputs

KMC ensures that the output from the design process fulfills the following criteria:

- Appropriate to the various inputs
- Refers to or incorporates the various criteria established in the requirements for a product/service established above
- Conforms to all regulatory requirements
- Contains design characteristics that are essential for the effectiveness of the product/service

Design validity

Once the design is ready, it is validated for conformance to standards and effectiveness. As part of this validation process the following activities are undertaken by KMC:

- Recording and documenting all review activities
- Conducting demonstration and trial runs of the services
- Based on the results of the trial runs, searching for alternatives (if required)
- Comparing the new service with current service

Document and data control (ISO 9001 4.5)

Kuantan Municipal Council has established specific rules and regulations for the control of documents and data that are kept by KMC in compliance with clause 4.5. Current issues of the documents are kept at locations where the related processes are carried out. All outdated documents are removed from circulation.

Document control

All documents that are generated under the Quality System are registered, issued, controlled and circulated by the Quality Unit. Control of the documents is at two levels. At the Council level the following documents are kept:

- Quality Manual

- Quality Procedures
- Complete Document Record

At the department level the following documents are kept:

- Department Quality Procedures
- Guidelines on Work Instructions and Work Tasks
- Local Procedures
- Complete Document Records

In addition each department prepares and maintains a Department Operational Procedures Manual. The procedures for the preparation and design of these manuals also follow the format of the Quality Manual of the Council. This is to ensure that there is uniformity in the terminology and it is much easier for the Quality Unit to monitor and control their issuance and circulation.

In addition to the above documents each department prepares additional documents under the Quality System to reflect their unique operations. These documents include the various forms that are in use, drawings and technical plans, guidelines on work instructions and other local procedures. These documents are also subject to approval and registration by the Quality Unit to ensure uniformity in the format of the Quality Manual the Council. Similarly, the same standard of care and detail is given to these additional documents with regard to their circulation, control and currency.

Authorized documentation officer

All documents under the Quality System are under the care of specified officers. The Quality Unit keeps a Register of Distribution list. While the document design procedures ensure that these documents are updated and are current it is also the responsibility of the holder of the documents to ensure that the documents are reviewed and updated from time to time and reflect all the current requirements at the time they are issued.

Changes and amendments to the documents

The Quality Unit registers all documents that are generated under the Quality System. The Quality Unit has the overall responsibility for these documents and carries out any changes to these documents. The processes on how changes

can be made and incorporated are clearly specified in the Quality Procedures. It involves the evaluation and approval of the changes by the department that originally designed and approved the document. The originating department/unit is given all relevant information to enable them to make an evaluation and approval of the proposed changes. If changes are made, the Quality Unit keeps a log of all the changes so that documents that are obsolete can be removed from circulation. Any change that affects the objectives, implementation or scope of the activities that are carried out would require that the entire procedure or process is re-evaluated and a new document is issued and circulated.

Reference set of documents

The Quality Unit keeps a complete set of all documents related to the Quality System of the Kuantan Municipal Council.

Chronology of documentation

In the spirit of documentation all departments including the Quality Unit keeps a set of documents that have become obsolete. This is only for reference purposes to record the chronology of changes and improvements that have been made under the Quality System in Kuantan Municipal Council.

Documents review

As per the requirements of theQuality System of Kuantan Municipal Council, all documents are reviewed every 6 months. The Quality Unit takes the lead role in the review of these documents.

Purchasing requirements (ISO 9001 4.6)

Purchasing in Kuantan Municipal Council is undertaken by the Purchasing and Stores Unit of the Council. The objective of the Purchasing and Stores Unit is obtain the best possible terms for all goods and services KMC buys. The Purchasing Unit has a specified set of procedures under the ISO system to ensure quality in all purchasing decisions. A full explanation of the procedures is provided for in the Financial Procedures.

In KMC all purchasing is categorized and all orders for purchase must follow the categorization described in Table 7:

Table 7: Categorization of products

Category	Description
A	Normal Purchases obtained from preferred suppliers
B	Additional or repeat orders from preferred suppliers
C	Service Contract that have been approved
D	Trial purchases from new suppliers (service/goods)
E	Others

The above system was introduced to ensure that there is minimum delay in obtaining goods and services. All requests for purchases are forwarded to the Purchasing Unit. The list of suppliers in the Preferred Supplier's List undergoes tough and systematic evaluation system, periodically, as proposed by the ISO procedures. Departments can suggest that services and goods be purchased from those not on the Preferred List. In such a case the Purchasing Unit will ensure that all the requirements for purchasing from new suppliers are complied with before an order is placed under category D. If found reliable and conforming to the requirements a supplier on the trail list is then upgraded to the Preferred List category. To ensure that suppliers in the Preferred List category provide consistently high level of service, the list is reviewed twice a year. If a purchase is required to be made through a tender system then the requirements under the financial procedures pertaining to tenders is complied with by the Purchasing Unit. The tender system, with clear specifications of the nature of the goods and services, ensures that the organization obtains the best value for its money.

Evaluation of sub-contractors in Kuantan Municipal Council

As required by the Quality Procedures of KMC, sub-contractors are selected and placed on the list of preferred or capable contractors based on their ability to deliver the goods and service as per requirements.

Programme evaluation in Kuantan Municipal Council

Apart from supplier evaluation the various programmes that are implemented by KMC are also systematically evaluated. Programme level monitoring and evaluation is carried at the various Divisions and Departments at the Programme Committee level and in morning meetings. Feedback from the public through customer feedback mechanisms, already in place, is discussed in detail and appropriate actions are discussed at these meetings. Issues at the project level are discussed at weekly morning meetings and in the Committee on Development Projects that meets monthly.

Purchasing data in Kuantan Municipal Council

The Purchasing Unit requires that all requests for purchase clearly describe the goods/service that are to be purchased. If need be it should contain sufficient details such as:

- Type/grade/class and any other unique identification of the goods/service.
- Details of the specifications, processes and performance requirements, testing instructions etc.

The purchase document is then reviewed and approved by the Purchasing Unit. This process is required to ensure that all parties related to the purchase including the originator (user), the Purchasing Unit (facilitator) and supplier (sub contractor) are in complete agreement as to the nature and expectations of the goods/services that are required.

Verification of product/services received in Kuantan Municipal Council

The Purchasing Unit has the right to check that every product and service supplied to KMC conforms to the specifications and standards that have been agreed to. This verification is carried either at the supplier's premises or at the time of delivery of the goods/service. Even though the Unit undertakes this verification exercise, the supplier is not absolved from his responsibility to supply the goods/service as per contract. The Purchasing Unit rejects any supply that does not conform to the agreed to contract and specifications. This verification is also carried out in certain circumstances by the end users themselves.

Control of customer supplied products (ISO 9001 4.7)

Kuantan Municipal Council has a set of specific instructions and procedures written in the Quality Manual covering customer-supplied products. Compliance is at the level of record keeping, issuing standards for the inputs, storage of these inputs and disposal and recording of unusable inputs over time. In the case of Kuantan Municipal Council, these inputs include confiscated goods and items that are sealed as a result of non-payment of monies due to the Council.

These customer-supplied items are kept separately from products of KMC and are kept until its usage is called for. They are stored in a manner consistent with the nature of these items. The Purchasing and Stores Unit keeps a record of these items. Movements in and out of the stores are recorded. At any given time, customer-supplied items must be identifiable and located through the use of records and stores management system.

Product identification and traceability (ISO 9001 4.8)

Procedures have been established to identify and record the service that is provided, the service level specifications, documents and the staff who provide the service. These records show the following information as required under the Clause 4.8:

- The name of the service provider
- The suitability of the staff providing the service in terms of the work that is carried out, qualifications, skills and experience
- Whether the proper procedures have been followed, together with the evidence of such compliance.
- Evidence of quality checks on the service delivered and compliance with quality specifications.
- All records pertaining to the performance of the staff in delivering quality service. The tests of such compliance are kept for a period not less than one year after delivery of the service.

Current procedures and the methods of delivering quality service, when in contact with customers, are explicitly stated in the Work Procedures Manual of each department.

Process control (ISO 9001 4.9)

Process control is seen as the key in the delivery of quality service in KMC. To achieve this objective, all processes that are relevant and contribute to the delivery of quality service by KMC are explicitly written down in the Procedures Manual or the Work Procedures Manual. Strict compliance with these processes and work procedures is mandatory. These work processes and procedures are the responsibility of the departments that originally wrote them.

Inter-department process coordination

In the implementation of the work processes and procedures, KMC recognizes the possibility of overlapping work processes among the various departments. To iron out any problems that may occur as result of such differences, the Quality Officers appoint an officer (the Process Officer) who in the opinion of the Quality Officers is responsible for a significant portion of the process. This Officer is then entrusted with the responsibility to clarify and

resolve any problems that may arise. However, if the differences in work processes cannot be resolved at the Process Officer level these are referred to the Deputy President or the Secretary of the Council for resolution.

Process control

In compliance with Clause 4.9, KMC has established and maintains specific procedures to identify and plan the processes involved in service delivery. This is to ensure that these processes are implemented in a controlled manner. KMC controls the following:

- Work Procedures - work procedures specify the steps that must be taken to accomplish the task. Any deviations from these steps can adversely affect the quality of service delivered, the use of equipment, the quality of work environment, compliance with established standards and ethics and also the overall quality plan.
- Control and monitoring of the process through the use of suitable parameters with regard to the character of the service at the time of the delivery.
- Approval of the process and the equipment used to provide the service.
- Criteria to ensure excellent work performance through the provision of examples and easily understood standards.
- Comprehensive maintenance requirements for all the equipment used.
- Proper methods for the use of the equipment.

Inspection and testing (ISO 9001 4.10)

The standards and specifications for incoming goods and materials received by KMC are specified in the Work Procedures Manual. In compliance with Clause 4.10, KMC ensures that these goods and materials are inspected, tested and verified by authorized staff before they are received by KMC. In the event that inspection and testing is time consuming, and there is an urgent need for the goods/materials, KMC uses the exceptions clause of 4.10 to accept such goods/materials subject to the discretion of the Quality Officers and the department that requires them. Proper records are kept of both untested and inspected goods for easy recall and later replacement.

Inspection and testing are also carried during the process. In-process inspection is carried out based on the quality plans and documented procedures.

The types and standards for these tests can be found in the Operational Procedures and the Work Procedures of the concerned departments.

Final test is carried out before any service is delivered to the customers. KMC ensures that no service is offered unless all the activities related to the service have been complied with as specified in the quality plan or the documented procedures. The final offering of the service to the customer by KMC is only sanctioned if it has passed the two-stage test. Test “A” measures compliance with established standards and test “B” ensures that the product or service fulfills its functional specifications.

Kuantan Municipal Council keeps and maintains all records of testing and inspection carried by the authorized officers in KMC. These records are part of the Quality Records kept by KMC.

Control of inspection equipment, measuring and test equipment (ISO 9001 4.11)

All test and inspection equipment used in KMC are controlled, maintained and calibrated as specified by the manufacturers. The use of this equipment is also guided by the manufacturer’s recommendation. The Engineering Department of KMC complies and maintains a list of all testing and inspection equipment that is used by KMC. This register contains complete information on the methods and frequency of testing and its accuracy and functional specifications. This register also provides a guide for the maintenance schedule of all the inspection and test equipment.

In compliance with clause 4.11 KMC ensures the following actions are taken:

- Identifying the measurement that needs to be made including its accuracy levels and selecting suitable the equipment for testing and measurement.
- Identifying, calibrating and ensuring that all critical inspection and test equipment are in working order.
- Establishing, documenting and maintaining calibration procedures.
- Ensuring all inspection and test equipment are capable of providing accurate measurement at all times.
- Identifying the calibration status of all inspection and testing equipment and keeping records of all calibrations made.

- Ensuring that the conditions and testing environment are suitable for inspection, testing and calibration.

- Ensuring proper maintenance, custody and storage of all inspection and test equipment.

The frequency of calibration of this equipment to ensure accurate measurement is determined by KMC. Records are kept of all calibration made and such data is made available to the client if needed. All records of calibration are kept for a period of three (3) years. If there are deviations from specifications in the equipment the Quality Procedures provide corrective action that need to be taken to rectify these deviations.

All departments in KMC are required to record the use of test equipment. The equipment is to be returned to the Engineering Department promptly after use. Since calibration is a specialized and costly exercise, the equipment suppliers largely carry out calibration. As the ability and capacity of the KMC improves, calibration is expected to be carried out in-house.

Test status (ISO 9001 4.12)

All services provided by KMC are subject to confirmation of its status as required by clause 4.12. An authorized officer, who certifies that all inspections and specification tests have been complied with, approves the test status confirmation. This ensures that services offered by KMC have undergone the entire testing and inspection process. KMC also keeps records that identify the authorization of the service to the customers and a statement confirming the specification of the service. As discussed earlier, all required tests/inspections are listed in the Quality Procedures and the Work Procedures Manual.

The Quality Unit places special emphasis on services that involve customers directly and have impact on the overall service quality of KMC. The Council's Secretary identifies the services for special attention by the Quality Unit. This special attention requires the Quality Officers to carry out final tests before they are approved for delivery to customers.

Control of non-conforming product (ISO 9001 4.13)

KMC has established documented procedures to control delivery of services and products that do not meet specifications. The procedure established by KMC calls for the identification and separation of these non-conforming products. These products are labeled accordingly. The records also show the types of non-

conformity and identify the KMC officer who has approved the non-conformity. In the Stores and Purchasing Unit, a special place is set aside to keep these non-conforming products.

Records are kept to enable statistical analysis on the performance of KMC staff, performance of sub-contractors and suppliers in complying with specifications. With these statistics it is possible to take corrective actions to prevent or reduce non-conformity rates.

As provided for in Clause 4.13, heads of departments and divisions in KMC can authorize re-work of non-conforming products. In the Purchasing and Stores Unit, rework that includes modifications can be carried out on materials that do not conform to specifications. On completion of rework or modification, the product is subjected to inspection and testing just like any other products received by KMC. Even though, rework and modifications are carried out, the nature of the non-conformity is recorded for statistical purposes. Whenever, it is deemed not economic to carry out repairs or modifications to non-conforming products, the heads of department can declare it as scrap and authorize its disposal.

The responsibilities and authorization for the disposal of non-conforming products are described and the related procedures are written down in the Procedures on Non-conformance and Corrective Action (PKM3) and the Concession Document (PKM4). Non-conformance is also reported to the supplier for purposes of obtaining concessions in the form of discounts.

Corrective and preventive actions (ISO 9001 4.14)

KMC has established procedures to ensure corrective and preventive action programmes. The corrective and preventive action programmes comprise the following elements:

- Research into the cases of deviations and corrective actions that need to be undertaken to prevent their recurrence.
- Analysis of the quality control parameters to eliminate the causes of deviations.
- Preventive actions
- Review and updating of procedures based on these corrective and preventive actions.

The Quality Unit has the authority and responsibility for the administration of corrective actions. Corrective and preventive actions programmes are coordinated to ensure that analysis and problem solving approaches are systematic. Staff involved with corrective actions is required to list down the problems that are encountered and report them to the Quality Unit using special reporting forms. The Quality Unit undertakes research and monitoring of these problems and as well as the corrective actions taken.

Handling, storage and delivery (ISO 9001 4.15)

As required by Clause 4.15, KMC has instituted and documented procedures to ensure that the intent of the clauses is carried out. Specifically the procedures in KMC are designed to:

- Control the handling of materials to avoid damage and obsolescence.
- A safe and secure store to prevent damage and deterioration while awaiting use
- Proper labeling, packaging and handling processes as needed

KMC staff that is responsible for the stored material is expected to abide by these stated procedures. In addition KMC ensures that stored materials are examined periodically to ensure their continued usability. The First-in-First Out (FIFO) principle is practiced by KMC to avoid expiry and obsolescence. Inventory levels are also carefully monitored. The Purchasing and Stores Unit determines optimal inventory levels. The Unit also undertakes annual store checks. Weekly stock checks are also conducted on a rotational basis.

Table 8: Types of records kept and departments that maintain these records

Records	Department
Internal Audit	Quality Department
Corrective Actions	Quality Department
Concessions	Quality Department
Customer Complaints	Quality department/Public Relations Department
Testing/Examination Status	Quality Department/Concerned Departments
Records on sub-Contractor performance	Concerned Departments
Compliance with Specifications	Engineering Department
Contract completion	Concerned Departments
Work Quality	All departments
Stock Checks	Purchasing and Stores Department
Mechanical Drawings	Engineering Department
Plan Drawings	Planning/Engineering Departments
Amendments to Documents	Quality Department
Statistical Measures	Quality Department
Sub Contractor Audit	Concerned Departments
Report by Accreditation Body	Quality Department
Records on Review of Quality System under ISO 9001:1994	Council Secretary

Control of quality records (ISO 9001 4.16)

Kuantan Municipal Council keeps and maintains a wide range of records in keeping with the requirements of the requirements of Clause 4.16. Records keeping methods and procedures are designed to reflect the achievements of the quality objectives. Table 8 shows the type of records and departments that maintain these records.

Under normal circumstances these records are kept for a period of 12 months. Some records are kept for two or more years.

The Internal quality audit (ISO 9001 4.17)

Kuantan Municipal Council has established procedures to carry out internal audits as required by Clause 4.17 of the ISO procedures. The scheduling and frequency of these internal audits is determined based on the importance of the

activity. To maintain impartiality and objectivity, staff that is not directly involved in the activity carries out auditing. Internal audits are carried out at least once a year.

The Quality Officer determines the number of internal audits that are carried out in any of the departments in Kuantan Municipal Council. In determining the number of audits the Quality Officer takes into account the following considerations:

- Whether the functions of the department could be covered with only one audit.
- The significance of the department's activities in terms of the quality of services delivered to the customers.
- Whether the department's performance is below that of the established standards

Any deviation or non-compliance discovered as result of the internal audit is rectified within a reasonable time frame. A report of the findings of the Internal Audit is circulated to all officers involved in the audit. In addition once in six months, a detailed report on the Internal Audit Programme is tabled at the Committee that evaluates the Quality System in Kuantan Municipal Council. The Internal Audit under the Council Secretary's Office also helps departments and Divisions to achieve the expected quality levels.

Training requirements (ISO 9001 4.18)

Kuantan Municipal Council has established training procedures as required under ISO. The procedures in KMC are designed to identify the competency gaps and to draw up the required training interventions that reduce these gaps. Training records of staff are also maintained.

In KMC some of the training is mandatory. The mandatory training is undertaken before a staff is given a responsibility or task. The Training Department is responsible for the training function.

The heads of departments periodically evaluate and recommend training requirements for each of the staff under them. The heads of departments are also responsible for maintaining training records of staff under them. To ensure that the staff has the required knowledge, skills and experience to do a task, a training schedule is drawn up with their agreement. The training conducted in

KMC includes formal training conducted by experienced KMC staff. At times external expertise is relied upon to provide training. The Training Department coordinates the training programmes in KMC.

Training Budget is also made available in the Annual Budget. Staff is sent for local and overseas training programmes as required. This includes study visits to other local authorities in Malaysia and in other countries.

Servicing requirements (ISO 9001 4.19)

As with many other public sector organizations the type of servicing as envisaged in Clause 4.19 is of limited application in KMC. However, it would not be correct to say that KMC does not take servicing seriously. The entire customer relations and public relations department is involved in looking into the service requirements of KMC customers and clients.

Statistical techniques (ISO 9001 4.20)

In the Kuantan Municipal Council statistical techniques are used for the following purposes:

- Comparing performance of the Units/Departments against set targets
- Monitoring of customer complaints
- Customer satisfaction surveys
- Quality audits
- Corrective actions etc.

These monthly statistics are collected and analyzed by the Quality Unit and the results are circulated to all departments. The Quality Unit also produces biannual statistical reports for discussion at the Quality Monitoring and Evaluation Meetings.

CONCLUSIONS

The Kuantan Municipal Council is well on its way to achieving its vision of making the Kuantan a well-planned, clean and beautiful city with a vibrant industries, business and tourism. ISO certification has streamlined much of the service delivery process. This has greatly improved the effectiveness and efficiency of the services delivered by the Council. This can be verified by the

numerous letters of appreciation and direct feedback from appreciative customers of the Council.

Despite the obvious improvements achieved, the Kuantan Municipal Council is committed to continuous quality improvements. The systematic ISO documentation culture, introspection, soliciting feedback, setting higher performance standards and improving work processes/procedures is now well entrenched.

PART 4: DIFFERENCES BETWEEN ISO 9000:1994 AND ISO 9000:2000 VERSIONS*

* This comparison was prepared Dr. Haji Mohammad Nasir Bin Mohammad Ashraf, Deputy Director/Senior Consultant and Mr. Rahman Ahmad Bin Zubir, Project Coordinator/Consultant of the National Institute of Public Administration (INTAN) as a follow-up to the ESCAP/LOGOTRI Training Workshop on the Application of ISO 9000 Standards in Local Government and Other Public Service Organizations 28 November to 1 December 2000, Beijing China. The comparative analysis of the two standards is based on stated references and for training purposes only.

INTRODUCTION

The International Organization for Standardisation (ISO) based in Geneva, Switzerland, has officially published the following three standards as stated below:

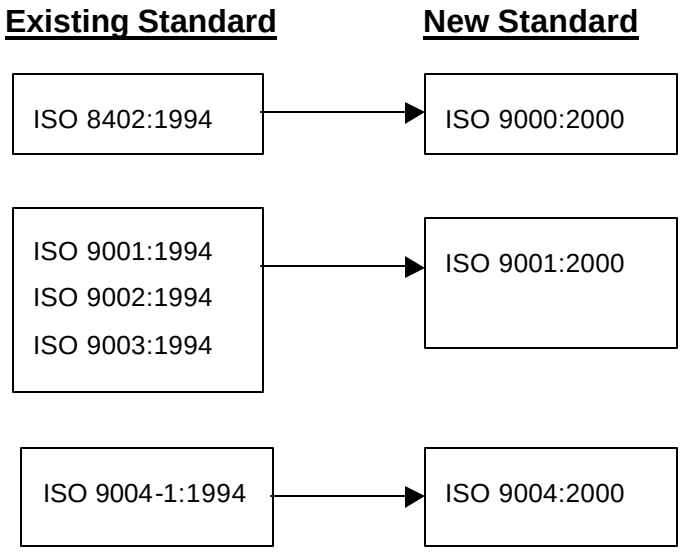
(a) ISO 9000:2000 “Quality management systems–Fundamentals and vocabulary”

(b) ISO 9001:2000 “Quality management systems–Requirements”

(c) ISO 9004:2000 “Quality management systems–Guidelines for performance improvements”

The three published standards came into effect on 15 December 2000. They cancelled and replaced the five existing standards. ISO 9000:2000 replaced ISO 8402: 1994, ISO 9001:2000 replaced ISO 9001: 1994, ISO 9002:1994, and ISO 9003:1994, and finally ISO 9004:2000 replaced ISO 9004-1:1994.

Figure 7: Comparision between Existing and New Standards



ISO 9000:2000

The second edition of ISO 9000:2000 which came into effect from 15 December 2000 was prepared by the Technical Committee ISO/TC 176, *Quality management and quality assurance, S*ubcommittee SC 1-*Concepts and terminology.*

The title has been modified from “Quality management and quality assurance – vocabulary” to “Quality management systems - Fundamentals and vocabulary”. The term “quality assurance” has been dropped. The ISO 9000:2000 is the ISO 9000 family of standards. It has been revised and extended to assist organizations of various types and sizes to implement and operate effective quality management systems. The ISO 9000:2000 describes the fundamentals of quality management systems and specifies the terminology for quality management systems.

It is evident that the ISO 9000:2000 has a larger scope, broader concepts and more detailed terms and definitions as compared with its predecessor, i.e. ISO 8402:1994. Some of the salient features are as follows:

The eight quality management principles

The ISO 9000:2000 introduces eight quality management principles which are absent in ISO 8402:1994. The eight quality management principles are:

(1) Customer focus

(2) Leadership

(3) People’s Involvement

(4) Process approach

(5) Systems approach to management

(6) Continual improvement

(7) Factual approach to decision-making

(8) Mutually beneficial supplier relationships

It is stated that the eight quality management principles “form the basis for the quality management systems standards within the ISO 9000 family”.

Quality management systems

The scope, fundamentals and terms and definitions of quality management systems of the ISO 9000 family are clearly specified in ISO 9000:2000 as compared with ISO 8402:1994.

Scope

The ISO 9000 family is applicable to various types of organizations.

Fundamentals of quality management systems

The ISO 9000:2000 describes the fundamentals of quality:

(1) Rationale

(2) Requirements

(3) Quality management systems approach

(4) The process approach (a new model is introduced – see Figure 8)

(5) Quality policy and quality objectives

(6) Role of top management

(7) Documentation

(8) Evaluating quality management systems

(9) Continual improvement

(10) Role of statistical techniques

(11) Quality management systems and other management systems focus

(12) Relationship between quality management systems and excellence models

Terms and Definitions

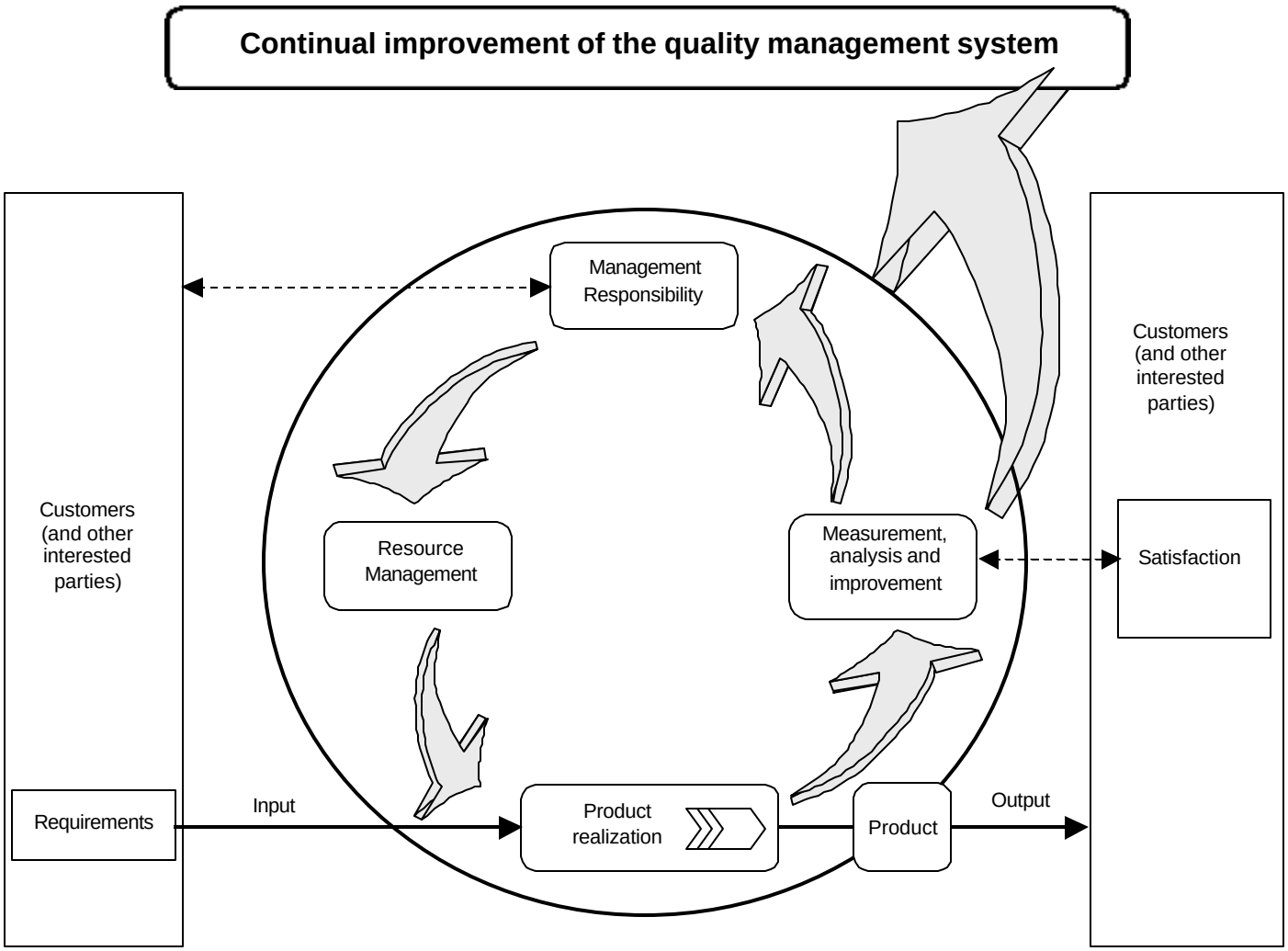
The terms and definitions in ISO 9000:2000 have been extensively revised, simplified and expanded as compared with the terms and definitions in ISO 8402:1994. Some of the examples are as follows:

Customer

ISO 8402:1994 (1.9) defines customer as, “recipient of a product (1.4) provided by the supplier (1.10).”

ISO 9000:2000 (3.3.1) defines customer as, “organization or person who receives a product[1] (3.4.2.)”

Figure 8: Model of a process-based quality management system[2]



[1] Note: Throughout the text of this International Standard, wherever the term ‘product’ occurs, it can also mean ‘service’ (ISO 9001:2000, clause 3)

[2] Source: ISO 9000:2000-Quality management systems-Fundamentals and vocabulary, Second Edition, 2000-12-15, p.3.

Organization

ISO 8402:1994 (1.7) defines organization as, “Company, corporation, firm, enterprise or institution, or part thereof, whether incorporated or not, public or private, that has its own functions and administration”.

ISO 9000:2000 (3.3.1) defines organization as, “Group of people and facilities with an arrangement of responsibilities, authorities and relationships”

ISO 9001:2000

The third edition of ISO 9001:2000 which came into effect from 15 December 2000 was prepared by the Technical Committee ISO/TC 176, Quality management and quality assurance, Subcommittee SC2, Quality systems. The title of the previous ISO 9001:1994 Standard, i.e.; *Quality systems – model for quality assurance in design, development, production, management systems – Requirements* has been changed to *Quality management systems – Requirements* in ISO 9001:2000 version. The term ‘quality assurance’ no longer exists. The quality management systems requirements specified in this edition of ISO 9001, in addition to quality assurance of product, also aim at enhancing customer satisfaction rather than just meeting customer requirements.

The new edition of ISO 9001 replaces the second edition (ISO 9001:1994) together with ISO 9002:1994 and ISO 9003:1994. It constitutes a technical revision of these documents.

The eight quality-management principles stated in ISO 9000 and ISO 9004 have been taken into consideration during the development of ISO 9001. It is obvious that the ISO 9001:1994 standard has been expanded. All organizations that are currently certified to ISO 9001:1994 or ISO 9002:1994 will be subjected to review and up grade of their quality management systems to meet the requirements specified in ISO 9001:2000. All changes that have been made are of a substantive nature and a transition period of three years has been recommended. This means any certificates issued using the old standards will cease to be valid after three years unless the certified organization updates its quality management system to ISO 9000:2000.

ISO 9001:2000 emphasizes on the common structure of the process approach, with four core processes (see Figure 8) while ISO 9001:1994 was based on 20 elements. Moreover, ISO 9001:2000 has been ‘aligned’ with ISO 14001:1996 *“Environmental management system – Specification with guidance*

for use" in order to increase the compatibility of the two standards. This compatibility was absent in ISO 9001:1994.

Details of the changes

Some of the major changes are discussed below. There corresponding references in ISO 9000:1994 are also listed.

Scope (Clause 1)

Application (Clause 1.2)

ISO 9001:2000 permits for certain requirements to be excluded, but these are limited to requirements within Clause 7 (product realization) and such "exclusion" does not affect the organization's ability or responsibility to provide a product that meets customer need and the applicable regulatory requirements (1.2). ISO 9001:1994, ISO 9002:1994 and ISO 9003:1994 have different scopes clearly identifying particular situations where each standard applies.

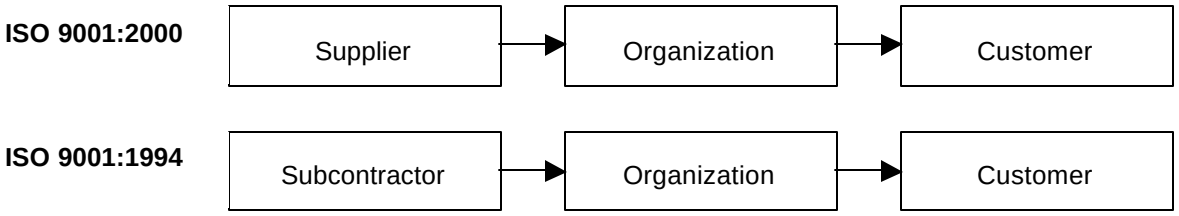
Normative reference (Clause 2)

The ISO 8402:1994 has been replaced by ISO 9000:2000.

Terms and Definitions (Clause 3)

Terms used to describe the supply chain have been changed as shown in Figure 9.

Figure 9: Supply change



Customer focus (Clause 5.2)

ISO 9001:2000 states that top management shall ensure customer needs and expectations are determined and converted into requirements and fulfilled with the aim of increasing customer's satisfaction. ISO 9001:1994 has no corresponding requirement.

Quality policy (Clause 5.3)

ISO 9001:2000 requires the top management to ensure that the quality policy is appropriate to the purpose of the organization. There is a corresponding clause on quality policy (Clause 4.1)

Quality objectives (Clause 5.4.1)

ISO 9001:2000 states that the top management shall ensure that quality objectives are established, measurable and consistent to the quality policy. In ISO 9001:1994 there was no specific requirement that quality objectives should be measurable.

Quality management system planning (QMSP)(Clause 5.4.2)

ISO 9001:2000 requires the top management to ensure that QMSP is carried out to meet the general requirements (4.1) and quality objectives (5.4.1.). This is an expansion and clarification of Clause 4.2.3, Quality planning, of ISO 9001:1994.

Responsibility, authority and communication (Clause 5.5)

ISO 9001:2000 states that the top management shall ensure that responsibilities and authorities are defined and communicated within the organization. This is an expansion of Clause 4.1.2.1, Responsibility and Authority, of ISO 9001:1994.

Management representative (Clause 5.5.2)

ISO 9001:2000 requires the top management to appoint a management representative to ensure the processes needed for the QMS are established, implemented and maintained. In addition, the management representative is to report the performance of the QMS and the promotion of awareness of customer requirements throughout the organization. This is an expansion of Clause 4.1.2.3 of ISO 9001:1994

Internal communication (Clause 5.5.3)

In ISO 9001:2000 this requirement establishes effective communication processes within the organization. There was no such requirement in ISO 9001:1994.

Management review (Clause 5.6.1)

ISO 9001:2000 states that the top management shall review QMS at planned intervals to ensure its continuing suitability, adequacy and effectiveness. The subject has been expanded to review input (5.6.2) and review output (5.6.3). This corresponds to management review (clause 4.1.3) of ISO 9001:1994.

Human resources (Clause 6.2)

Clauses 4.1.2.2 “Resources” and 4.18 “Training” of ISO 9001:1994 have been reorganized and enhanced in ISO 9001:2000 Clause 6.2 “Human Resources. The Clause states that personnel performing work affecting product quality shall be competent on the basis of appropriate education, training, skills and experience.

Infrastructure (Clause 6.3)

ISO 9001:2000 states that the organization shall determine, provide and maintain the infrastructure needed to achieve conformity to product requirement. There is no corresponding clause in ISO 9001:1994. This is a new requirement.

Work environment (Clause 6.4)

ISO 9001:2000 requires the organization to determine and manage the work environment needed to achieve conformity to product requirements. This is a new requirement. There is no corresponding clause in ISO 9001:1994.

Product realization (Clause 7.1)

ISO 9001:2000 states that the organization shall plan and develop the processes needed for product realization. Clause 4.2 (Quality systems) of ISO 9001:1994 corresponds to Clause 7.1 of the ISO 9001:2000.

Review of requirement related to the product (Clause 7.2.2)

ISO 9001:2000 requires the organization to review the requirement related to product and to be conducted prior to the organization’s commitment to supply a product to the customer. There is no corresponding requirement in ISO 9001:1994.

Customer related processes (Clause 7.2.3)

ISO 9001:2000 states that the organization shall determine and implement effective arrangements for communicating with customers in relation to product

information, enquiries, contracts, or order handling, including amendments and customer feedback, including customer complaints. ISO 9001:1994 Clause (4.3) has been reorganized and expanded.

Design and development planning (Clause 7.3.1)

ISO 9001:2000 states that the organization shall plan and control the design and development of the product. There in no significant change related to design and development planning from Clause 4.4.3 of ISO 9001:1994.

Purchasing process (Clause 7.4.1)

ISO 9001:2000 requires the organization to ensure that purchased product conforms to specified requirements. There is no significant change to the basic requirements from Clause 4.6 of ISO 9001:1994.

Production and service provision (Clause 7.5.1)

ISO 9001:2000 states that the organization shall plan and carry out production and service provision under controlled conditions. This clause merges Clauses 4.9.1 and 4.9.2 of ISO 9001:1994 without making any significant changes to the requirements of these clauses.

Validation of Processes for Production and Service Provision (Clause 7.5.2)

ISO 9001:2000 requires the organization to validate any process for production and service provision where the resulting output cannot be rectified by subsequent monitoring or measurement. This Clause merges Clauses 4.6.4.1, 4.6.4.2 and 4.10.2 of ISO 9001:1994 without significantly altering their contents.

Identification and traceability (Clause 7.5.3)

ISO 9001:2000 states that the organization shall identify the product by suitable means throughout product realization. This Clause is almost similar to Clause 4.8 of ISO 9001:1994.

Customer property (Clause 7.5.4)

ISO 9001:2000 requires the organization to exercise care with customer property while it is under the organization’s control or being used by the organization. This is similar to Clause 4.7 of ISO 9001:1994.

Preservation of product (Clause 7.5.5)

ISO 9001:2000 states that the organization shall preserve the conformity of the product during internal processing and delivery to intended destination. This Clause is more or less the same as Clause 4.15.5 of ISO 9001:1994.

Control of monitoring and measuring devices (Clause 7.6)

ISO 9001:2000 states that the organization shall determine the monitoring and measurement methods and the monitoring and measuring devices needed to provide evidence of conformity of the product to determine requirements. This Clause is almost identical to clause 4.11 of ISO 9001:1994.

Measurement, analysis and improvement (Clause 8.1)

ISO 9001:2000 requires the organization to plan, monitor, measure and control non-conforming products, analyze date, and improve the effectiveness of the quality management system. This Clause has reorganized and expanded Clauses 4.2.3, 4.10.1 and 4.20 of ISO 9001:1994.

Customer satisfaction (Clause 8.2.1)

ISO 9001:2000 states that the organization shall monitor information relating to customer satisfaction. There is no corresponding requirement in ISO 9001:1994.

Internal audit (Clause 8.2.2)

ISO 9001:2000 requires the organization to conduct internal audits at planned intervals. This Clause is almost identical to Clause 4.17 of ISO 9001:1994.

Monitoring and measurement of processes (Clause 8.2.3)

ISO 9001:2000 states that the organization shall apply suitable methods for monitoring the quality system. This corresponds to Clause 4.9 of ISO 9001:1994 but has been expanded.

Monitoring and measurement of product (Clause 8.2.4)

ISO 9001:2000 states that the organization shall monitor and measure the characteristics of the product to verify that the product requirements have been met. This Clause corresponds to Clauses 4.9(d) and 4.10 of ISO 9001:1994.

Control of non-conforming product (Clause 8.3)

ISO 9001:2000 requires the organization to ensure that the product, which does not conform to product requirements, is identified and controlled to prevent its unintended use or delivery. This corresponds to Clause 4.13 of ISO 9001:1994 but has been expanded.

Analysis of data (Clause 8.4)

ISO 9001:2000 states that the organization shall identify, collect and analyze appropriate data to demonstrate the suitability and effectiveness of the quality management system. This is similar to Clause 4.20 of ISO 9001:1994.

Continual improvement (Clause 8.5.1)

ISO 9001:2000 requires the organization to continually improve the effectiveness of quality management system. There is no corresponding requirement in ISO 9001:1994.

Corrective action (Clause 8.5.2)

ISO 9001:2000 states that the organization shall take action to eliminate the cause of non-conformities in order to prevent recurrence. Corrective actions shall be appropriate to the impacts of the non-conformity encountered. This is similar to Clause 4.14.2 of ISO 9001:1994.

Preventive action (Clause 8.5.3)

ISO 9001:2000 states that the organization shall determine action to eliminate the causes of potential non- conformities in order to prevent their recurrence. Preventive actions shall be appropriate to the effects of the potential problems. This is almost similar to Clause 4.14.3 of ISO 9001:1994.

Table 7 provides an overview comparison between ISO 9001:2000 and ISO 9001:1994

Table 7: Comparison between ISO 9001:2000 and ISO 9001:1994

ISO 9001:2000	ISO 9001:1994
7.3.3 Design and development outputs	4.4.5
7.3.4 Design and development review	4.4.6
7.3.5 Design and development verification	4.4.7
7.3.6 Design and development validation	4.4.8
7.3.7 Control of design and development changes	4.4.9
7.4 Purchasing (title only)	
7.4.1 Purchasing process	4.6.2
7.4.2 Purchasing information	4.6.3
7.4.3 Verification of purchased product	4.6.4 + 4.10.2
7.5 Production and service provision (title only)	
7.5.1 Control of production and service provision	4.9 + 4.15.6 + 4.19
7.5.2 Validation of processes for production and service provision	4.9
7.5.3 Identification and traceability	4.8 + 4.10.5 + 4.12
7.5.4 Customer property	4.7
7.5.5 Preservation of product	4.15.2 + 4.15.3 + 4.15.4 + 4.15.5
7.6 Control of monitoring and measuring devices	4.11.1 + 4.11.2
8 Measurement, analysis and improvement (title only)	
8.1 General	4.10.1 + 4.20.1 + 4.20.2
8.2 Monitoring and measurement (title only)	
8.2.1 Customer satisfaction	
8.2.2 Internal audit	4.17
8.2.3 Monitoring and measurement of processes	4.17 + 4.20.1 + 4.20.2
8.2.4 Monitoring and measurement of product	4.10.2 + 4.10.3 + 4.10.4 + 4.10.5 + 4.20.1 + 4.20.2
8.3 Control of nonconforming product	4.13.1 + 4.13.2
8.4 Analysis of data	4.20.1 + 4.20.2
8.5 Improvement (title only)	
8.5.1 Continual improvement	4.1.3
8.5.2 Corrective action	4.14.1 + 4.14.2
8.5.3 Preventive action	4.14.1 + 4.14.3

Source: ISO 9001:2000, Quality Management Systems - Requirements, Third Edition, 2000-12-15 pp. 21 - 22.

ISO 9004:2000

The Technical Committee ISO/TC 176, “Quality management and quality Assurance, Subcommittee Sc2, Quality systems”, prepared the second edition of ISO 9004:2000 that came into effect from 15 December 2000. The ISO 9004:2000 is part of the family of ISO 9000 standards. This second edition has been technically revised and replaces ISO 9004-1:1994.

The title of ISO 9004-1:1994 *Quality management systems elements – Part 1: Guidelines* has been modified to *Quality management systems – Guidelines for performance improvements*. The title has been modified to reflect the comprehensiveness of ISO 9004:2000.

ISO 9004:2000 are guidelines for performance improvement, but not for certification. Hence, the paper limited its scope to a comparison between ISO 9000:2000 and ISO 8402:1994 and, ISO 9001:2000 and ISO 9001:1994 only.

REFERENCES

1. ISO 8402:1994-Concepts and terminology.
2. ISO 9001:1994-Quality system – Model for quality assurance in design, development production, installation and servicing.
3. ISO 9000:2000-Quality management systems-Fundamentals and vocabulary.
4. ISO 9001:2000-Quality management systems-Requirements.
5. ISO 9004:2000-Quality management systems-Guidelines for performance improvements.
6. SIRIM Training Services Sdn. Bhd., ISO 9000:Year 2000 (Revision), Seminar Note-15 September, 2000.

ANNEXI: QUALITY SYSTEM REGISTRATION AND ACCREDITATION BODIES IN ASIA AND THE PACIFIC*

* Mention of firms or organizations in this list does not imply endorsement by the United Nations. This list is not exhaustive. Organizations wishing to use their services should find out more about these and others similar firms in their countries.

Australia

Joint Accreditation System of Australia and New Zealand (JAS-ANZ)
PO Box 164
Civic Square ACT 2608
TP + 61 6 276 19 99
TF + 61 6 276 20 41

Benchmark Certification
PO Box 34
Gladesville NSW 2111
TP + 61 2 418 99 57
TF + 61 2 427 13 42

Bureau Veritas Quality International (BVQI)
Suite 8
57, Labouchere Road
PO Box 880
South Perth
TP + 61 9 474 23 11
TF + 61 9 474 23 17

National Association of Testing Authorities (NATA)
7, Leeds Street
Rhodes NSW 2067
TP + 61 2 736 82 22
TF + 61 2 743 53 11

SCI QUAL International (SCI-QUAL)
161, Lutwyche Road
Windsor QLD 4030
TP + 61 7 857 13 00
TF + 61 7 357 84 78

SGS International Certification Service Pty Ltd.
74, McEvoy Street
Alexandria NSW 2015
TP + 61 2 930 59 00
TF + 61 2 930 59 65

Standards Australia Quality Assurance Services (SAQAS)
PO Box 1055
Strathfield NSW 2135
TP + 61 2 746 49 00
TF + 61 2 746 49 58

Water Board Corporate Quality Assurance
17th Floor, Head Office
115-123, Bathurst Street
Sydney NSW 2000
TP + 61 2 269 64 57
TF + 61 2 269 60 49

Det Norske Veritas
165, Walker Street
North Sydney NSW 2060, Australia
TP + 61 2 922 19 66
TF + 61 2 929 87 92

Germanischer Lloyd (Australia) Pty. Ltd.
Suite 3, 10 Victoria Road
Parramatta NSW 2150, Australia
TP + 61 2 683 38 59
TF + 61 2 683 14 75

Lloyd's Register
6th Floor, National Mutual Centre
44, Market Street
North Sydney NSW 2060, Australia
TP + 61 2 262 14 24
TF + 61 2 990 14 45

China

China National Accreditation Committee for Quality System Registration Bodies (CNACR)
c/o China State Bureau of Technical Supervision (CSBTS)
No. 4, Zhichunlu, Haidian District
PO Box 8010
Beijing 100088
TP+ 86 1 202 22 88 / 204 61 74
TF+ 86 1 203 10 10

Beijing New Century Certification Centre of Quality System (BCC)
Add. No. 36, Luan Qing Lane
West Damuochang
Beijing 100051
TP+ 86 1 511 34 16
TF+ 86 1 703 42 89

Beijing Quality Assurance Centre of China Quality Control Association (QAC)
Add. 12, Zhong Jing Ji Dao
Beijing 100032
TP + 86 1 603 23 29
TF + 86 1 601 78 24

China Certification Centre for Machine-Building Quality System (CCMQS)
Add. 2, South Capital Stadium Road
Beijing 100044
TP + 86 1 832 18 26
TF + 86 1 834 08 25

China Certification Committee for Quality Mark (CQM)
Add. No. 2 Yue Tan Bei Xiao Street
Xichen District
Beijing 100837
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