CHAPTER II

TQM ABOUT

2.1 Historical background of "Quality"

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CHAPTER II

TOTAL QUALITY MANAGEMENT CONCEPTS

2.1 HISTORICAL BACKGROUND OF "QUALITY" CONCEPTS

INTRODUCTION

न हि जन्मानि जेष्ठत्वं जेष्ठत्वं गुण उच्यते [1] ।
घुणाद गुरूत्वमायाति दधि दुग्धम घृतमं यथा ॥

Sarth sanskrit subhashitmala
By HBP Nimbaraj Jadhav page 6
(Founder Adhyatma Vidya Prasarak Mandal; 1978 Pune)

"It is said that the greatness of any person does not depends upon his birth but depends upon Quality he possesses. Otherwise Milk, Curd, Ghee all are from one dynasty but still they possess different taste.

The word "Quality" is used in every area our life today, if we trace the history of this word it has got root since our Ancient time. Those days also quality was given big weight age and importance.

Confucius (China) a famous philosopher before Christ[2] said that Public administration depends upon seeking qualitative, honest, unselfish and capable public officers,

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[1] Sarth Sanskrit Subhashitmala Adhyatma Vidya Prasarak Pune. H.B.P. Nimbaraj Jadhav 1987 Pg 6

[2] Principles and Practices of Management by L. M. Prasad Page No. 41.

Kautilya a famous Guru of Arthashastra said during Chandragupta Maurya regime that various principles, values remain in dealing of public.

Camera list (a group of German and Austrian public administrator considered) in 16th –18th century. " a systematic and quality administration is the strength of any organisation"

In western countries also if we trace F. W. Taylor a father of scientific management (1900-1930) while narrating various elements of scientific management gave stress on standardization a quality concept to improve production and productivity.[3]

Hence if we look back into the history of human evolution it will be observed that quality has always been integrated in to development of human society. It is quite possible that ancient builders and artists were more skilled and quality conscious than what we profess today. However the quality was confined to manual skills, workmanship and proficiency. The entire work of building of houses, halls, temples, producing agricultural equipments as well as arms and ammunition was taken as a matter of art.

In the period before industrial revolution in Europe,[4] the entire manufacturing activities was carried out by cotton industries spread over villages and remote areas away from large towns and were having craftsmen. They were further treated as apprentices and after heavy training they were taken over as trained apprentices. Thus skills and quality were passed on from one generation to another generation. With advent of

3 Organisational Behaviour by O. P. Sharma, Page 17

4 Quality Manaual of Rathi Group of Industries, Page 21-22.

industrial revolution, manufacturing activities were broken into small parts and in turn craftsmen became inspectors and standards started emerging and gradually 3 or 4 classes of workmen were formed as highly skilled, skilled, semiskilled and finally unskilled. After two world wars normal manufacturing was changed to mass production method in almost all areas of engineering units and technology for speedy production. Later on mechanizations and afterwards automation were introduced in manufacturing units. With rise of skill, quality consciousness was given more weightage to ensure quality of product.

2.1 CONCEPT OF QUALITY[5] - It was realized that quality was responsibility of everyone right from initial primary stage to project definition, planning, material processing and production, supply and customer service.

Schewart for the first time brought a statistical approach to quality control in 1924. Later on during and after world war II statistical quality control became an essential technique to assist in quality control and production.

The emphasis of quality control changed to quality assurance Deming and Juran who are recognized as Quality Gurus. They contributed to a large extend in the late forties by introducing statistical practices and brought modern concepts of quality assurance.

In the early fifties, K Ishikawa introduced a new technique of worker motivation for improving quality and called it 'quality circles'. Training

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5 Quality Control & Total Quality Management, by P. L. Jain Edition 2001, Page 1 - 15

tools, like the cause and effect diagram and Pareto analysis were used. The 'zero defect' concept and; right first time concepts were introduced in the west at the same time. The emphasis on the inspection of the final product to achieve the desired quality was shifted to controlling quality at every stage of production and thus, the term 'total quality control' was introduced by Fiegenbaum in the year 1983, which was later changed to 'Total Quality Management'.

The year 1987 saw the introduction of quality standards at an international level and the ISO 9000 series was brought out as a guideline for developing a quality system. This could help a company in designing, building, and maintaining quality of a product thus satisfying the requirements of the customer on a consistent basis. These standards have been revised in view of the experiences gained over these years and a large number of companies, not only in the manufacturing sector but also in the service, education and training sectors accreditation from authorized agencies.

QUALITY MEANS:

On quality, an ancient discipline:

"If a builder constructed a house, but did not make his work strong, with the result that the house which he built collapsed and caused the death of the owner of the house, the builder shall be put to death!"

Article 234 code of Hammurabi

circa 1600 B.C.

" If a boatman caulked a boat for a seigneur and did not do the boat well with the result that the boat has sprung a leak in that very year, since it

has developed a defect, the boatman shall dismantle that boat and strengthen it at his own expenses."

<div align="right">Code of Hammurabi</div>

<div align="right">**Circa 1600 B.C.**</div>

During the time of Apostle Paul, quality was an issue :

"And this I pray, that your love may abound yet more and more in knowledge and in all judgment; that ye may approve things that are excellent, and that ye may be sincere and without offense till the day of Christ."

<div align="right">Phillippians 1:9-10</div>

"The government believes that quality is the business of every member of the work force, and particularly that of top management. Chief executives must take the lead and make quality a personal responsibility."

<div align="right">Lord Cockfield</div>

<div align="right">Britain's Secretary of State for Trade</div>

"Quality is everyone trying to do a better job, make a better effort at whatever he is doing in order to improve his performance and improve Avco's performance for our customers. We are looking for everyone to think in terms of how I can do it differently, how can I do it better to achieve total performance, and because of this, we as individuals get better job satisfaction from doing so."

<div align="right">Robert B. Bauman</div>

<div align="right">Chairperson of the Board</div>

<div align="right">Avco Corporation</div>

"Quality control does not mean achieving perfection. It means the efficient production of the quality that the market expects."

> W. Edwards Demings
>
> Quality Consultant

"Quality is an achievable, measurable, profitable entity that can be installed once you have commitment and understanding and are prepared for hard work."

> Philip B. Crosby
>
> Chairperson
>
> Philip Crosby Associates

"Quality is an attitude and a personal commitment to excellence. Quality is also our strongest competitive weapon."

> Douglas D. Danforth
>
> Chairperson
>
> Westinghouse Electric Corporation

"Quality is our best assurance of customer allegiance, our strongest defense against foreign competition, and the only path to sustained growth ad earnings."

> John F. Welch, Jr.
>
> Chief Executive Officer
>
> General Electric Company (USA)

"Also of considerable importance, in my judgment, is the sense of personal pride and esteem that grows out of a quality efforts."

> L.W. Lehr
>
> Chairperson, 3M Corporation

"Quality is what the customer perceives when he feels that a product meets his needs and lives up to his expectations."

> W.R. Thurston
>
> President & CEO
>
> Gen Red Corporation

"High quality in weapons and military equipment will be possible only when the chief executive of the producing company has strong personal commitment to it."

> David Packard
>
> Chairperson of the Board
>
> Hewlett-packard Company

"Many industries have accepted as normal a 15 percent scrap rate for their products as compared with a scrap rate of 1 percent in Japan."

> J.M.Juran
>
> Chairperson
>
> Juran Institute

"The navy should be more patient in not insisting on production of weapon before it is ready. We need a working, reliable, mature system when it gets there."

> Admiral Sylvester Foley, USN
>
> Commander in Chief, U.S. Pacific Fleet
>
> [Ref- Quality The Ball in Your Court By Frank C. Collins. Jr.]

Fitness for use , quality characteristic, parameters of fitness for use–

All human societies make use of natural and artificial materials and forces to provide products which consist of

Goods – Milk, cloths, houses, vehicles etc.

Services – electrical energy, bus riders, health care education etc. an essential requirement of these products is that they meet the need of those members of society who will actually use them.

This concept of fitness for use is universal. It applies to all goods and services without exception. The popular term for fitness for use is quality and our basic definition becomes "quality means fitness for use".

The term "fitness for use" applies to a variety of users.[6] A purchaser of a product may be a manufacturer who will perform additional processing operations. To such a manufacturer, fitness for use means the ability to do the processing with high productivity, low waste, minimal downtime, etc. in addition, the resulting products should be fit for use by the manufacturer's clients. Another purchaser may be a merchant who will break bulk and resell the product. To the merchant, fitness for use includes correct labeling and identity, protection from damage during shipment and storage, ease of handling and display, etc. a third purchaser may be a maintenance shop which will use the product as a spare part, with needs for ease of installation, interchangeability, etc. finally, the purchaser may be the ultimate user of the product.

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6 Quality Planning & Analysis by J. M. Juran, Tata McGraw Hill Publishing Co. Ltd., New Delhi Edition 1982 Page 1 – 10.

This wide variety of uses means that products must possess multiple elements of fitness for use. Each of these elements is a quality characteristic which is the fundamental building block out of which quality is constructed. the quality characteristic is also the means by which we translate the term "fitness for use" into the language of the technologist.

Quality Characteristics: these are elements of fitness for use has typify the variety of uses of a given product. Quality characteristics may be of several types:

Structural: e.g., (length, frequency, viscosity, weight.)

Sensory: e.g., (taste, beauty, colour, appearance, and others)

Time-oriented: e.g.,(reliability, maintainability, serviceability.)

Commercial: e.g., (warranty.)

Ethical: e.g., (courtesy, honesty, fairness, and so on.)

The Cost of Poor Quality[7] refers to the opportunity cost of lost revenue due to inappropriate features level i.e. (below customer preference level) of the product and also cost of repairing the faults after the product is delivered to customer. Thus improvements is therefore made by examining the design and conformance phases with their associated characteristics through the application of techniques and methods (changes in design, timing, inspection procedure, process control procedures, and so on.)

Productivity and quality management will be defined as follows. "Productivity and quality management is an integrated process involving both management and employees with the ultimate goal of managing the

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7 Indian Institute of Management, Bangalore (IIMB), Sept 2005 Review Page 110.

design , development, production transfer, and use of the various types of products or services in requires the total involvement of everyone in the planning, measurement, evaluation, control, and improvement of productivity and quality at the source of production or service center."

Quality does not merely mean[8] the goodness or otherwise of a finished product, Of course, the quality of a finished product is the ultimate objective of a company; this is also what the consumers expect from the product. However, in order to achieve the desired quality in the finished product, it is essential that the whole plant, starting from the purchase of raw materials to the stage where the ultimate product reaches the consumer, has to contribute towards building quality into the product. Even after the product has reached the consumer, his reactions have to be fed back, so that the product enjoys continuous sales. Quality has a meaning in al the stages of the product, and means any characteristic of the materials, parts, assemblies, processes, and processing conditions and product including its packaging, and thus embraces all spheres of activity. In any organisation, the quality function involves all departments and all groups of personnel.

8 Quality Control & Total Quality Management, by M.V.V. Raman Edition 1967 page 2 – 11.

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CUSTOMER  ────────▶  PRODUCER

REQUIREMENT        DESIGN

TEST              MANUFACTURE
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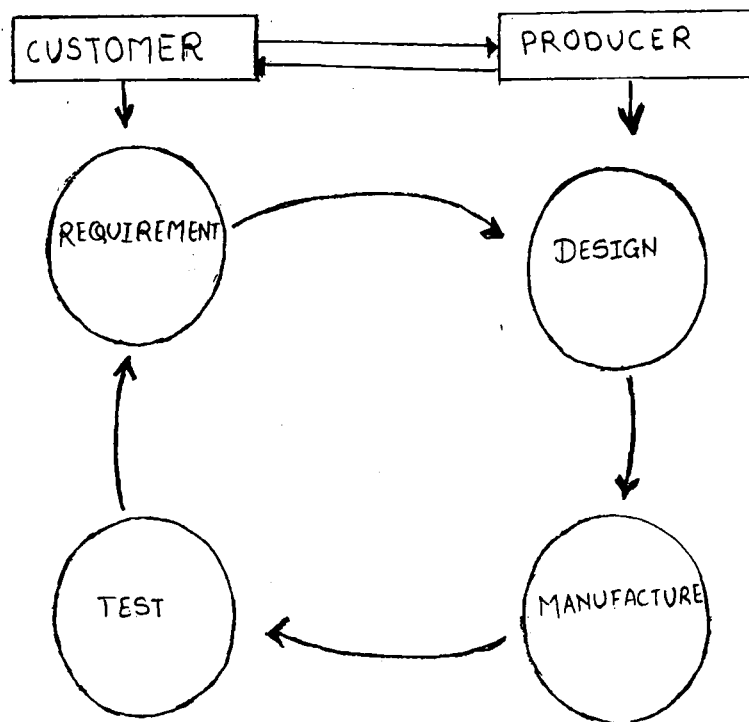
Schematic Representation of Meaning of Quality

From the above one can make out the interrelation between 'Producer' and 'Consumer'.

Inspection and quality control always goes hand in hand:[9]

As quality is an essential requirement of any product. Modern qualiy control is an integrated approach to the quality function in an organisation with the basic objective of providing a definite quality assurance and keeping the quality costs at an optimum; the integration has to take place in the fields of design manufacture and use.

One of the basic principles of a quality control programme is the principle of prevention of defects or building quality as the manufacturing continues.

9 Inspection and Quality Control a guide of National Productivity Council August 1980 issue Page 1.

Though quality control personnel assist in the discharge of this function, the responsibility for building quality rests with the production personnel. Thus supervisory personnel have a major responsibility to wards quality; the quality control group assists them in the maintenance of quality and its improvement.

In exercising the function of quality control, inspection and testing play a fundamental role. They provide a basis for quality evaluation in various stages of manufacture including acceptance of raw materials and other bought out items; through this evaluation adequate control procedures could be designed so that the specified 'quality' is built into product and placed in the hands of the consumer.

Thus the modern market is going to remain more cautious about quality. Customers are going to become more demanding for better quality products and international competition is going to remain more fierce. Hence, companies that are going to deliver quality in all respects are going to prosper in coming centuries.[10]

"The cost is long forgotten but quality[11] is remembered forever". All this is going to remain basically in the hands of shop floor employees and along with them all other employees giving them support as team work will maintain flowing of quality in their respective manufacturing Units.

10 My 25 years with Escort by Pramod Batra Chapter 7 Page 137.

11 Management Ideas in Action by Deepak Mahindra & Pramod Batra, Edition 1993, Chapter 6, Page 249.

2.2 EVOLUTION OF TQM CONCEPT:

The problem is not to increase quality. Increasing Quality is the answer to the problem: Myron Tribus[12]

Total Quality Management : A New Culture

INTRODUCTION

As modern market is going to remain very much quality conscious. At every stage quality is going to be considered as permanent factor. It is now going to be decided by CEO, MD or whoever is head of that organisation that if he wish to continue quality motion in his establishment not only himself or top management is required to change their vision but each department, section, person at middle level, lower level need to be changed and should give due importance to Concept of Quality and not only in the terms of manufacturing but procurement of material, storage of it, preventive and break-down maintenance, calibration of equipment, tools, instruments, shop floor house keeping, shop floor discipline, team work, interpersonal relationship, change in attitude and behaviour of employee, especially shop floor employee, their participation and achievement at aspect of working and at last importance to documentation. If it is maintained systematically then only customer satisfaction will be achieved. For that, it is very essential to understand how Evolution of Total Quality Management Concept was taken place. Those factors have received importance in quality management as per passage of time.

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12 Managing of Total Quality from Deming to Toquchi & SPC by N. Logothesis Edition 2002 Page 1- 21.

It is being increasingly recognized that a high quality of proa uct and service and their associated customer satisfaction are the key to survival for any enterprise. The nature of the current worldwide competition generally demands from any corporation the following four types of ability characteristic:

To understand what the customer wants and to provide it, immediately on demand, at the lowest possible price.

To provide products and services of high quality and reliability consistently.

To keep up with the pace of change, technological, political as well as social.

To be one step ahead of the customer's needs; that is, to predict what the customer will want one year or ten years from now in future.

Of course, as Deming says: 'you don't have to do this; survival is not compulsory!' But the fact is that any company which lags behind in terms of any of the above characteristics will inevitably be overtaken by a competitor. Thus translating the elements of management cycles for quality into reality can be addressed in five phases. Decide, prepare, start, expand & intigrate.[13]

The attainment of those abilities requires an organized approach to management – an approach of managing for total quality, of managing for effectiveness and competitiveness, involving each and every activity and

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13 Quality Planning & Analysis by J. M. Juran & Frank M. Gryna, Tata McGraw Hill Publishing Company Ltd., New Delhi, Edition 1995, Chapter 6, Page 130.

person at all levels in the organization. This is the total quality management (TQM) approach. Usually this approach will demand a total transformation of the existing management culture. There will be no room for complacency or halfhearted measures. There will be no alternative. If the quality revolution is to take root and succeed, a culture advocating a total commitment to customer satisfaction through continuous improvement and innovation in all aspects of the business.

The customer in the TQM culture is not intended to mean only the final recipient of the corporation's end-product or service. The customer is also every individual or department within the organization, which is now viewed as a chain of which only the final part is the external customer. Every person or departmental activity affects another, and in turn is affected by others. There is always a recipient of the output from every process – any activity, operation, action, single task or decision that is taking place.

Thus, there is a linkage between " Internal Customer" and "External Customer" (therefore, it is equally true that external customer can not be satisfied unless the internal customer is also satisfied. *)

Having as a basis the above definition of a customer, the actions required for the achievement of customer satisfaction become the everyday duties of every individual or division within the organization. Some of those routine duties could be as follows :

• To identify the "Customer-satisfaction Index" **

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* *Further discussion on this point is available in Chapter VII.*

** *For example in M/s. V.J.Equipments Pvt.Ltd. Maval, Pune, Customer Satisfaction Index Index is calibrated at every 3 months and suitable action plan is build up to bridge the gaps.*

- To monitor performance and customer satisfaction levels.

- To identify improvements necessary in the customer interface.

* To deliver Quality products and services at the lowest cost to customers.

- To assess and agree the customer's requirements.

- To tailor output to the customer's demand.

When appropriate company policies have firmly been established, so that activities such as the above and the TQM definition of the customer become second nature for every employee in the company, the TQM culture will have been established.

Inevitably, the TQM culture will vary from company to company, in the same way that cultures vary from country to country. However, the essential principles are the same and equally useful, not only among the different organizations, but also among the different divisions of the same organization, such as procurement, accounting and finance, research and development design, production, distribution, sales and marketing. They require the achievement and maintenance of quality on a total scale. This involves every one in a common effort of improving every functional procedure which can be analysed by an examination of its inputs and outputs.

Major achievements incl ude cost reduction and corporate success. But removal of waste, reduction of costs, improvement of reputation and increased market share are not the objectives; they are simply the natural consequences. Continuous improvement and innovation are the objectives, if that is, one can give such a name to a non-static, updating and never-ending process. It is an objective without a completion date, because nothing can ever be immune from further improvement; new technologies, methods and attitudes or the presence of innovators and advocates of change will make sure of that. Thus, it is a journey not a destination !

In a TQM culture, the top managers are themselves the advocates of change, they must be, because no improvement can ever materialize without a change in the old management attitudes and, in particular, in the attitude embodied in the maxim, 'stick to what you know!' you can never reach a stage when 'what you know' is enough. Progress and breakthrough have always been due to those advocates of change who did not want to adjust their actions to fit in wit their environment; to those who eventually succeeded in making the environment fit with their beliefs and actions − actions which turned out to be correct. Progress and success for a company, therefore, can materialize only when a committed management accepts the challenge of change, and becomes the leader in defining a (new) total quality policy and in creating the conditions to enable everybody to fit into this policy. It is rightly say that if you are doing today, whatsoever you were doing yesterday, tomorrow will not be for you !

Thus the TQM is a sure way of Organisational excellence[14]The process of change is not an easy one to manage, it is not only the

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14 Quality Circle Forum of India Jan Mar 2005 issue Vol 23, Page 7

commitment and the technical change (new methods and techniques for quality improvement) that need to materialize; more importantly, there is also the social change. One should be concerned with the social effect that any deviation from the norm usually has. Abandoning old habits and attitudes in favour of new ones can be an awesome task requiring, among other things. A large amount of faith and commitment. It is, indeed, difficult to change a corporate culture, which, by nature, usually evolves over a very long period of time. The basic values, the assumptions, the goals and beliefs which guide the way a company operates, and which probably still reflect the values of the company's founders, are what determines the face the company presents to the outside world. Old attitudes die hard and can be an obstacle to change. The greatest resistance usually comes from those who see the change as a threat to their status in the company. There are also those whose actions are always governed by a fear of failure, or even those who worry about the extra responsibility any new knowledge might bring. A manager who tries to change others will also have to be a behavioural scientist, an expert in human motivation, and proficient in the concepts of the existing culture, such as prevailing attitudes, beliefs, habits and practices. It is important, of course, that one should be careful not to create a culture vacuum by demolishing the old culture. For somebody genuinely to accept the change, a viable alternative should be on offer. The TQM culture provides such an alternative.

TQM provides an environment where fear is eliminated, where all the employees take pride in their work, where they feel respected and accepted, where they feel part of the same team. And where they strive not only for their own interests, but also for the interests of the whole organization. This probably sounds utopian and alien (by western standards), but it is not

impossible to achieve. It need s the establishment of the following three fundamental characteristics:

As total quality management focuses on commitment to continue improvement and customer needs, commitment (to never ending quality improvement and innovation).[15]

Scientific knowledge (of the proper tools and techniques for the 'technical' change)

Involvement (all in one team, for the social change).

The above characteristics are so important that they can be considered as the axioms of the TQM culture.

Total Quality Management[16]

It has already been started that Total Quality represents a competitive strategy. 'Quality', in terms, of 'Total Quality', is everything an organisation does in the eyes of its customers, which will determine whether they buy from this company or from its competitor. Total Quality is therefore as much concerned with confidence and the 'overall impression' of the market as it is with specific measurable or quantifiable characteristics. Sometimes, the customer is adversely influenced by some quality deficiency, which may even work in his favour. For example, if a supplier forgets to invoice his customer, this is clearly to the latter's advantages, but even so, theeffect on him will almost certainly be negative. It may well occur to the customer that if his supplier is poorly organised in this respect, then he may also be weak

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15   Human Relation & Organisational behaviour By R. S. Dwivedi, McMillan India Ltd. publication edition 2001 page 832

16   Total Quality Management by R. K. Mittal. Edition 1999 Page 56– 79.

in other areas. His confidence will be lowered and it is quite likely he may put future business elsewhere, particularly when the service to be purchased is critical to the customer in some way.

Principal Objectives

A total quality organisation must have four principal objectives, which are common to any organisation. A given organisation may also have many additional specific goals.

1. Continuous improvement of the organisation, which must be equal to or greater than that of any competitor.

2. Continuous and relentless cost reduction.

3. Continuous and relentless quality improvement.

4. To create an organisation whereby everyone is working towards making their organisation the best in its business, and to capitalise on the sense of achievement and working in a world-class organisation.

Let us look at each of theses goals in turn.

Continuous improvement

Many organisations take a natural pride in their progressive improvement activities, which is laudable and to be encouraged. It is amazing, however, to discover how few organizations have any idea as to how they are actually perceived in comparison with their competitors in the marketplace.

Many people believe that if you are not achieving customer satisfaction, you are causing its opposite, i.e., customer dissatisfaction. By so doing, they forget the most important and dangerous situation of al; customer indifference!

It has been said that to be successful in business it is necessary to be better than your competitor at least something. Nowadays, even that may not be enough. We must be better than our competitor in every possible way. Just 'meeting the requirements of the customer' is not sufficient. Also requirements change very fast and customer wants it in his/her ways !

The four elements of total quality

Despite the obvious advantages of the new approach as evidenced by Japanese competitive success, the West in general still clings to some of the old ideas.

Instead of Quality becoming everybody's job, as in Japan, it has been and still is seen by many as a kind of police force activity parallel to production rather than being inherently part of it. Through out the 1970s and 1980s the advocates of this approach have stubbornly resisted any deviation from their belief that Quality Systems are the centre of the universe. Even now, when all the evidence points to the fallacy of this approach, and it has become self evident that Total Quality along the lines of the Japanese experience is the only way to compete, they still argue that Quality Systems are the focal point of what they refer to as Total Quality 'Management'.

As everyone in the organization is made responsible for quality and he is expected to aim for no defective work. This technique conceived to attain a high level of quality on consistent basis.[17]

Of course systems and procedures are important; of course there must be traceability, calibration, and so forth, but it does not matter how much focus one puts on systems, systems do not hold the pencil of the designer,

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17 Quality Control and TQM by P. L. Jain, Tata McGraw Hill Publishing Company Limited, New Delhi

Edition 2001, Chapter 11, Zero Defect, Page 221.

not turn the handles on the machines. Quality control does not answer the phone every time a customer calls, nor it deliver the product or service to the customer. If the people involved do not really care, if they just do their jobs according to the instructions, then it does not matter how much system you have, you will never remain in business in the face of international competition. Real quality is all about winning the hearts and minds of all of the people, and there has never been a quality control or quality assurance department capable of doing that.

When the systems focused approach has failed to produce the results, the advocates of this approach, instead of considering that they may be wrong have insisted that what is required is more of the same medicine with a larger spoon consequently, organisations which have suffered from this treatment have become more and more bureaucratic and people have become alienated from quality, seeing it only as a negative self flagellation process rather than the stimulating, exciting concept that it really is!

In reality, systems are only one of four fundamental elements of Quality which are:

- 1. Systems
2. Processes
3. Management
4. People

Systems

The principles of Quality Systems can readily be found in such documents as British Standards 5750; ISO 9000; Allied Quality Assurance Publications (AQAPs); Federal Drug Association of America Publications;

and many variants created by some specific organisations, for example Ford

Third Party Certification

This concept has been gaining popularity in the UK and Europe in recent years as a development of the Ministry of Defiance 'Contractor Assessment' Scheme which started in June 1972 in the UK.

Under these schemes, an organisation is assessed by an external audit team and judged on its systems and procedures, usually against the requirement of such standards as BS 5750, etc.

The one merit of such schemes is that at least the assessed organisations, when they meet with the requirements, have a base level of organisation. This is all that can be claimed as a result of such assessments. They do not and cannot imply that the said company will produce high quality products. All that can be hoped for in that respect is that some of the worst disaster can be avoided. For example, it is unlikely that the Zeebrugge disaster would have occurred if the ferry company had operated to the spirit of BS 5750; because there would have been a procedure to ensure that the ship could not have left the harbour with the bow door open, or without the Captain knowing, which was apparently the case.

There is nothing which a third party audit can do under the terms of these standards which will put an organisation in to a position of competitive advantage, which unfortunately is the mistaken, belief of many organisations who have enthusiastically introduced Quality Systems into their organisations.

One company making gas appliances was recently awarded unqualified approval to BS 5750 and yet, on the admission of the plant manager, 40% of the product was rejected on first submission to the customer, and 60% reworked before it ever left the factory gates. The systems and procedures were apparently faultless; the processes were inadequate to say the least. Unfortunately, BS 5750 and its variants are not designed to evaluate processes. Even if this were changed, it is doubtful whether many of the auditors could be trained to conduct the process capability, which would be necessary.

Processes

No matter how good the systems and procedures are, if the processes are not capable then quality cannot be achieved.[18] The idea that quality means "Meeting the Requirements" is not complex. If requirement do not exist, quality cannot be measured.

Another fundamental difference between Japan and the West is the focus on process improvement and processes control.

In Japan they have a saying, 'Look after the process and the product looks after itself!' Unfortunately in the West we lack the means to look after the processes, even if we had the desire. The reason is that to do so would require the harnessing of all the resources of all the people on scale never dreamed of even today in Western organisations.

In Japan, following the original Introduction of Quality Circles in 1962, millions of workers have been educated, trained, and developed over

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18   Total Quality Control by John M. Ryam, Tata McGraw Hill Publishing Company Ltd., New Delhi
Edition 1996, Chapter 1, Page 13.

the years to a level unheard of in the West. Quality Circles of these workers are capable of solving work-related problems of the same level of sophistication as those solved by systems analysts and production engineers in Western organisations. In the West, many companies have, over the past decade, introduced quality circles, but none has been developed to anything like the standards reach in Japan.

Consequently, the only problem- solvers are the managers and engineers. The sheer volume of process-related problems in even the simplest of organisations goes well beyond the capacity of such personnel, who in any case will be so involved in fighting day to day sporadic fires that in no way can they engage in consistent project-by-project process improvement on the scale of that being achieved in Japan.

The message is clear: unless western companies can unlock a similar resource, the gap between East and West will continue to grow.

In the next decade we must see a massive change in the levels of involvement in process improvement, otherwise failure is inevitable. Even today the car giants such as Jaguar, Porsche, Rover, Benz,etc, are facing almost lethal competition from Japan, not necessarily in product performance, but in marginal cost. The return on investment of most Western car giants is pitiful compared with the Japanese and these costs are hidden in the processes. [19] Thus the term quality of work life (QWL) has been applied to a wide variety of organizational improvement efforts. At some General Motors plant at QWL project and they have proved remarkably good in enhancing overall skill of personal and processes.

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19 Structual Interventions and the applicabiulity of organization development by Wedell L. French Cecil H. Bell, Jr
    Page 220 – 230.
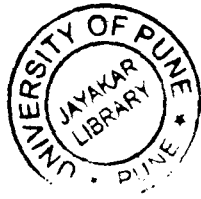
Management

It is accepted that managers are also people! But 'Management' has a critical role to play in Total Quality. In fact this group can be regarded as the linchpin or powerhouse in a successful programme.

It is important to remember that managers as such do not make anything managers get results through people. Since managers can opt for several different styles of management, it follows that these must be studied very carefully if the performance of people is to be consistent with the exacting demands of Total Quality.

Basically, the two extremes of management style are:

- Authoritarian
- Participative

Of the two, the authoritarian style is the easier. Given a careful balance of threats, penalties and regards, the approach makes few demands on the busy manager, and when span of control is wide, and the manager under pressure, he may feel that this is the only option available, even if he would prefer to manage in a more participative way.

Participative management, on the other hand at first side would appear the opposite. If goals are to be achieved through loyalty, job satisfaction, group activities, it is necessary to know the people on more intimate level. This is demanding on the busy manager, and many would believe that the main resource of time is not available. Fortunately, experience with quality circles indicated that this could be a false impression. Provided that the concept is introduced carefully, and is properly understood. Unfortunately in the West most companies appear to be either unwilling or incapable of doing

this research first. The concept of Total Quality Management is regarded to be of much importance and devoted to the subject.

Another aspect of the management role in Total Quality involves team-work. There was some discussion of the cross functional problems related to the internal customer-supplier concept, and management 'professionalism'. This form of management involvement is very essential for Total Quality and is very different from the system approach controlled by the Quality Assurance Department.

The remedies to the problems identified by the managers using the pareto principal referred to earlier will involve measures to:

- Improve systems and procedures,
- Improve processes
- Improve management organisation, or
- Improve workers methods

The fact that it is the managers themselves who are finding the remedies is very different from those managers having remedies imposed upon them by quality assurance and others. The very fact that they have participated in identifying the theory of causes, testing the theories, and finding remedies will motivate them to a degree far beyond that achieved through more traditional method. It is myth of Team Work.

Of course, people do not decide how they are to be managed. In many ways one could say that they are the fifteens. It has been said, 'Show me a company with poor Industrial Relations and I will show you bad management'. However, one can not expect a labour force, which has become accustomed to one particular style of management for many years to

simply accept another, just beca use management perceives the need. Fair relation-ships have been poor in the past, there will be many suspicions and defensive practices which will stand in the way of progress.

Many of them will not disappear overnight, and it is important for management to ensure that people are fully kept in the picture as to management intentions regarding. Total Quality, and to encourage participation. Later in the thesis, sufficient space will be devoted on these issues, which must be carefully awaited before involvement is considered.

The Quality Cost Concept[20]

Virtually all institutions make use of financial control which include a comparison of actual cost with budgeted cost, plus associated action on the difference, or "variance". In large organisations it is usual to extend this principle to the recognised departments. To this end, departmental budgets are established and departmental costs are measured. The heads of the departments are then held responsible for meeting their budgets.

These departmental costs are incurred to carry out the assigned special mission of the department, including its contribution to Quality. However, until the 1950s there was no special accounting procedure to evaluate the cost of the quality function. The costs of achieving fitness for use where scattered widely among numerous departments. For most of them, the quality cost were a minority of their expenditures. (An obvious exception was the inspection and test department)

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20 Personnel Management by Walter Dillscott & Robert C. Clothier Edition 1982, Page 1 – 8.

Beginning in the 1950s, various forces converged to urge companies to evaluate the costs associated with the quality function. These forces included:

1. Growth of quality costs due to growth in volume of complex products which demanded higher precision, greater reliability, etc

2. The influence of the great growth of long life products with resulting high costs due to field failures, maintenance labour, spare parts, etc (the cost of keeping such products in service often exceeded the original purchase price)

3. The pressure arising from the phenomenon of 'life behind the quality dikes'

4. The need for quality specialists to express their findings and recommendations in the language of upper management the language of money.

One of the easiest things to measure[21] and also one of the most important in todays business world is time. The interrelation of cost of poor quality to time is actively based costing.

What has emerged is a concept of defining and measuring quality costs and then using the resulting figures for two different but interrelated purposes:

- ❑ To provide a new score board as an added form of cost control

- ❑ To identify opportunities for reducing quality costs. Here the infosys is not on meeting some historical standard but on challenging the validity of that standard.

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21 The Six Sigma way by Peter S. Pande, Robert Neuman & Roland Cavangh, Tata McGrawHill Publishing Company Ltd, New Delhi. Chapter 14, Page 199.

How TQM works?[22]

TQM increases customer satisfaction by boosting quality. It does this by motivating the work force and improving the way the company operates.

1) Customers are more demanding

The customer is more sophisticated and knowledgeable. If you don't offer good service, he will buy from a competitor. When corporate customers start improving their own quality, they also expect better performance from their supplier.

CUSTOMER SATISFACTION CYCLE

22 Sudershan Chemicals Limited, Pune, TQM Manual of 1990 page 14.
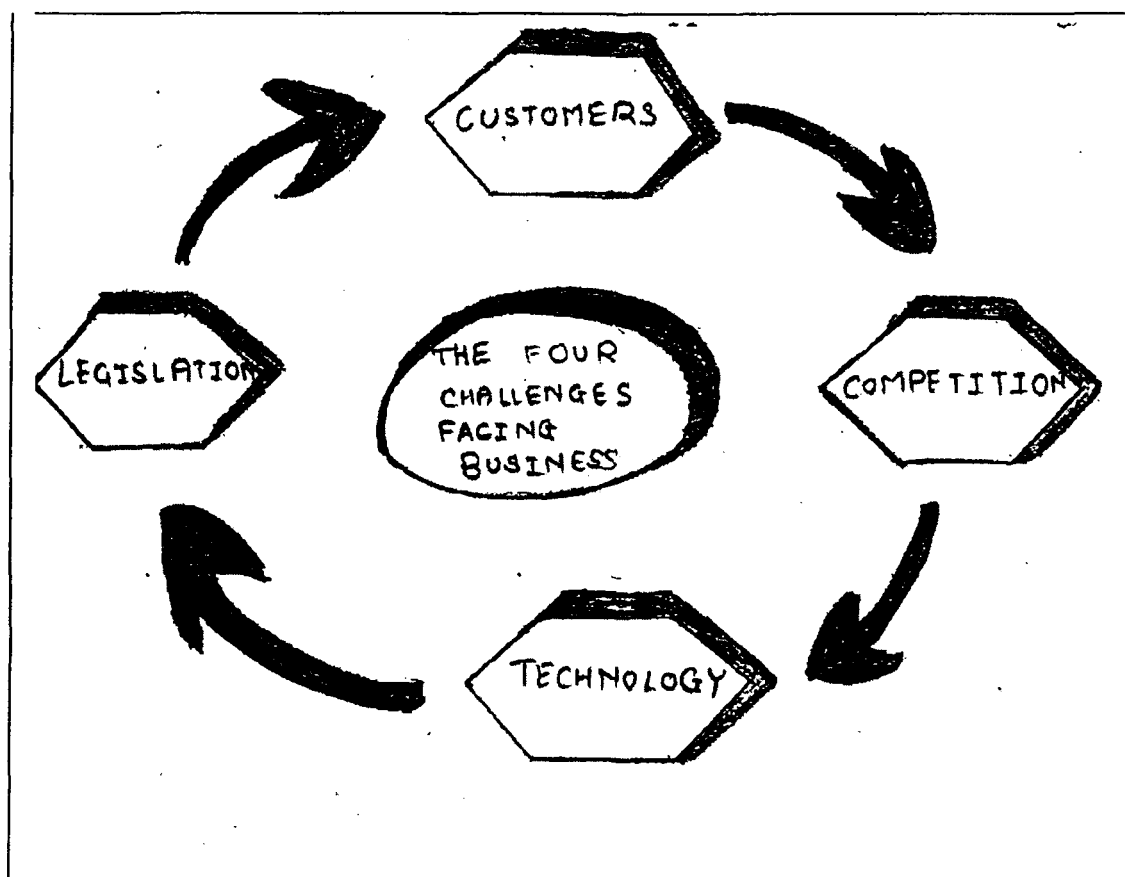
Competition if greater

Competition is getting harder and becoming global. One buyer said, 'I am just as likely to get a sales call from Malaysia as from Manchester.

The fast growing countries of East Asia often produce at low cost. This may be because of low wage cost or large investment. As a result, prices in many markets have fallen. Others will start to drop.

As in the past our future[23] depends upon people what they do & what they accomplish. For understanding tomorrows managers and managements of change the challenges at macro and micro level the issues quality of working life and quality of life i.e. well around the personnel and professional life needs to be seriously studied for future business success.

Western products and low price products from emerging countries. Many companies now produce a new model in half the time it previously took. Some products have much shorter life than before. At one time a building society would not alter the style of its savings accounts for decades. Now it may add or delete a/c from one year to next.

Change has even taken place in a mature public service organisations. Among Hospitals, Local government, railways, and schools each institution is trying to get an advantage over the other.

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23 Dynamic Personnel Administration, Himalaya Publishing House, by M. N. Rudra Basavraj, Edition 1996, Page 680 and 708.

3) Technology is changing

Even companies in traditional Industries are finding that things are being done differently. Companies are using biotechnology, fibre optics, ultra sound and neural networks to make faster and better products.

New plastics, ceramics and adhesives are making ordinary products out of date. Service organisations are using information technology to respond faster and faster.

4) Legislation is making greater demands on companies

environmental, health and safety laws now require companies to run safe and pollution free businesses. No longer can you simply pour toxic liquids down the drain. Employees have to be careful to avoid environmental damage. This requires a motivated and knowledgeable workforce.[24] Now it is the role of the trainer to make them to understand the goal of the organization to increase sell, to reduce customer complaints, to avoid rejection percentage and to increase profits. All these are possible through only training which measures effectiveness of the employee.

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24   Handbook of Training and Development by John Prior, Jaico Publishing House, Bombay
Edition 1994 Page 57 – 68

2.3 VARIOUS TQM PRACTICES IN INDIA

Introduction:

The business environment in India is going through many changes.[25] This is the effect of Liberalization, Privatisation, Globalisation (LPG) signing of GATT etc. many concessions, privileges and protections offered by the Government to the organizations are being withdrawn gradually. These changes have affected the working of many cooperative organizations in India. The manufacturing organizations need to survive on their own merits in the competitive world of business. They need to become dynamic and respond to the various demands. They must aim high. Total Quality Management (TQM) would be a goal worth pursuing by these organizations.

TQM TECHNIQUES AS APPLIED BY MANUFACTURERS

There are number of techniques of TQM which are available in India, and used by the various manufacturers. However some hundred TQM techniques detailed glossary is given as follows:

Acceptable quality level (AQL) – To provide a structure of sampling plans, risks and inspection strategies to ensure that the customer receives the quality that the supplier has contracted to deliver.

Affinity diagram – To organize large amount of data in groups according to some form of natural affinity.

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25 Dr. V. V. Patil Institute of Cooperative Management, Pune Course Material Book of 2002 Page 1- 37.

Arrow diagram – To show the time required for solving a problem and which items can be done in parallel.

Bar charts – To display discrete data collected by checksheets so that patterns can be discovered.

Basic statistics – The mean, median, mode range and standard deviation are the ways of summarizing ad describing large volumes ofdata. The first three are measures of location, the last two are measures of spread.

Benchmarking – To identify and fill gaps in performance by putting in place best practice, thereby establishing superior performance.

Box and whisker plots – To provide a simple way of drawing the basic shape of the distribution of a set of data.

Brainstorming – To generate as may ideas as possible.

Breaking set – To overcome blocks in thinking by generating new ideas. It is particularly useful in prompting a group to be more receptive to new suggestions.

Buzz groups – A way of getting the immediate reaction of a group to a new idea or problem.

Cause and effect analysis – To examine effects or problems to find out the possible causes and to point out possible areas where data can be collected.

C Chart – To identify when the number of defects in a sample of constant size is changing over time.

Check sheets – To collect data when the number of times a defect or value occurs is important.

Concentration diagrams – To collect data when the location of a defect or problem is important.

Consensus reaching – To give a team a methodical way of examining alternatives to reach a collective conclusion which all team members can accept.

Contingency planning – To avoid 'firefighting' and waste of resources by planning for contingencies in the completion of a project.

Cost –benefit analysis – To estimate the real cost and benefits of a project under consideration.

Criteria Testing –To evaluate and compare alternative solutions to a problem by rating them against a list of criteria.

Critical path analysis –A project planning technique which separates the work to be done into discrete elements, allowing the key elements that affect the overall project to be identified.

Customer's contingency table – To understand the needs of both internal and external customers for the fulfillment of customer satisfaction.

Cusum chart – To identify when the mean value is changing over time.

Deming wheel (PDCA) – A management concept to satisfy the quality requirements of the customer by using the cycle : plan, do, check and action.

Departmental cost of quality – To review the internal customer-supplier relationship.

Domainal mapping – To assist in the identification of internal customers and their needs.

Dot plots- A simple graphic device which presents observations as dots on a horizontal scale.

Error proofing (pokayoke) – To design an operation in such a way that specific errors are prevented from causing major problems to the customer.

Evolutionary operations (EVOP) – A scquential experimental procedure for collecting information during on-line production to improve a process without disturbing output.

Failure mode and effect analysis) FMEA) – To assist in the foolproofing of a design or a process.

Fault tree analysis- To perform a quantitative as well as qualitative analysis of a complex system.

Flowcharts – To generate a picture of how work gets done by linking, together all the steps taken in a process.

Force analysis – To identify external and internal forces at work when developing a contingency plan.

Force field analysis – Allows you to identify those forces that both help And hinder you in closing the gap between where you are now and hinder you in closing the gap between where you are now and hinder you in closing the gap between where you are nor where you want to be.

Gannt charts – For planning the steps necessary to implement quality Improvement.

Geometric moving averages – To identify trends in small changes in The process mean. The geometric moving average is sometimes called the exponentially weighted moving average (EWMA)

Histograms – To display continuous data collected by check sheets so That any patterns can be discovered.

Hoshin kanri (quality policy deployment) – To delight the customer Through the manufacturing and servicing process by implementing the Quality goal of the organisation.

Idea writing –To bring all participants into group work.

Imagining – To assist a company to identify areas of opportunity By concentrating on the ideal outcome then working back from it. Improve internal process (IIP) plan – To provide the structure to Develop work plan details for a task using various factors, such as Measurable, responsible resources, times and previous task owners.

Is/is not matrix – To identify patterns in observed characteristics by a structured form of satisfaction. **ISO 9000** – To demonstrate to yourself, your customers and an inde Pendent assessment body that you have an effective quality Management system in place

Just in time (JIT) – To deliver the raw materials or components to the production line to arrive just in time when they are needed.

Kaizen – A Japanese term meaning 'change for the better', the concept Implies a continuous improvement in all company functions at all level.

Lateral Thinking - A way of transferring from one frame to reference to another enabling you to break down barriers which inhibit creative thought.

List reduction - To reduce a list of ideas to one of manageable size.

Matrix Data analysis- To provide a picture of numerical data from a matrix diagram in an efficient way.

Matrix diagram - To provide information about the relationship and importance of task and method elements of the subject.

Mind mapping – A way of generating and recording idea individually rather than in a group. Mind mapping makes use of word associations, encouraging you to follow your own thought patterns, wherever they lead. It also provide a written record of the ideas generated.

Minute Analysis – to estimate the survival period of a particular product unit under certain conditions, using a stimulated experimental environment. **Morphological forced connections** – to generate new ideas or ways of approaching problems. It combines lists of attributes and forces new connections between them, so triggering new options.

Moving average - To identify trends in data when short-term variation or cyclical patterns are confusing the longer-term picture,

Multi-vari charts – To show the dispersion in a process over the short and long term using a graphic control chart.

Mystery shopping – A technique involving looking at your business from the outside and measuring the efficiency of your own key processes from the customer's viewpoint

Nominal group technique – A way of generating ideas from a group and identifying the level of support within the group for those ideas.

NP chart – To identify when the number of defective items in a sample of constant size is changing over time.

Objective ranking – helps to place you current activity in perspective and unable you to understand the purpose of your efforts.

Opportunity analysis – offers the opportunity to evaluate quickly a long list of options against desired goals and available resources.

Paired comparisons – To help a group to quantity the preferences of its members.

Parameter design – To determine which factors are important in the manufacturing process and to find the optimum set of working condition.

Pareto analysis – To separate the most important causes of a problem from the many trivial. Also, to identify the most important problems for a team to work on.

Paynter charts – To display information over time in a way that allows changes in patterns of failure to be discovered. Paynter charts will show when one failure mode takes over from another in terms of importance or when the overall failure rate is changing over time.

P chart – To identify when the percentage of defective items in a sample of variable size is changing over time.

Pie charts – A way of pictorially representing data, pie charts are an effective means of showing the relative size of the individual parts to the total.

Potential problem analysis (PPA) - To examine plans to identify what can go wrong with them, so that preventive action can be taken.

Problem Prevention plan – To anticipate what can go wrong and plan to prevent problems.

Process capability – To demonstrate whether a process is capable of meeting a specification and to calculate an index to show this capability.

Process cost of quality – To provide a financial measure of the quality performance of desirable result and contingency planning.

Programme evaluation and review (PER) technique – To establish a planning technique for complex and multi-level projects.

Quality circles – A special type of small group activity which forms a vehicle for the development of individuals.

Quality function deployment (QFD) – A technique or discipline for optimizing the process of developing and producing new products on the basis of customer need.

Relation diagram – To illustrate the relationship between problems and ideas in complex situations. Also to identify meaningful categories from a mass of ideas when relationships are difficult to determine.

Reliability – To find the case of failures and try to eliminate them and to reduce the effects or consequences of failure.

Rich pictures – To allow a group to capture all ideas developed, without judgment or analysis, in a pictorial form that allows the strength of the ideas to be recorded.

Robust design (Off-line quality control) – To achieve the proper functioning of a component even when affected by interfering factors, whether external, internal or manufacturing variation.

Sampling – A method by which a small number of items (the sample) is drawn from a larger number of items (the population) in order to draw a conclusion about the population based upon information from the sample.

Scatter diagrams – To allow the relationship between cause and effect to be established.

Snowballing – sometimes called 'pyramiding', snowballing is a technique for gathering information or ideas.

Solution effect analysis – To examine solutions to problems to find out whether there are any detrimental consequences and to plan the implementation of the solution.

Spider web diagrams – To show performance against a target when several criteria are being set.

Statistical process control (SPC) – To identify when processes are changing over time.

Stem and leaf diagram – To present raw data and to show their distribution visually.

Stratification – To generate ideas form improvement.

System design – To apply special scientific and engineering knowledge to produce a basic functional prototype model, having surveyed the relevant technology, manufacturing environment and customerneed,

Taguchi methods – A technique for the optimization of products or processes, Taguchi involves a two-stage experimental design that gives the benefits of robustness and efficiency with the minimum number of experiments.

Tally charts – To collect data when the value of a defect or problem is important.

Teamwork – To organize activity which requires a number of people to collaborate and work together for a common goal.

Tolerance design – To find out by experiment where the variability a Process (Product) occurs and where adjustments can be made.

Total productive maintenance – To help a process which aims at making the most effective and efficient use of existing production structures.

Tree diagrams – To identify the tasks and methods needed to solve a problem and reach a goal.

U chart – To identify when the number of defects in a sample of variable size is changing over time.

Why-how charting – when thinking in both abstract and concrete terms, and needing to move between the two, why-how charting enables a goal to be translated into action.

X moving range (X-MR) chart – To identify when a value is changing over time.

X-R chart – To identify when the mean value or range in a sample of constant size is changing over time.

Zero defects – To allow teams to experience the success involved in meeting ever more demanding targets without demotivating them and not achieving absolute success at once.

TQM- A NOBLE GOAL

A TQM organization always sets for itself a noble and challenging goal which is worth pursuing. While doing this it does not forget the needs of anyone. It integrates all aspects of business in such a way that it is beneficial to everyone. It is a complete win-win relationship between all the segments. It can be equated to the Indian concept of an individual trying to attain 'Moksha'. All may not be able to attain 'Moksha' but still it is a goal to be parsued by everyone. Similarly, all organizations may not become TQM organizations but still the goal is worth pursued by every organization.The benefits will be commensurate to the level they could go in this continuous journey.

2.4 PERCOLATION OF TQM TECHNIQUE IN MANUFACTURING INDUSTRIES

INTRODUCTION

The real understanding of quality,[26] therefore does not just serve the system (quality means confirmance), or even beat it or escape it. The interest in quality is due, in part, to foreign competition and the trade deficit. Analysts estimate that the vast majority of United States businesses will continue to face strong competition from the Pacific Rim and the European Economic Community for the remainder of the 1990s and beyond. This comes in the face of a serious erosion of corporate America's ability to compete in global markets over the past 20 years.

The problem has not gone unnoticed by government officials, corporate executives, and the public at large. The concern of the President and Congress culminated in the enactment of the Malcolm Baldrige National Quality Improvement Act of 1987(Public Law 100107), which established an annual United States National Quality Award. The concern of business executives is reflected in their perception of quality. In a 1989 American Society for Quality Control (ASQC) survey, 54 percent of executives rated quality of service as extremely critical and 51 percent rated quality of product as extremely critical. Seventy-four percent gave American-made products less than eight on a ten-point scale for quality. Similarly, a panel of Fortune 500 executives agreed that American products deserved no better than a grade of C+

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26 Total Quality Learning by Ronnie Lessem, Building a Learning Organisation, Beacon Book Publishing, New Delhi. Edition 1997, Chapter 1, Page 9.

Public opinion regarding American-made products is somewhat less than enthusiastic. In a 1988 ASQC survey of consumer perceptions, less than one-half gave American products high marks for quality. Employees also have misgivings about quality in general and, more specifically, about quality in the companies in which they work. They believe that there is a significant gap between what their companies say and what they do. More importantly, employees believe that their talents, abilities, and energies are not being fully utilized for quality improvement.

Despite the pessimism reflected by these groups, progress is being made. In a 1991 survey of American owners of Japanesemade cars, 32 percent indicated that their next purchase will be a domestic model, and the reason given most often was the improved quality of cars built in the United States. Ford's "quality Is Job One" campaign may have been a contributing factor. There is also evidence that quality has become a competitive marketing strategy in the small business community, as Americans are beginning to shun mass-produced, poorly made, disposable products.

Other promising developments include the increasing acceptance of TQM as a philosophy of management and a way of company life. It is essential that this trend continue if American companies are to remain competitive in global markets. Customers are becoming more demanding and international competition more fierce.

It is well established fact that Quality Guru's like Deming and others originated from US but were not taken very seriously by US Government. One of the reason was that ,due to initial success in manufacturing sector of industries in Europeon manufacturers about Quality through technological

improvements. There Is no doubt that the technology offers breakthrough in manufacturing processes but Quality concept dynamic in nature need to be married to technology. Unfortunately excluding some emphasis on productivity ,sufficient important was not attached to Quality(the assumption was Quality is a product of Technology).

In Japanese industries they were not aware as well as never known for quality in fact they use to copy and market effectively all over the world. Obviously technology was a shock to Japanees Industry. Fortunately, the Government Japan decided quality gurus and their opinions more seriously essentially to survive and grow in Global competition. In American economy the labour cost was very high where as in Japanees Industry labour cost was manageable. Therefore, Government of Japan thought that technology coupled with comparatively low labour cost can be capatilized if and only if quality movement is made successful in Japanees Industry. This initially on part of Government was very well appreciated by manufactring Industries. There was nation wide broadcasting of quality policy, mission of organization and participation of Japanees workers in quality circle . small group activities and suggestion schemes. For the first time japanees workers realized that management openly welcomes creative and constructive ideas from employees and they are serious about sharing of gains with productivity equitably. The Asian productivity organizations (APO) established separate TQM wing to create awareness among management and the employees about TQM.

In India after 1960's most of the manufacturing Industries developed Industrial Engineering departments. Essentially for improving productivity. Unfortunately how where it was at management's initiative and hence there was a cold response from shop floor workers and workers unions.

The arguments was on part of workers union was in controlled economy like in India, productivity is going to help management and one is not very much sure whether reasonably good share of profit will go to workers or not. In the license raj it was difficult to union to trust on Management and Management to trust to the Government. In such atmosphere quality movement could not away firm routs up to 1990.

After 1991 when Liberlization, Privatilization, and Globalization(LPG) was announced as governments policy, at initially Manufacturing Industries were much worried about the Global competition. During License Raj quality and prices were previllages of manufacturers how where under LPG the entire emphasis was shifted to customer.

In order to succeed manufacturing Industries had no other alternative but to take quality initiative to meet these challenges. For example private sector unit like Mukund Iron & steel Ltd Bombay or public sector unit SAI established Quality Assurance department (QA Dept) and from top to bottom it was made very clear that quality is the result of technology and positive attitude. Workers participation management, which was to theoretical under controlled economy became more fruitful in liberalized economy. Suggestion scheme and Quality Circle lost their novelty and started contributing very effectively improving profitability of organization. This realization about need for and desirability of quality initiatives and standards creating wave in manufacturing industry. Most of the reputed large scale and medium scale industries started applying for ISO certification. It was also realized in the process that Indian manufacturing industries are quite capable of achieving Total Quality Management.

In India foreign exchange reserve position also improved substantially between 1991-2000. From a deficit of 5000 crores it improved to create surplus of 5000 crores at the end of 20th century. The software boom and securing more and more orders on outsourcing basis created new environment of positive attitude towards work and life. Thus a suitable background was created for a TQM movement in India.

The experiments in TQM in both developed and developing countries created a new confidence in the minds of employer, employees, Govt. in favour of TQM. The customers were quite anxious for the simple reason that they started getting better deal and results (e.g. most of the electronic goods including computers were made available at cheaper prices in last 5 years). A study of all these experiments, all over the world bring out certain principles of TQM which are stated briefly in last chapter III.

To achieve this a successful Total Quality Programme must be based on certain following basic Principles :-

- Top management commitment
- Attitude change
- Continuous improvement
- Strengthened supervision
- Extensive training
- Recognition of performance

1. Top management should continuously reinforce a total quality programme by what they do. Whether in management meeting company magazines or newsletter, they should ensure their complete commitment to the approach. Despite the fact that key influences on the quality movement

have emphasized the importance of management commitment since the late 1950s, the disturbing thing is we still do not seem in general to have made the breakthrough in Western management. In Japan, and increasingly in the pacific basin, no member of management can have any doubts about the need for his or her complete commitment to the total quality process. British shortcomings in this respect can often be explained through shortterm perspectives by management, pressures to achieve short term results and concern about costs. We have to recognize that changing management attitudes is the key to success within an organization and that must start at the very top. In one major seafood organization, at the start of a total quality programme, the site director (who has a main board director) told his middle management that there could be no doubt of the importance of quality in maintaining the organization's leading position in the marketplace and that the purpose of the total quality programme was to ensure it. the future success of the organization was dependent on his commitment and their commitment. he personally demonstrated his commitment by being highly visible in the total quality programme and thus created an environment where management knew that their performance was measured directly in their commitment and support for the programme. To show commitment, top management should make sure that everybody within the organization from top to bottom is clear about the long-term goals-this affects management style, the quality of communications, indeed everything that is done within an organization.

Total quality requires a complete change in the attitude culture prevailing within organizations. The remarkable turnaround stories of Jaguar Cars and British Airways are examples where the organizations moved decisively away from a general view that delays, mistakes, defective

materials were "just part of life". Another interesting example is SAS, the Scandinavian airline, which some years ago was losing money and drifting hopelessly in the market place. With a new chief executive, Jan Carlzon, the airline embarked on a major programme based on an identified market niche: the business market. the airline carried out extensive surveys of businessman asking what were the main factors that persuaded them to travel on a particular airline.

The airline was thus able to make significant operational changes which in turn created an environments. Today the airline is successfully known as the businessman's airline. During the introduction of quality programmes in many different organizations and industries, the issue of attitudes has always emerged early in the process. Ask the production employees what their biggest problem is and they will almost invariably say that the machine or equipment is always breaking down. The engineers do not know how to maintain the equipment properly, they are never available and they seem to take a long time to repair breakdowns. Ask the maintenance employees what their biggest problem is and they well tell you the production workers: they never look after the equipment, they drive the equipment too hard and beyond specifications, and they will never call us out until a breakdown occurs.

Within a major seafood organisation we were able to break down some of these barriers by creating much closer links between a specific engineer and a production area, so there was a mutual interest in keeping the machines going. Similar problems existed i the steel industry between production departments. Quality problems within rolling mills would almost invariably be blamed on the steel making department, who allegedly did not produce the hot metal to specifications. Similarly you could guarantee that

within the steel plant the major problems would always be referred to the blast furnace.

Some of the problems of attitude were well illustrated by the managing director of Matsushita Communication Industrial Company, Hajima Karatsu, who was summarizing the differences between what the Japanese have achieved in adopting Deming's approach and Western management: In Western business the super elite give full play to their originality, but workers at the lower level are simply made to do standerdised work on the basis of manuals. Originally quality control was designed to restrict the occurrence of inferior products within a certain tolerance range. In Japan, however, it has been changed into a movement for total elimination of inferior products through creative co-operation by all quarters concerned. When inferior goods are produced Japanese workers consider it a shame and even weep. Total quality control has revived an old spirit of craftsmanship at modern factories. Achieving this type of attitude change is critical to the long-term success of a total quality programme.

Linked to attitude change is the create a climate of continuous improvement. Organisations need to ensure that they have real evidence at all times, through the use of statistical process control and control charts and many other simple techniques, that they understand what is happening in a particular process. This moves the culture of the organisation away from checking whether a particular product or process is working effectively after the event to ensuring that one understands and identifies any quality problems early in the process and seeks continuously to improve performance. It also requires all levels to understand their responsibility for this quality process. The most notable example that come across in recent years was within one of the Canon cameras factories in Japan. It became

apparent as the factory that there was no obvious inspection process. Some 10 years earlier they had inspectors at all the major points on the assembly line checking the work had been completed. They had slowly created an environment whereby employees and supervisors felt responsible for the quality of their areas until they reached a point where they had sufficient confidence in the process and the only formal inspection process was sample inspecting of finished cameras at the end of the production line.

Traditionally the issues of quality and inspection have been confined to manufacturing processes within organisations but for longterm success the attitude of continuous improvement should apply at all levels from top management downwards and to all parts of the process, including the offices, sales force and finance department. Whenever we go into an organisation to discuss a total quality programme, we often met with amazement, particularly in manufacturing organisations, when we suggest to top (or even middle) management that the programme should involve not only the 'shop floor' workers but also the 'white collar' employee. Not only does this attitude reflect a 'them and us' culture but it demonstrates a lack of understanding of just how inefficient an organisation can be away fom the direct manufacturing processes. As a small example, a secretarial quality circle group within one organisation identified savings of two person years if members of staff providing material for typing (Either audio or written) presented this material properly, without repeated redrafting. This represented a saving of some 9% of the total secretarial workforce.

Quality improvement should always be at the forefront of everything that is done, continuously reinforced and developed by management through

the systems, processes and organisations which make such improvements possible.

Within the steel industry in Japan it is interesting that, since the introduction of quality improvement programme some 25 years ago, many different emphases have been placed on different aspects of the process. In the sixties the emphasis was very much on quality of product. As the oil crisis hit Japan, the emphasis changed in the early seventies to energy conservation-a major issue in the steel industry, which is a very heavy user of energy and can be badly affected by large increases in energy costs. In the late seventies and early eighties the emphasis changed again to cost and productivity; certainly by the mid eighties, when we visited the Nippon steel works, everybody was wearing CAP badges. This approach pervaded the organisation and created an atmosphere whereby production and service departments worked closely together in production and service departments worked closely together in a company-wide quality improvement programme.

At a more trial level, a major chemical works in the North West of England set up project terms for a quality improvement programme who required specialist advice from a number of central departments, these project terms soon ground to a halt because the central departments did not consider attendance at appropriate meetings to be a priority and achieved by creating an environment where the organisation culture allows and encourages support between different areas. Any total quality programmeis unlikely to be completely successful all of the time. Management must recognize that achieving breakthrough requires constant support and positive feedback to everyone involved. The Japanese are particularly successful at

creating this environment. At Canon Cameras, there was lists of names indicating some sort of performance level. It is surprised at this thinking it might be some sort of bonus system, but found it was a record of suggestions made by the employees within a particular department. Any suggestion, however small was recorded on the chart and at the most suggestions. While the specific approach might not be appropriate to the UK environment, the underlying message was clear enough: every step needs to be taken to encourage the individuals within an organisation to be a part of the improvement process and to look for opportunities to make changes.

Within large parts of British industry supervision traditionally had been seen as the 'authority' within a particular department, responsible for telling the workforce what to do and taking appropriate disciplinary action if they did not comply. More recently, supervision became associated with progress chasing or, to put it another way, trying to make sure that others were doing their job properly so as to enable their department to function effectively.

The successful introduction of total quality gives a key role to supervision in ensuring that the quality message is carried down to grass root level. In the Road to Nissan, Peter Wickens shows the way forward:

In order to enhance the responsibility and role of production supervision it is essential to give back many of the responsibilities that have been taken away over the years. Nissan supervisors are responsible for making the decisions on who will work for them; they have full responsibility for quality, housekeeping they lay out their work area and material arrives blindside where they want it to come.

Training

One of the essential ingredients of broad scope quality progress is an extensive amount of training. The key success lies with supervision, then it is important to ensure that the selection, training and motivation of supervision allows for the development of the skills which enable them to become a dynamic force for improving performance. Top management needs to provide opportunities and the investment in training to ensure the quality of supervision improves. The success of total quality programme depends upon supervision (and indeed everybody!) being given the tools, skills and ability to manage the process. Too often top management confuses briefing with providing development and training. In the initial stages of any total quality programmes that have found resistance to taking supervisors away from their jobs for any length of time on the grounds that they are too busy; 'just tell them that they need to know' is often heard. Attitude change can only be achieved through a much longer-term perspective.

One of the major successes of the Japanese approach has been the very extensive training programmes that have been used in the total quality programmes. It is interesting to note that Prof. Ishikawa, often known as the 'father of quality circles' recognised in 1963 that once the extensive training of supervisors had taken place, the next logical step was to involve the stop floor. Thus were born quality circles.

We first considered how best to get grass- roots workers to understand and practice QC (Quality Control). The idea was to educate all people

27 Quality Planning and Analysis By J. M. Juran and Frank M Gryna. Tata McGraw Hill Publishing Company Ltd., Edition 1995, Chapter 6. Page 130.

working at factories thr oughout the country but this was asking for too much. Therefore we thought of educating factory foremen or on the spot leaders in the first place. The success of the Japanese approach to quality has been that, from the very beginning, the management and supervision fully understood each step of the programme, including all techniques and processes required.

Motivation

Getting the right people[28] on Board and then all enthusiastically putting in the right direction has bedeviled organization since the tme of wooden strip. When the most popular form of motivation left lash mark at every set of life. Thus motivation theory and practice emphasize strongly the importance of recognizing performance and achievement. This applies in any total quality programme, the question is how it is best achieved. The traditional suggestion scheme approach, whereby there is link between the reward and suggestion, generally does not work in a total quality programme if only because it creates a further layer of bureaucracy in evaluating each proposal. In Japan recognition is generally given through prizes and competitions for either the most or the 'best' proposals and projects. On a more spectacular basis, Sony selects the 'best' quality circle projects that have been carried out in all the major countries where Sony had a presence. The quality circle leaders and members meet once a year for a major quality circle convention in Tokyo, where a further competition takes place to establish the outstanding projects for the year The emphasis is very much on recognition of contribution and achievement with no direct monetary reward.

28 Harward Business Review by Cathryn Cronin Cranstan Publisher, Sept 2005 review page 20.

This approach creates a momentum for the total quality programme and encourages individuals and groups to seek continuous improvement. Interestingly, the competition approach is not welcome in all organisations: certainly in one North-Eastern based manufacturing plant there was considerable resistance to such an approach, despite the fact that there was a successful total quality programme running. The feeling among those involved was that giving prizes could be divisive. Whatever the approach, which needs to be tailored to each organisation, the key to success is that people are central to a successful total quality programme that recognizing their contribution will motivate them long-term.

Once these are adopted it was thought by top management of manufacturing industries that if following plan is prepared in support with above said principles it can be easily percolated to shop floor employees in manufacturing industries with the help of following additional factors:

QUALITY MANAGEMENT SYSTEM

There is a need for a quality[29] management system in an organization. For this an organization could simply adopt ISO 9000. there is already considerable effort being put by many private sector and public sector organizations to acquire certification as per these international standards. However, the cooperative organizations seem to be rather slow in their response. In any case, having only certificate of this type alone is not a guarantee for much improvement in the quality of product or services.

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29 Institute of Coopertaive Management, Pune Course Material Book of 2002 page 42– 55.

It is like obtaining a driving license. There is no guarantee that all those who have a license are good drivers. The organization has to go much beyond the systems certifications. This can only be considered as a first step in the (TQM) journey.

TECHNOLOGY UPGRADATION

In a competitive world it is impossible for any organization which is technologically ill equipped to compete with another which is better equipped. It could be visualized easily by looking into even our day to day situations. One could very well see the difference between one stenographer working with a traditional typewriter and another working with an electronic typewriter. Imagine an Air travel agency working without computerization. This is applicable in every activity whether it is in the office or factory or even in a war.

The organizations which paid very less attention in the past towards modernization need to change their mind set immediately. Continuous watch has to be kept on the development in technology, techniques, etc. and upgrade themselves all the time. Obsolescence will be a stumbling block whether it is at the individual level or at the organization level.

WORK CULTURE

Whatever may be the systems and technology, the employees could always defeat the very purpose of work if they are not having the right work culture. Unless a great effort is put to develop a positive and quality oriented work culture, not much can be achieved by systems and technology. There are examples of ISO 9000 certified organizations where employees do their activities in a ritualistic manner without any involvement in their work.

Intentional distortions cannot be stopped by any system. It is the same with technology also. What one can get out of technology depends on the individuals who are making use of that facility. In India we have the classic example of excellent equipment made available earlier in many of our Public Sector Organisations and national laboratories which were not properly made use of. The people were not geared up. The climate for achievement needs to be created through motivation, training and development of employees on a continuous basis. [30] Thus HRM to HRD is only possible with training and development.

In our country there are legislations for every aspect of life of civilians. These legislations become useless because people are not educated to respond to them. Within the organizations systems fail unless the employees respond to the spirit of the systems. There are cases where employees fulfill all the requirements as per the system but it is totally ineffective. This is more so in bureaucratic organizations where literally every procedure is followed without adhering to the spirit behind the procedure. It is necessary to make the employees understand the spirit behind the system.

Another important part of the work culture is how the individuals relate themselves within a team or within an organization. In India, we have a serious problem of employees not being able to relate themselves in a constructive and collaborative way. Many excel as individuals and fail miserably as members of teams or organizations. There is an urgent need to change the "I" culture to "we" work culture.

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30 SIBACA,Pune : Synergy 2005 Annual Institute Magazine, page 16.

CUSTOMER ORIENTATION:-

The traditional products first customer next approach, needs to be reversed to customer first, product next. This way the needs of customers become the focus of all developments within the organization. This concept of customerisation is extended further to the internal customers also. Everyone in an organization will have internal customers. He has to satisfy the needs of the internal customers to the same extent that the total organization tries to satisfy the needs of an external customer. This approach sensitizes the employees to work with service orientation both within the organization as well outside of it. It will have a big influence on work culture of the organization. Everyone in the organization will be judged on the basis as to what extent he is able to satisfy his internal and external customers.

SUPPLY CHAIN MANAGEMENT

The organization establishes a very close link with its suppliers, instead of treating them as outsiders. In a TQM organization, they become an extension of the business. They will be treated as partners in business. One could easily see the importance of developing the suppliers. The quality of product or service in an organization is ultimately decided by one of its worst suppliers. After ll, the weakest link will decide the strength of a chair. In the light of this, it is necessary that all suppliers are elevated to the level to which the company would like to go in the field of quality. In the absence of such approach, any attempt to go up in the quality front will miserably fail. A TQM organization extends all types of help for the development of its suppliers. This would also help in many other things like inventory

reduction, quality cost reduction etc., within the company. Ultimately, suppler development will be an economically gainful activity also.

LEARNING FROM COMPETITORS :-

A TQM organization will not fight competition in the traditional way. It would look at the competitors as Gurus. There are many things which an organization can learn from its competitors. There may be number of things which competitors do better than the way they are done within the organization. All that an organization needs to do is to learn to do things better than the competitors. In this context, the technique of bench marking is a useful one.

BENCH MARKING

The first step in Bench Marking is to identify where improvements are necessary and then to see if competitors are better in those areas. After gathering this information, the organization could see how they could do things the same way like competitors or even better way. This could be easily visualized by taking an example. An ordinary Bank normally takes about 15 to 20 minutes for encashment of a cheque presented by a customer. If this Bank is trying to improve its services, it needs to look around and find out how much time other Banks take for the same service. It will find that there are Banks, which would take less than 5 minutes for the same activity. In this context, it has to see how they can shorten the time required for the service rendered within the organization. It may not be able to come down straight away from 15 minutes to 5 minutes in one step. The Bank needs to set goals in an objective way. It may decide that in the next quarter of the

year it will bring the time down to 10 minutes and in the subsequent quarter it will reach the stipulated time of 5 minutes. After that it may even try to reduce it further to a minute or two. All organizations need to Bench mark and see where is the need for improvement, this is a continuous process of learning and improving.

ENVIRONMENT AND ECHO FRIENDLY OPERATIONS:-

The TQM organization shows lot of concern for environment, society and ecology. It never aims at serving the customer at the cost of environment or society. It must achieve a healthy balance between the various objectives. This is where it relooks to its operations and ensures that they are not harmful to any segment of the society or environment. If required, it will change its processes, design, specifications etc. as far as possible, it will have only such practices which are not harmful to anyone. Currently, the new International Standards ISO 14000 which deals with Environment related aspects is gaining momentum in many countries includingIndia. It may become mandatory in future.

· Thus the movement of Total Quality Management which was started in India since ancient time. It took real speed only after Liberalization, Privatization, Globalization. In present era of modernization one who want to strive hard needs to give more focus on Quality. This was realized by various manufacturers in India. They accepted and implemented this concept with the intention of customer satisfaction and as more weightage was given by top management, it slowly slowly percolated in manufacturing industries. Today there will be hardly any manufacturing units who are those not following atleast one TQM concept in their manufacturing process.

2.5 TQM AND ITS IMPACT ON SHOP FLOOR EMPLOYEES

INTRODUCTION

In India the overall improvement[31] in the competency level of shop floor employee called as labour force is measured by the indicators of education and training because any manufacturing organisation is concerned there are various departments which work in synchronization with each other to achieve end objective in Total Quality Management i.e. Customer Satisfaction. To begin this owner or whoever is called as CEO or decision maker sets a policy in Quality Management called as Quality Policies and through it he tries to maintain his commitment towards customer satisfaction. As all department support his vision they strive hard to achieve it. But the department which actually brings into reality the 'vision turning into action', is shop floor. This is nothing but called as backbone of all organisation. This shop floor is a focal point of CEO's vision and given more attention to the employees, their understandings, their grievances towards working and gives them technological, psychological as well as morale support so that whatever objective is planned by him is systematically achieved by all of them through interpersonal relationship and through team working.

Shop floor is a place where actual conversion of raw material taken place into finished goods. They should be firstly aware what's quality policies, procedures, systems, rules and regulations, problem and how to move towards it systematically. For that they need to be always trained in all

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31   Yojana a Periodical of Sept 2003, Vol 49, page 23 "Open Learning in the context of Globalisation.

respects ∎ so that end product which is called as output, should be matching with Quality Policy.

In order to understand it, their working process, problems, solution, methods, procedures, etc. it is very essential to find out how it is percolated on shop floor in course of time and was considered as permanent factor in Total Quality Management.

Before Factories Act, 1948, the life[32] of the worker was not particularly happy one. During the middle ages when viewed from the standards of the twentieth century. His ambition was to be able to live and his efforts were devoted to earning the bare means of subsistance. As he and his children were born, so they lived and died. The concept of equal rights was undreamed of by them. In America fresh and unfettered by traditions and class privileges, there appeared hope for better things. During the early part of the nineteenth century, there was little similarity between industrial conditions in America and in Europe. The majority of our people lived on the land and they earned their livelihood. There was work for all and food in abundance. In the cities and towns, this was the age of small tradesman; the household industry, the small workshop. In a degree probably never before attained, the workers were regarded as fellow citizens. Eli Whitney's cotton jean increased the demand for cheap labour and gave additional impetus to slavery. The institution of slavery, with its attendant social evils, was greatly expanded. It is difficult for us to believe that a nation conceived liberty and dedicated to the concept of equality could sanction slavery. We must remember that the economic need was apparently great and social justice

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32   Various Concepts of Labour including Shop Floor : Personnel Management by Walter Dill Scott & Robert C. Clothier, Edition 1982, Page 1 – 8.

was then, as it is now, in a state of flux and growth. Eli Whitney also laid the foundation for the development of the mass production y introducing the technique of interchangeable parts. This technique enabled the Industrial Revolution that had started in Europe to go forward at a pace not dreamed of at the time of its original introduction in the manufacture of rifles for the army.

The influence of the industrial revolution (1700-1800) :- These dates are not inclusive or exclusive. They are merely illustrative of an era of great economic and social change. The steam engine and the spinning jenny set in motion the great forces of the Industrial Revolution. Before the civil war, the north eastern part of the united states had begun its great industrial development based upon the application of steam to mechanical devices. The southeast, with its slave labour, its agricultural economy, and its social concepts, was slower to apply mechanical power to its manufacturing needs. Throughout the land, home production and the small shop gave way to factory. Industry was learning that, by grouping workers together in large numbers and standardising their activities, production and distribution could be tremendously increased and cost reduced.

Where the workers in a single group previously numbered a handful, they now began to number hundreds and thousands. Previously the employer enjoyed the friendship of his associates at the bench : it now became possible for him to know them casually, if at all to know their faces and names perhaps, but their weakness and their strengths, their interests, their ambitions, their family fortune, their follies and their hobbies. [33] The

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33   Human Resource and Personnel Management by K Aswathappa, Tata McGraw Hill Publishing Company Ltd., New Delhi. Edition 2003, Page 356.

quality of work life also plays a vital role towards organizational effectiveness for workers in assembly line (shop floor) it may be fair days pay, safe working condition and supervisor who treats him / her with dignity. Otherwise they became merely a group of workers whose labour must be bought. Without the employer knowledge probably against his real desires, there arose various attitude towards labour.

Various concepts of labour including shop floor

1. The commodity concept of labour.
2. The machinery concept of Labour.
3. The good-will approach to labour.
4. The natural resources idea of labour value.
5. The humanitarian approach to labour.
6. The concept of individual differences.
7. The citizenship concept of labour.
8. The customer attitude towards labour.

THE WORKER IN HIS WORK UNIT :

In management's attempt to understand its responsibilities and relationship to labour the concept of the balance and the total situation has emerged. Neither the worker nor the work situation responds to fragmentary analysis. The total situation is controlling. These facts of total situation may be concerned in terms of :

1. Capacities: referring to those abilities, to those attainments, inherited or acquired, that a worker has, is capable of, and must to a certain degree atleast, exercise in his work.

2. Interests: not only an individual's desires and ambitions, but also his instinctive, impulsive tendencies, vague yearnings, and ill defined cravings that may or not stir him to his fullest action in performing his duties.

3. Opportunities: not only opportunities for advancement, although that is included, but opportunities to exercise his capacities and satisfy his interests.

4. Personality: the sum total of workers reaction to his experiences and environment. Personality is manifested by an individual's reception by others. Management has only a minor role in influencing personality, but the worker's personality has a great influence upon his opportunities.

It can be ensured that Perfect balance between capacities, interests and opportunities. The opportunity for exercising these capacities, and the worker's interests are generally satisfied in the performance of his duties. When the three factors of the capacities, interest and opportunities in a given work situation are in balance, the personality factor is almost invariably satisfactory. The late Prof. Hamrin of Northwestern University conceives the worker in his work unit to be similar to a square, with capacities, interests, opportunities and personality each representing one of the equal sides. When anyone of these four factors expands or contracts, it definitely influences the others. Such a perfect balance of the four elements of the worker in his work unit is seldom achieved in actual industrial practice. A lack of balance forms one of the major cause of waste in production. An imbalance in capacities, interests, or opportunities can result in an imbalance in the worker in his

work unit. In this era no that much importance was given to the employees and their feelings. Hence this phase is called as **No Relation Phase.**

b) After Factories Act, 1948, some 25 years ago a worker was discharged for neglect of duty by his foreman. Since this was a small concern, the president interviewed the worker. He asked the worker's foreman if he would consent to let the worker continue to work in another department. He was given a small space in another department and encouraged to try to develop his idea on which he was working to neglect of his former duties. In a relatively short time he came forth with an item that is known to every person who reads this book. This worker was not suited to routine work. Neither he was qualified for the supervisory position to which he was later promoted, but he had made outstanding contribution to the success of this company through his experiments. In another case a man was being trained for a supervisory position in new plant. After 6 weeks trial, it became evident that he did not possess the required mechanical ability for mechanical department. He was transferred to the shipping department, where he became a successful foreman. The workers were considered as most important part of the organisation. He was given regards as government compelled owner for giving them health safety and welfare provisions. They need to be provided all the facilities by which interest at work may be developed and can be saved from various accidents, stress etc. Productivity was given more weightage, [34] It is poor productivity and not superior quality that makes product more expensive. Generally quality adds value to product while poor productivity adds to the cost of product. As worker's participation in management was given much importance. But it

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34 Quality Circle by Durgesh Chandra & Nanduri Jankiram, Tata McGraw Hills Publishing Company Ltd., New Delhi, Edition 1992, Page 6.

created two classes worker class and management class by which friction was developed between them and quality was in question. This phase of Working was called as Legal Relation Phase and quality was percolated on shop floor in proportion with various demands fulfilled by the management.

c) In present stage of Liberalisation, Privatisation and Globalisation, as customer satisfaction became a focussing factor, all shop floor employees were forced to understand the threat of liberalisation, privatisation and globalisation and were understand that if organisation is to be survived then total weightage to be given to the Quality Management. Otherwise organisation, its product and requirements of supplier will not be able to match with customer demands. Hence owner and shop floor worker as there was intermittent dialogue which started again under fear of survival. Both of them, management and worker on shop floor, understood therequirement of working together. [35] The concept of workers participation management crystallizes the concept of industrial democracy and it indicates an attempt on the part of employer to be build his employees into a team which works towards the realization of common objectives. Understanding each other and respecting feelings of each other is essential. Through Total Quality Management only it is possible. This phase iscalled.as Mutual Relationship Phase.

Thus after continuous stress given by management to understand first what is quality management and its importance to manufacturing units, they studied historical background of it and evolution of Total Qudity

35 Dynamics of Industrial Relations by C. B. Mamoria and S. V. Gankar, Himalya Publishing House, New Delhi, Edition 2000, Page 508.

Management concept started adopting out of various TQM practices atleast one practice so that they will be able to keep themselves in phase with modernisation. They realised the importance of accepting the concept of TQM in their manufacturing organisation and decided to adopt it. On the basis of that they designed Quality Policy and decided to achieve it through total involvement of all the employees, including shop flo or so that the strategy of keeping themselves in pace with modernisation. They deaded to pass those ideas even upto shop floor and with their support it was seen by them that they are able to deliver quality product to customers and customer satisfaction is achieved by them. This is only possible through Percolation of TQM concept from top management upto shop floor employees only.

2.6 FLOW CHART OF TQM

INTRODUCTION

Thus the wave of quality which was started in ancient time in India passed through various stages at various time and through various changed relationships between management and employees it is now stabilized. [36] As change is necessary way of life in most of the organizations & these changes has costs as well as benefits which is realized by both management and shop floor employees They also realised that we will be able to not only survive but progress only if we will understand each other, cooperate with each other and respect total quality management ideas implement it and follow it continuously. This can be only possible through systematic

36   Human Behaviour at work : Organisational Behaviour by Keith Devis, Ph. D. Tata McGraw Hills Publishing Copnmay Ltd., New Delhi. Edition 1994 page 198.

flowing of Total Quality Process continuously, in their manufacturing industries as below :

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│      Historical Background of Quality     │
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│         Evolution of TQM Concepts         │
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│      Various TQM Practices in India       │
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│       Percolation of TQM practices in     │
│          Manufacturing Industries         │
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│      Its Impact on Shop Floor Employees   │
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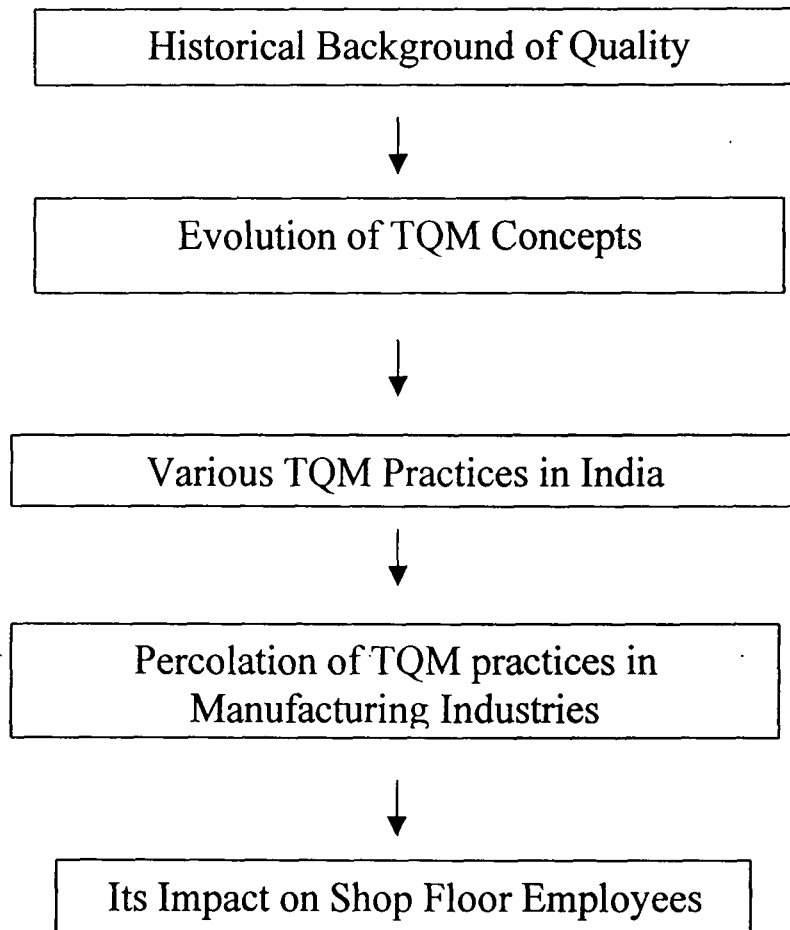
If we do analysis of this Total Quality Management Concept, it is seen that customer satisfaction, customer delightness, self satisfaction and organisational growth and progress will only depend in this era on competition with support of shop floor employees and its continuous impact on them. Hence shop floor employees in this Total Quality Management are to be regarded as key employees to keep Total Quality Management concept in a dynamic state of working.