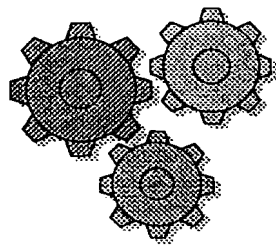


TQM Awareness Programme

UNIDO New Technologies Unit

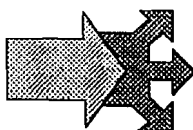


Factory Level Total Quality Management Development and Technology Promotion

Backstopping Officer:

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New Technologies Unit
Manufacturing Component

New
Technologies
Unit



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Organization

TQM Awareness Programme

Total Quality Management Development at the Factory Level

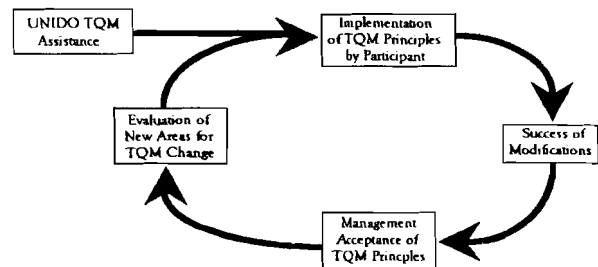
-- Forward --

Total Quality Management has an overriding goal. Much like the motto of the Olympic Games, citius, altius, fortius - faster, higher, stronger - world class manufacturers in the developing and developed world are aiming for continual and rapid improvement. There is wide agreement, and some oft cited examples, that constant progress can be made in quality, cost, lead time and customer satisfaction. The TQM Awareness Programme seeks to assist groups of small firms in the developing world adopt and prosper by the TQM philosophy. Participants have been very supportive of the programme, with positive letters received from most companies. The following excerpt is representative:

"I am proud to say that I have already seen big improvements in some areas, like material savings, quality control and cost control to name a few" - Mr. Peter Gakwa, Managing Director, Gakwa Shoes, Nairobi, Kenya.

Summary

The TQM Awareness Programme was first carried out in Kenya, with the participation of managers from five shoe manufacturing companies. Its objectives, that of developing in managers a better understanding of TQM techniques, while implementing changes in factory operations, were to a great extent achieved. Implemented at a relatively low cost over a four week period, each company was visited on a regular basis by the UNIDO TQM team, which assisted management in putting in place quality, production and cost control systems. As illustrated below, Through the TQM Awareness Programme a self-supporting cycle of improvement and change has been started at each of the participating companies.

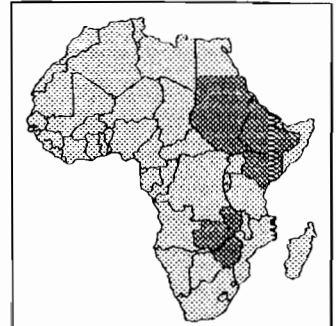


Directions for the Future

With material already developed for additional Shoe Manufacturing Manager TQM Awareness Programmes, proposals are being developed for continuation in other countries. At the same time, development of a programme in the food processing sector has already begun, with preliminary activities expected to begin in early 1994. Other sectors proposed for the TQM Awareness Programme include electronics and automobile parts production, with discussions taking place with interested parties.

History

The TQM Awareness Programme is a follow-up to two earlier projects carried out by UNIDO in Africa. The first, a study on automation in the region, pointed out that improved management capacity, rather than the installation of new automation technology, was of great importance in improving the competitive position of local firms. The second project, the Seminar Series on Shoe Manufacturing Technologies, visited five East African countries, highlighting the importance of management techniques and quality manufacturing. The post-seminar questionnaires received from the nearly 70 participants in the Seminar Series were almost unanimous on two points; the value of the information covered, and the need for more in-depth, preferably factory-level support in the implementation of TQM concepts. Following this series of seminars, the New Technologies and Leather Units of UNIDO developed the concept of the TQM Awareness Programme, taking into account the recommendations of the participants.



Countries which have taken part in the New Technologies Unit's Manufacturing Programme in Africa

Programme Outline - Agenda, areas covered, etc.

The programme consisted of a two day seminar on TQM principles, meetings which allowed the participating managers and the UNIDO team to "get to know" one another. It also served to outline for participants the areas which would be addressed during the coming four weeks. This was followed by one day evaluation visits to each of the factories. Problem areas were selected jointly by the UNIDO team and the participating managers, and change programmes agreed upon. With the change programme developed by both sides, the UNIDO team began a series of frequent factory visits. At least two factories were visited each day over the following three weeks. This leveraged the scarce time of the UNIDO expert, allowing him to prepare assignments for each manager, which were to be completed prior to the following visit. It also resulted in managers having to decide on and implement changes, with expert advice on such changes available when needed.

The TQM Awareness programme was developed with the integrated and wide ranging areas of management responsibility in mind. The following topics were covered during both the seminar and factory visits:

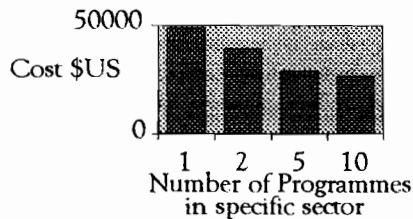
Work study	Motivation of employees
The role of management	Delegating of authority
The Value Analysis Team system	The Art of Negotiating
Basic procedures of method study	Market Segmentation
Work measurement	Cost Structure
Checking the Method	Production processes and productivity
Plant Layout	Labor costs
Product line layout	Machinery and equipment maintenance
Group production processes	Operatives training needs
Rink Systems	Production planning and control system
The Role of Management	Marketing and fashion trends
Are you performing as a Manager?	Product development
A Productive Approach to Time	Material purchasing and control system
	Transport system

Participants - Company Profiles

Participating companies were nominated by the Kenya Footwear Manufacturers Association, in conjunction with the local representatives of the UNIDO Leather Programme. General guidelines were provided by the backstopping office. With the goal of assisting SMIs, small scale manufacturers with 25 to 40 employees each were selected. Production ranged from 250 to 500 pair weekly. The two leading operational managers, usually the owner/manager and factory supervisor, took part in the initial seminar and follow-up work at the factory level. Each company participating was in close proximity to Nairobi, allowing for two or more factories to be visited daily.

Cost

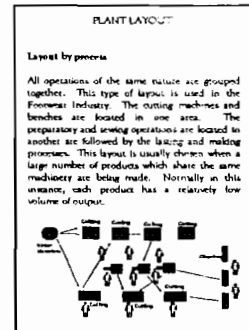
The budget of this initial programme was \$49,500, with final implementation costs expected to be around \$45,000. A large portion of this budget covers the initial development work on the materials for the programme, including slides, handouts and videos. These costs, coming to around \$20,000, would not be incurred in any future TQM Programmes carried out in the same sector. Additional TQM Awareness Programmes for Shoe Manufacturing Managers are being proposed, with a budget of under \$30,000 each.



As can be seen here, the average cost of TQM Awareness Programmes in specific sectors drops, as the cost of preparation is amortized over the series of projects.

Programme Materials

The Programme relied on a variety of materials to present to participants the TQM concepts, including slides, videos, overheads, handouts and exercises. The Background Material Handout, a page of which has been excerpted here (see right), was especially important, serving as a guide to participants and the UNIDO team in the development of change programmes for each individual company. For example, this handout included examples of quality standards, job control tickets and plant layouts, each of which served as the basis for actual changes carried out. Copies of handouts are available from the backstopping office.



Previous Situation

During initial visits made to each of the companies, a number of common factors were found. Lasting allowances, the amount of leather excess used to connect the upper material to the sole, were found to be excessive. Designs had seldom been carefully evaluated in terms of cost and total leather content. Bottlenecks were common in a variety of areas, as work tended to "pile up" at one job or another. Quality was being damaged by incorrect manufacturing methods. For example, pressure being applied

during sole attaching operations was seldom of sufficient duration, resulting in the frequent return by the customer of desoled shoes. Job control tickets and production management systems were not in common use.

As can be seen in the chart, a 0.1 square foot reduction in leather usage per pair can result in tremendous growth in profits. A reduction from 2.55 to 2.45 in this case results in a more than 36% increase in earnings. At the start of the programme the great impact of leather savings on the bottom line was not clear to all participants.

Total Leather Required (in square feet)	Material Cost (90Ksh x Sqft.)	Total Cost (285Ksh variable and OH Costs)	Profit per pair (540Ksh standard sale price less Costs)
2.55	229.5	514.5	25.5
2.45	220.5	505.5	34.5
2.35	211.5	496.5	43.5
2.25	202.5	487.5	52.5
2.15	193.5	478.5	61.5

Resulting Situation

The Programme sought to develop in participants an aggressive attitude towards improvement, resulting in a proactive approach by managers to the challenges mentioned above. During the month of visits by the UNIDO team, each of these areas were reviewed, with changes carried out by the management, following their own decisions. Given the high component cost of raw materials ~ leather ~ the reduction of inputs received a great deal of attention. Systems were implemented that will in the future ensure that new designs are evaluated with leather content in mind. Work flow was improved, with productivity increases being the result. For example, one factory manager noted a 12% increase in production during the Programme, along with jumps in quality and drops in cost, with no monetary investment. In the expert's report on the Programme, the following changes in operations were noted:

- Decreased production costs
- Improved product quality
- Improved work flow
- More accurate cost analysis
- Improved designs
- Implementation of production control systems
- Reduced material usage
- Increased cost and productivity awareness

Feedback from Participants

Feedback from both participants and the expert has been very supportive of the TQM Awareness Programme. As mentioned earlier, the major criticism of the earlier Seminar Series, carried out in March 1993, was that the time was too short and longer term assistance was needed at a factory level. It appears that this project addressed those concerns. Letters have been received from each and every participating company (copies available from the backstopping office), expressing their satisfaction with the results of the project and their desire to participate in more such programmes. The words of Mr. P.M. Ktarie, Managing Director of Count Shoes, Nairobi, Kenya, are representative of those of other participants:

"I therefore wish to appeal to you to make such programmes available to us frequently and I believe that this will enhance both our productivity and quality of the products."

Conclusion

As mentioned earlier, it is the feeling of past participants that the TQM Awareness Programme is very beneficial, resulting in improved company profits and product quality. The Programme will be expanded in the near future, to address other sectors where the concept is applicable. For this expansion to occur, though, support and expressions of interest must be received from developing countries. Such support is currently being solicited. The concept is also being examined for possible improvement, especially with regard to methods of sustainment and follow-up.

For more information

If you would like to comment on the TQM Awareness Programme, or would like more information, please contact the backstopping office at:

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