OCCASION

This publication has been made available to the public on the occasion of the 50th anniversary of the United Nations Industrial Development Organisation.

DISCLAIMER

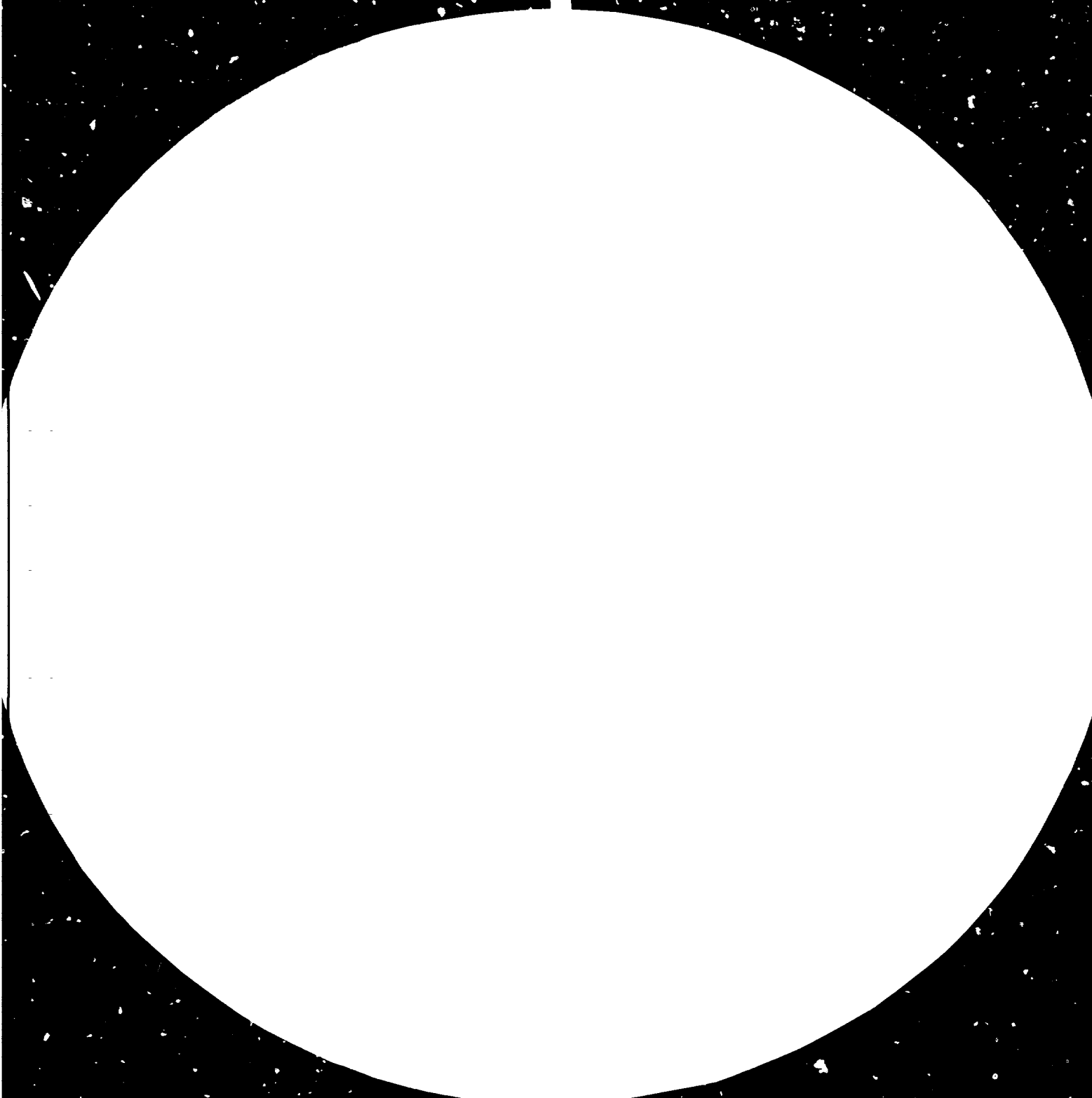
FAIR USE POLICY

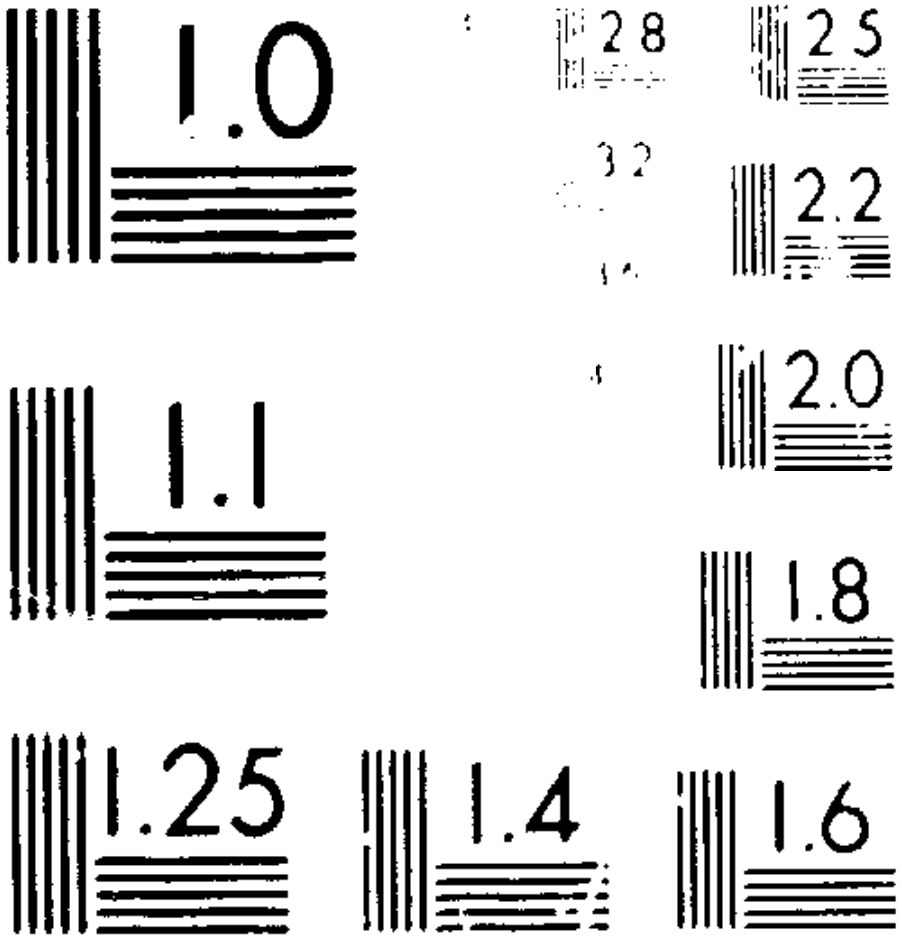
CONTACT

Please contact publications@unido.org for further information concerning UNIDO publications.

For more information about UNIDO, please visit us at www.unido.org

UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION
Vienna International Centre, P.O. Box 300, 1400 Vienna, Austria
Tel: (+43-1) 26026-0 · www.unido.org · unido@unido.org




1.0
2.8
2.5
3.2
2.2
1.1
2.0
1.8
1.25
1.4
1.6

11297

Distr.
LIMITED

ID/WG.350/2
23 September 1981

ENGLISH

United Nations Industrial Development Organization

Expert Group Meeting for
Exchange of Experiences on
Technology Services Delivery System (TSDS)
Manila, Philippines, 2-6 November 1981

Case Study on the Experiences of the Philippines in the Technology Services Delivery System (TSDS)

Prepared by
The Bureau of Small and Medium Industries
The Ministry of Industry and Trade
Republic of the Philippines

UNIDO

*/ This document has been reproduced without formal editing.

V.81-29989

CONTENTS

BACKGROUND

In March 1978, the Philippine Government through the Commission on Small and Medium Industries (CSMI) of the Ministry of Industry started the implementation of the Technology Services Delivery System Project. This project was implemented with the Assistance of the United Nations Industrial Development Organization (UNIDO), the Japanese Government, the ESCAP and the local UNDP.

Objectives of the TSDS Project

The objective of the TSDS Project was the establishment of a system for the effective delivery of technological services to small and medium scale industries in the countryside. An initial system was to be designed by the project and such was to be tested during the latter stages of the project's implementation. The project's final output was a plan for the improvement of the initial system and plans for the strengthening of the institutions involved.

Participating Institutions

The project focused its studies in the identification of areas of cooperation between the Small Business Advisory Centers (SBAC) of the Ministry of Industry and Metro Manila based Technical Resource Institutions (TRI's). The Ministry of Industry had SBAC's in each of the twelve (12) regions of the Philippines. Each SBAC is staffed by around ten (10) small business consultants who advise clients on marketing, finance, accounting systems, production management, general quality control policies, etc. The SBAC's, however, possessed limited technical expertise. The TRI's on the other hand, had the technical expertise but were not represented in the region by field offices. With such a set-up, it was deemed possible to facilitate the flow of technical assistance with the TRI's as the source and the SBACs as a channel for its delivery.

The Project chose the food processing, wood processing and metalworking industries as its target sectors as these were the most predominant SMIs in the regions. For this reason, the following TRI's were involved in the implementation of the Project.

1. Food Technology Research Department (FTRD) of the National Institute Of science and Technology (NIST)

2. Department of Food Science and Nutrition, College of Home Economics, University of the Philippines, Diliman

3. Department of Food Science and Technology, College of Agriculture, University of the Philippines, Los Baños

4. Metal Industry Research and Development Center (MIRDC)

5. Forest Products Research and Industries Development Commission (FORPRIDECOM)

Studies on Industry Needs and Institutional Capabilities

The Project Manager, supported by a UNIDO food processing expert, a UNIDO metalworking expert and a local wood processing expert conducted studies on the set up, plans and projects of the five technical resource institutions. Parallel to the institutional studies was the survey conducted on the types of technical problem being encountered by regional SMIs. Regional firms were visited by the TSDS project team, experts and technical staff of the TRI's.

Initial Technology Services Delivery System

The initial delivery system was based on the premise that the TRI's possessed the expertise and facilities needed in the provision of technical assistance but at the same time lacked the network to reach the regional SMIs. In the regional industry survey conducted, the types of problems identified were the scope of TRI's expertise or researches conducted. The SBACs of the Ministry of Industry on the other hand possessed the field network and have built up a sizeable clientele of SMI entrepreneurs in the three selected industries. The initial TSDS thus outlined entrepreneur-SBAC-TRI linkages within the framework of inter-agency cooperation between TRIs and the SBAC.

The initial TSDS was concerned with three main types of technical assistance, namely:

1. Plant-level technical consultancy;
2. In plant technical training;
3. Technical Information Dissemination.

Plant Level Consultancy in System

This subsystem deals extensively with the systematic provision of technical options on specific plant level technical problems. After problems or opportunities for improvement have been identified by the SMI entrepreneur, a case referral report is drafted by the SBAC staff and the entrepreneur.

Assistance in the form of technical options may be provided by the TRIs through correspondence and/or plant visitation. After alternative solutions have been provided, the SBAC staff consultant assists the entrepreneur in evaluation the economic feasibility of the alternative solutions. The entrepreneur is likewise assisted in planning the implementation of choses alternatives.

In-Plant Technical Training Subsystem

In this subsystem, the SBAC staff conducts discussions with single firm or a group of firms that lead toward the identification of specific training needs. The SBAC staff conducts these discussions considering TRI guidelines based on the types of training programs that may be conducted in the regions and facilities needed for each type. Training modules based on the needs identified are prepared by TRI staff and are sent back to the regions for consideration. After a training program has been implemented, the SBACs will monitor its effects on the firms involved in the program.

Technical Information Dissemination Subsystem

In plant level consultancy cases or in training program implementation, the SMI entrepreneur plays the very important role of identifying problems or p. opportunities for improvement. It is therefore important for the SMI entrepreneur to be supplied with some information that may propell him to take a closer look at his operations and eventually request for assistance either through training or consultancy.

In general, the Technical Information Dissemination Subsystem is set up to assist the entrepreneur by dealing with two types of information, namely:

1. Information on TRI's - This will highlight TRI services and how such services be instrumental in improving the operations of an SMI firm.

2. Information on Opportunities for Improvement. This will be in the form of techniques for quality control, quality improvement, productivity improvement, productivity improvement, cost reduction, by-product utilization, etc.

Information will be disseminated in the form of concise technical bulletins that are well packaged and made to appear as interestingly as possible.

Technical Training for the SBACs

The implementation of the initial TSDS depends heavily on the capabilities of the SBAC staff consultants to act as the media for the provision of technical assistance from the Metro Manila based TRI's. The ability of the SBAC staff consultant to assist in the identification and analysis of problem areas and later in the performance of subsequent actions will affect to a large extent the outcome of the implementation of the initial TSDS. For this reason the implementation of training programs to enhance the technical capabilitite of the SBAC staff is necessary. Such programs are considered to be an integral part of the TSDS.

The end objective of training is to provide the extension workers the proper perspective needed in problem identification/analysis plus the essential tools and techniques needed in carrying out the same. The SBAC "generalists" are not expected to become experts or specialists on the subject matters covered; the program rather aims to transform them into "better generalists".

Initial Problems in the Implementation of the TSDS

As of early 1979, the five (5) technical resource institutions have already agreed in principle to participate in the implementation of technical assistance activities in the manner prescribed by the TSDS project. Decisions, however, on some critical aspects of the system have to be made before a full scale launching of the TSDS can be initiated. Examples of "areas of uncertainty" that were the points of discussion at that time are as follows:

1. Technical Assistance Fees. Although it was clear that technical assistance, whether through training or in-plant consultancy will never be given for entirely free, it was also understood that assistance provision may have to be subsidized to a certain extent during the initial stages of implementation. It was agreed that

the clients hould be charged lower than the sum of the incremental and overheed costs but an equitable cost-sharing formula still had to be found. Variables that had to be taken into account as follows:

a) the location of the project;
b) man-nour requirements for consultancy services and specialized research;
c) the size of the firm and its capability to pay for services;
d) cost savings and/or additional profits resultant from tne technical assistanc- provided.

2. Mode of Information Dissemination

It was understood that in the absence of promotional activities on the new system, there will only be a small number of requests for in plant technical consultancy or training activities.

This conclusion was arrived at considering the limited information possessed by firms surveyed on the capabilitites and services offered by the technical resources instititutions. It was also observed that requests for technical assistance will have to be triggered by something more aggressive than the distribution of brochures on institution capabilities and services. The prospective technical assistance client must first have an idea of how his operations compare with those of advanced firms. He may need information on the opportunities for improving his quality and productivity performance through appropriate technol y before requesting for services for which he has to pay. Such information packages still had to be developed for the various subsector of the wood processing, metalworking and food processing industries for eventual dissemination along with brochures on technical resource institution capabilities. The other alternative was to sponsor regional conferences wherein institutional capabilities and improvement opportunities may be discussed with potential clients for the purpose of generating inplant consultancy or training projects.

3. Controls on Information Dissemination

The five technical resource institutions (TRIs) also expressed their concern over the possible magnitude of their involvement in the project during its initial stages of implementation. The TRI staff who may be called upon to provide in plant consultancy or conduct regional training programs were at that time performing their regular functions such as conducting researches or implementing agency based training programs.

Any information dissemination program to be implemented to generate clientele had to be controlled to take into consideration the capacity of the institutions to provide assistance to regional industries.

Linkages Between the TSDS Project and the CSMI - UNIDO QCPI Project:

By the time the Technology Services Delivery System was being designed, another CSMI-UNIDO project was launched. This was the Quality Control and Productivity Improvement System Project (PHI/77/004) which was approved for implementation in November, 1978.

The QCPI project's objectives were:

a) To study the needs and problems of small and medium scale industries (SMIs) with regard to quality and productivity improvement (Phase I)

b) To pilot implement new approaches on providing solutions to quality and productivity improvement problems identified (Phase II)

c) To develop a CSMI - based program on quality and productivity improvement based on the needs identified and on the result of pilot project implementation.

To achieve these objectives, project teams composed of representatives from CSMI member agencies and cooperating agencies were form to study the various factors perceived to affect quality and productivity e.g. standards, access to testing facilities, labor skills, technology, product design, access to market information, management skills, etc. The QCPI project initially addressed itself to the highly dispersed industries namely, wood and rattan furniture, metalworking and food processing industries. Other industries such as the garments, leather and plastics industries were planned to be studied after the Phase II has been launched for the first three (3) industries.

The original plan of the QCPI project for the furniture, metalworking and food processing industries for the needs identification stage (Phase I) was to first conduct desk research on the perceived problems of the three industries considering previous industry reports and local industry expert's viewpoints. This was then planned to be followed by the implementation of regional needs assessment activities through plant visits, dialogues and conferences to be held in eight (8) out of twelve (12) regions of the Philippines. These workshop will be participated in by SMI entrepreneurs, local industry experts and project staff. Three (3) UNIDO experts were to be fielded during the first two or three workshops.

The local industry experts who were involved in the survey and design stages of the TSDS project were requested by the CSMI to participate in the implementation of Phase I for the QCPI project. Their participation contributed immensely to hastening the implementation of Phase I since the findings and experience gained from the implementation of TSDS was used widely in arriving at an understanding of the quality and productivity improvement related problems of the SMIs. The involvement of local industry experts in QCPI Phase I activities resulted in the following:

1. Early completion of desk research activities.
2. Revision of plans for the implementation of the regional needs assessment activities.

Revised Plans for the Implementation of the QCPI Project for the Furniture, Metalworking and Food Processing Sectors

After the first regional needs assessment conference held in Cebu City on September, 1979 plans for the continuation of regional needs assessment activities were revised in view of the following:

a) The same types of needs and problems related to quality and productivity improvement and the same types of problem interrelationship can be expected to be identified in other regions. Problems specified may vary but problem patterns will remain the same. This was the major finding of the QCPI experience in Cebu which was confirmed by the local industry experts who have participated in the TSDS survey activities conducted in 1978. The further implementation of regional needs assessment activities as per original plan was considered to be no longer necessary since the same types of data are expected to be generated.

b) The further implementation of needs assessment, activities will undoubtedly raise the expectation of the entrepreneurs on forthcoming assistance. It was suggested that instead of following the original plan smaller scale conferences should be held to identify very specific needs and to plan the immediate implementation of projects addressed to these needs. Furthermore, it was suggested that the regional conferences should concentrate on the technical assistance needs as linkages between the SBAC and key technical resources institutions have already been established through the TSDS project.

The Importance of Industry Groupings

As a result of the studies conducted within the QCPI project, discussions have been initiated on the value of inter-firm cooperative efforts in providing solutions to identified quality and productivity improvement problems. The regional industries were found to experience common marketing, technical, financial, raw material and skills problems. It was theorized that these problems may be solved more effectively and efficiently through cooperative efforts among regional industries. In fact some problems may be solved only if functional industry groups such as regional industry associations emerge. A few examples of such cases are as follows:

1. The regional SMIs need capital intensive facilities which if set up will provide the means for the further development of such firms. Examples of these facilities are kil dryers for the furniture industry and heat treatment plants or foundries for the metalworking industries. Economies of scale can be achieved only if such plants have higher capacities that are beyond the reach of the average small or even medium scale firm with regard to utilization and meeting the investment requirements. Such facilities should be set up preferably as a common facility owned by a group of firms who will benefit from it.

2. The reluctance of SMIs to undertake basic skills or skills upgrading programs on their own was also observed. Such reluctance was observed inspite of the well known fact that the supply of skilled labor was much less than the demand and that the present capacity of government institutions to train people was not much compared to the supply-demand gap. In the absence of functional industry associations, the majority of SMIs consider in-plant training to be high investment-high risk area because of the ever present danger of the labor force being lured by higher wages offered by competitors. Such as prevailing attitude also contributed to the slow development of the middle-management force in these firms as the SMI entrepreneur-manager gave only minor responsibilities to his supervisors or foreman for his own protection.

3. It was also observed that the SMIs can benefit much from joint purchasing and joint marketing organizations. Joint purchasing of raw materials and supplies will enable individual firms to take advantages of volume discounts and may also pressure suppliers to meet rawmaterial quality standards and specifications. Working capital requirements for individual firms for inventory can also be expected to be reduced due as a result of joint purchasing arrangements.

Joint marketing will enable regional industry groups to penetrate other markets, such as the Manila market, by hiring a sizeable salesforce which a small individual firm cannot afford. Joint marketing activities particularly for the furniture and metalworking industries, are expected to result in parts and components subcontracts between the joint marketing organization and individual firms thereby resulting in specialization.

QCPI/TSDS PROJECT - Initial Implementation Strategies

As a result of the above mentioned findings and further discussions, plans were laid out to pilot implement-technical assistance projects within the QCPI Project using the system prescribed by the TSDS project in cooperation with regional industry groups. Technical training projects were planned and implemented in the following manner:

a) Regional SBACs were enjoined to take the initiative to inform a group of firms or officers of an existing association about the possibilities of receiving assistance from Manila-based technical resource institutions and set schedules for project planning conferences.
b) Prior to a conference, the project staff, SBAC staff and industry experts will visit representative plants in the regions to evaluate the technological capabilities of the industry group.
c) The conference was held for several purposes, namely:
   i) to discuss the previous findings of the project with the participants in order to confirm or disprove such and to identify the forms in which the problem patterns exists for the local industry.
   ii) To give participants an idea of how their operations are compared with more advanced firms and to enumerate the various techniques which may be introduced to improve their operations.
   iii) To lay down the plans for a technical training program if the participants were convinced of the advantages of having such a project.
d) Inasmuch as it was earlier decided that technical assistance will not be given for free, a cost sharing scheme for the implementation of technical assistance projects was developed. The participants were asked to divide among themselves the costs of food for the seminar, venue rental and materials to be used for the demonstration of techniques plus other relatively inexpensive items depending upon the observed capability

of the industry group to shoulder such expenses. It was clear to the group, however, that projects are still highly subsidized since plane fares, man-hour charges, experts honoraria and accomodations were not charged to them.

e) During the planning conference, the entrepreneur participants were also advised that projects plans will be funded only if it is clear that the incremental expenses to be incurred will benefit a large group of firms instead of just few individuals. A "minimum number of participating firms" based primarily on the total number of firms in the area is agreed upon between the project staff and entrepreneurs present during the planning conference. It is further agreed that unless the required number of entrepreneur participants have registered and paid their contribution to the group treasurer, the technical seminar will be rescheduled to a future date.

As a result of the scheme, entrepreneurs who attended the planning conference were observed by the SBAC to recruit other entrepreneurs who have not participated in planning conference. In general, the entrepreneurs were convinced to participate in the program not only because of low registration fees but also due to the opportunity to learn advanced techniques on quality improvement, productivity improvement or cost reduction.

f) During the closing ceremonies of each technical seminar the entrepreneur-participants are enjoined to plan among themselves, possibly with the assistance of the local SBACs staff, future technical assistance projects which may benefit the majority of the members of the group. The industry group is advised that under similar arrangements, particularly group participation, similar projects may be undertaken. The industry group is further advised on the numerous advantages of forming a functional industry association is capable of achieving in the line of cooperative efforts.

Results of Strategies Adopted on Industry Association Formation and Strengthening

It has been observed that the scheme illustrated above has contributed on a way to the emergence of functional industry associations in the regions. In areas where before associations did not exist, the core group which attended the first planning conference formed an association. In areas where an industry association already existed it was found that the majority of these, if not we all, were inactive ones. After the planning conference, the association officers took the lead to initiate more frequent meetings to discuss the local industries problems. It can be said that the majority of

the associations found before had an optimistic start but later became dormant due to the absence of projects for the common good. Although projects may have been initiated before, the associations' financial capabilities may not have been sufficient to support project implementation. Thus, at the time the pilot technical training projects were initiated, SMIs in the selected pilot regions have started to realize the value of associations because at least, industry groupings have a chance of getting funding support from government agencies.

In general, the associations that have been formed or reactivated have since expanded their membership and are now more active than before. The industry associations are meeting regularly and more often than not, an SBAC representative is invited to participate in the regular meetings to give counsel to plans being developed by the association.

Technical Training as a Means of Entry

Technical training, instead of inplant consultancy, was chosen to start the implementation of TSDS activities within the QCPI. Aside from reasons related to association building, other reasons are as follows:

1. It is believed that the SMI entrepreneur must first have an idea of how his operations compare with advanced industries before he can request for in-plant consultancy services. The planning conferences and the technical seminars must first be implemented before the entrepreneur can take a second look at his operation and consider options for his advancement.

2. For the furniture and metalworking industries, the TSDS and QCPI studies have indicated that unless the marketing strategies of these industries change, there will be not be a big demand for high level technologies. The demand will for improvements on the labor-intensive techniques employed by these industries. Such know how is available within FORPRIDECOM and MIRDC for both the furniture and metalworking industries respectively. Quality and productivity improvement techniques such as advanced finishing, construction, upholstery, seasoning etc., methods would be sufficient at this stage for the regional furniture industries as most of them still sell directly to the end-user on a custom buily basis. Very few have adopted line production and maintain inventory on top of those earmarked for display purposes. As such, the demand for know-how on furniture mass production is limited. To a certain extent, the same thing is true of the regional metalworking establishments as they are still primarily considered as service industries. The majority own general purpose machines that are used for parts replace purposes. Very few regional firms

are mass producting components and not so many have come up with their own products. In view of this situation, the metalworking firms need information on advanced machine tool operation, advanced welding techniques, materials selection, heat treatment, etc., which may be discussed or demonstrated during technical seminars. Not until a particular firm has a product plan will there be a need for more extensive assistance through in-plant consultancy.

Technical Assistance on Common Service Facility Projects

In the course of implementing the planning conferences and subsequent technical training projects, the QCPI/TSDS project staff have encountered requests for assistance, in any available form, that will propell a group to eventually establish common facility. In all instances, a core group felt that it can raise enough capital for the setting up of the facility but was in need of know-how on the design, construction and day to day operations of the facility. Such know-how may be sourced from local private consulting firms but was only at high cost. A case in point is the experience of the QCPI/TSDS project team with the furniture industry in Ilagan, Isabela.

THE ILAGAN EXPERIENCE

In March 1980, the QCPI/TSDS Project Team conducted a Technical Seminar on Modern Finishing techniques for the furniture makers of Ilagan, Isabela (Region II, Northeastern Luzon). Organized by the SBAC, the project was implemented with the assistance of FORORIDECOM and furniture experts from the private sector.

This project did much to strengthen the inactive furniture makers association that had existed for the past four years. The association members realized that there was still much to be learned as far as furniture technology was concerned. They were grateful, however, that the association leaders initiated the implementation of the seminar with very little costs on the part of the members.

After the seminars, three leaders of the association approached the project team and presented their plans to set up a kiln dryer. They explained that at present, the furniture makers have no access to kiln dried lumber which is ironical since Region II is one of the major sources of lumber. Kiln dried lumber supply is essential before modern furniture production technologies may be utilized. At that time, the association was supplying only the local furniture market, but with a steady supply of kiln dried lumber, the Metro Manila market may be supplied since technical assistance may be sourced from FORPRIDECOM.

The association leaders further explained that technical assistance related to the construction and operation of a drier was available from private consulting firms but the consultancy fees quoted were excessive. They inquired about the possibilty of assistance being provided by either the Ministry of Industry or FORPRIDECOM. At this point, the QCPI/TSDS Project Team and FORPRIDECOM representative pledged to investigate the possibility of providing such assistance on a cost sharing basis between government institutions and association the details of which may determined later. It was clearly explained however, that subsidized technical assistance technical assistance may be provided only if the majority (seventy percent) of the association members will participate in the venture.

After this meeting with the association leaders, the following events occurred:

1. FORPRIDECOM provided rough estimates of project cost (₱350,000) based on earlier studies.
2. In June 1980 a new corporation, Ilagan Industries Inc. was formed with the assistance of the local SBAC. All of the twenty five (25) members of the association invested in the corporation.
3. The SBAC, with the assistance of the FORPRIDECOM, prepared a detailed feasibility study.
4. By August 1980, the association increased its membership from twenty five (25) members to forty-seven (47) members. The new twenty two(22) members also invested in the corporation. By this time all of the forty-seven (47) furniture makers in the town of Ilagan, Isabela are both members of both the association and shareholders of the corporation.
5. In August 1980, a loan application was forwarded to the Development Bank of the Philippines.
6. In October 1980 a technical seminar on modern furniture construction techniques was organized by SBAC and implemented with the assistance of FORPRIDECOM and furniture experts from the private sector.
7. A ₱300,000 loan was approved by the Bank as early 1980.

The kiln dryer was constructed by the corporation with the assistance of FORPRIDECOM. Assistance of FORPRIDECOM centered on the design, supervision of the critical stages of construction and metal parts fabrication and training the operation of the kiln dryer. The corporation shouldered the board and lodging expenses of the FORPRIDECOm technical personnel while FORPRIDECOM and the Ministry of Industry shouldered incremental transportation costs.

As a result of the kiln dryer project, the Ilagan Industries Inc. is currently planning to implement a joint marketing scheme in which furniture and furniture components will be supplied to the Metro Manila market.

Other Common Service Facilities Projects

In the fourth quarter of 1980, by the time the Ilagan pilot common facilities seemed to be well on its way, the SBAC in other regions initiated similar kiln dryer projects. The SBAC proposals received varied responses from furniture industry groups but some projects are in the pipeline. In like manner the same approach of providing technical assistance seemed applicable to the metalworking industries.

Common service facility projects for this sector (e.g. foundry, heat treatment, electroplating) are currently being initiated.