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Mid-Term Review Meeting on
the Technological Services
Delivery System

REPORT ON

THE MID-TERM REVIEW MEETING ON THE

PROJECT

TECHNOLOGICAL SERVICES DELIVERY SYSTEM*

(TF/RAS/77/004)

Prepared by

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LIST OF ABBREVIATIONS

ASEAN	Association of South East Asian Nations
BSMI	Bureau of Small and Medium Industries
CSMI	Commission on Small and Medium Industries
ESCAP	Economic and Social Commission of Asia and the Pacific

FORPRIDECOM	Forest Products Research and Industries Development Commission
MI	Ministry of Industry
MITI	Ministry of International Trade and Industry
MIRDC	Metals Industries Research and Development Center
NIST	National Institute for Science and Technology
SBAC	Small Business Advisory Centres
SMIs	Small and Medium Industries
TRIs	Technology Resource Institutes
TSDS	Technology Services Delivery System
UP-Diliman	University of the Philippines, Diliman
UP-LB	University of the Philippines, Los Banos

I. BACKGROUND

1. The Technological Services Delivery System Project (hereinafter referred to as the TSDS Project) became operational in May 1978. The activities undertaken during the first part of the project implementation were divided into three main blocks of activities, namely, to carry out:

(i) a state-of-the-art survey of needs and requirements of selected small and medium industries in three sectors of the industry: food processing, metalworking and wood processing;

(ii) a state-of-the-art survey of existing capabilities and capacities of selected technology resource institutes related to the three sectors;

(iii) a study on the ways and means of creating a mechanism to interlink the needs and requirements with the available capacities and capabilities in a systematic manner.

2. In the plan of action, two salient activities were foreseen. These were:

a) A mid-term review meeting to be held half-way through the implementation with the aim of reviewing the present activities, assessing the results achieved and modifying any future activities as appropriate in order to ensure a successful outcome of the project;

b) A dissemination meeting to be held at the end of the project implementation to transfer the experience accummulated to other developing countries for their benefit, and to ensure a multiplier effect.

3. After completion of approximately fifteen months of project activities, it was decided to hold the mid-term review meeting in Manila on 5-6 September, 1979.

II. ORGANIZATION OF THE MEETING

4. Mr. Rafael A. Sison, Deputy Minister of Industry and Chairman of the Commission on Small and Medium Industries (CSMI) was the Chairman of the meeting which was held on 5 September 1979 at the CSMI Conference Room. Mr. Emmanuel C. Almonte, Officer-in-Charge of the CSMI and the National Project Director was the co-chairman of the meeting.

5. Mr. William H. Tanaka was the head of the UNIDO mission and participated in the meeting together with UNIDO experts: (1) Dr. Masamoto Watanabe, the Project Manager (2) Dr. Byung Chung, food processing expert; (3) Mr. Atsuyuki Okada, metal expert; (4) Mr. Emilio Jaranilla, national wood expert.

6. The meeting was attended by Mr. G. Van Doosselaere, the UNIDO Senior Industrial Development Field Adviser and Mr. C. Sanders, SIDFA Assistant.

7. Mr. M. M. Abou El-Khair, UNIDO Senior Adviser to the CSMI, Mr. Raul Bandera and Mr. Ernesto Faycyo, Project Co-ordinator and Mr. Juanillo Juares, Officer-in-Charge of Bureau of Small and Medium Industries, were present at the meeting.

Mrs. Julpha Konti and Miss Virginia Llamas of the Bureau of Small and Medium Industries, as well as Mr. Jose D. Cvilla of CSMA also participated in the meeting.

8. The meeting had the participation of four technology resource institutes: represented by:

Dr. Aurora Corpuz	Dean, College of Home Economics, UP, Diliman
Dr. Virgilio V. Garcia	Department of Food Science and Technology, UP, Los Banos
Mr. Elias I. Escueta	Department of Food Science and Technology, UP, Los Banos
Mr. Jose G. Bautista Jr.	Deputy Director of MIRDC
Mr. Florence Quasay	Staff Member, MIRDC
Mrs. Mercedes Soria	NIST
Mr. Jose G. Bautista III	NIST

9. The representatives of the Japanese Government as the donor country, as well as of ESCAP as the co-operating agency of UNIDO who were planning to attend the meeting, had to cancel their plans at the last minute due to other urgent commitments.

10. The Agenda of the meeting as adopted was as follows:

I. Call to Order

II. Introduction of participants

III. Opening statement by the Deputy Minister of Industry and CSMI Chairman, Rafael A. Sison

IV. Statement by the head of the UNIDO mission, Mr. William H. Tanaka

V. Project Presentation by Mr. Emmanuel O. Almonte

A. Initial Technology Services Delivery System (TSDS)

B. Plans for the implementation of the TSDS

VI. Remarks by the UNIDO Project experts and the Project Manager

VII. Other matters

VIII. Adjournment

Opening statements

11. Mr. Rafael A. Sison, in his opening statement, welcomed the participants to the UNIDO Mid-Term Review Meeting. He pointed out that the review came at an appropriate time since the new Minister of Industry had just made some new terms of reference on what directions the Ministry should follow in the development of the small and medium industries in the countryside. Such terms of reference were not so much a departure from what had been done, but to re-emphasize the areas where higher productivity was needed to enable the sector(s) to contribute to export earnings. These sectors were the wood and wood-based products, food, metals and leather products. He assured the meeting that he would personally look into the progress of the project and give his attention to whatever assistance was needed.

12. Mr. William H. Tanaka expressed his thanks to the Ministry of Industry for providing the opportunity of holding the Mid-Term Review Meeting. He then emphasized the fact that the project was a unique type of assistance in that it was conceived to be less theoretical and more practical in deciding and/or tailoring the activities along with their implementation, in a flexible manner, in order to achieve effective and positive impacts particularly on those efforts undertaken by the Government at the national level. In his statement, he reviewed the project's origin as well as its objectives and methodology. He stated that the project was originally to be implemented on a regional or sub-regional level with a view to creating a Technology Services Delivery System (TSDS) in countries in the ESCAP Region. The basic concept developed by UNIDO was discussed with the Ministry of International Trade and Industry (MITI) of the Japanese Government and ESCAP, and it was finally decided that the project implementation should start in one of the ASEAN group countries, possibly in the Philippines, provided that the Government of the Philippines agreed. This decision was based, in the first place, on

the availability of a network infrastructure for the small and medium industries, which when strengthened could form the central backbone of the TSDS mechanism. With the aim of ascertaining the interest of the Government of the Philippines, and to exchange views, to collect necessary information, and to agree upon the scope of project activities and the plan of action, a preparatory meeting was organized in Manila in September 1977. 1/ This preparatory meeting was attended by representatives of the Government of the Philippines through the Ministry of Industry, the Government of Japan through the MITI, UNIDO, ESCAP and UNDP. Following the outcome of these preparatory meetings the Government of Japan agreed to provide a voluntary contribution to UNIDO for implementing the project to cover the initial stages of work to establish the TSDS national mechanism. The Commission on Small and Medium Industries of the Ministry of Industry was to be the government implementing agency, acting as a counterpart agency of UNIDO.

13. The Project's main objective at its initial stages was to study ways and means to create or to strengthen an efficient system capable of delivering technology services available in technology resource institutes to the small and medium industries particularly in the rural areas, with a final target of accelerating the rate of development of this important industrial sector. In this respect, the project had considered two important aspects: the first aspect was that the UNIDO assistance was to form a part of the national efforts toward the development of small and medium industries, and the second aspect was that UNIDO was not creating a new institution which could eventually fail when the fund had been exhausted, and consequently disappoint both the recipient and the donor countries.

14. He also stated that the project operation in the Philippines had created marked interest in other developing countries as well

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1/ See Report of Mr. M. H. Tanaka - UNIDO/IOIS.19.

as developed ones. This interest expressed in the Philippines' experience emphasized the significance of the review meeting which he hoped would also focus on the follow-up programmes as well as the ways of disseminating such experience to other interested countries so that the project could achieve its original planned objective of a regional level impact.

15. Mr. Guy van Doosselaere, in his statement, agreed with the observations that the TSDS Project had created an international interest where other countries sought to set up similar projects. However, he felt that the project on its own would not answer all the problems of small and medium industries, because such problems were often very much related to the lack of management know-how and other problems of the entrepreneurs. He strongly emphasized the importance of other complementary or supportive projects such as quality control and subcontracting, which were being implemented by the CSMI.

III. PROJECT PRESENTATION

16. The project activities, its general findings and recommendations during its first phase of implementation were presented by the National Project Director. He reported that the first phase of the TSDS project was successfully concluded, the assistance of UNIDO was acknowledged and the supporting role of Technology Resources Institutes (TRIs) was extensively emphasized.

17. Industrial sectors covered by the project were food, wood and metal industries on small and medium-scale levels. The project team composed of the UNIDO experts,together with their national counterparts of the TRIs in Manila and in the regions, had conducted the necessary surveys in these particular areas. Throughout this exercise, technological problems of the industries were identified and the corresponding role(s) of the TRIs were outlined so that a system could be developed in such a way that the technological services of the TRIs could be utilized at the level of the distant production sites. It was realized that this approach was consistent with the project concept as formerly outlined by the Government and UNIDO.

18. It was recognized that the performance of the small and medium industries were hampered by several problems while the solutions of such problems were beyond the industries' capabilities. At the same time, in Manila and most likely in the regions,there were several TRIs whose activities could be oriented and possibly strengthened in a way to enable such institutions to provide effective answers to the questions of the industry. Along this line, the following institutions were identified and invited to participate in the project and to contribute to the Technology Services Delivery System in the corresponding industry sectors.

FORPRIDECOM	-	Wood and rattan processing
MIRDC	-	Metal working/forming
UP College of Food Technology (Los Banos)	-	Food Processing*
UP College of Food and Food Science (Diliman)	-	Food Processing*
NIST	-	Food Processing*

* Refer to Annex 7.

The media for technology transfer would be the SBAC in the regions while the MI-CSMI would co-ordinate and monitor the project activities throughout their implementation.

19. Three distinct types of activities according to sub-systems have been identified as necessary to be put into operation within the framework of TSDS, where the TRIs would participate actively in the industrial development of the three sectors (food, wood and metal). The three sub-systems that have been designed are:

First Sub-System: Technical Case Referral, where the activities would be concerned with technical problems at plant level. Companies which have been identified or which have requested assistance would be visited by the SBAC field officers in order to inquire about their problems and refer them to the specialized TRI. This might subsequently lead to arranging visits to such plants by the TRIs' national experts for further investigation of such problems or possible provision of on-the-spot solutions. Arrangements of these functions, among others, in this area could be undertaken initially by the SBAC field staff.

Second Sub-System: Training provisions. Activities of this sub-system would be mainly concerned with the training required in several areas in order to strengthen the human infrastructure within the system. The training programmes identified are for:

- SBAC staff. To improve their capability in identifying, solving or referring problems to TRIs.
- Management. To improve the capabilities of foremen and factory workers as recipients of the technological flow.
- Further training of the TRIs' technical staff and other organizations concerned on highly specialized aspects of the industry as well as on the application of similar systems in other countries.

Third Sub-System: Technical Information Dissemination. The function is to be geared to support the afore-mentioned sub-systems with a network for gathering and storing information relevant to the common problems of the industry sector, including those emerging from the past activities, for further dissemination to the SBAC staff and the sector's industrialists. This should also comprise detailed information on the specialized TRIs' functions and types of services which could be available to the industry.

On the other hand, flow of information about industry problems to the TRIs, would be instrumental in the arrangement of their programmes in order to answer industry needs. It is envisaged that the technical information for dissemination through the system would be prepared in the form of a concise technical bulletin and presented in a simplified manner to be easily absorbed at the small industrialist's level. The SBAC officers in the regions would be the transfer media of such prepared information and consequently, they would be able to build up a micro-unit of information in the regions. By building up such units, the SBAC centres would be able to provide the industry with its basic needs in technical information and eventually function more actively in this respect.

20. Diagramatic presentations of the general TSDS systems and its three sub-systems are given in Annexes I, II, III and IV respectively.

IV. PROJECT FINDINGS

Food Sector

21. Dr. Byung Sun Chung, UNIDO food processing expert, presented his report on the sector indicating that the food manufacturing industry is an important sector of the entire manufacturing establishment in the Philippines. Its share in manufacturing as a whole in terms of the gross domestic product was 35 per cent in 1975. The gross value added of the food and beverage industry in 1974 was 5.6 billion pesos, which represented 36.7 per cent of the total value added in the entire manufacturing sector. This indicated that more than one third of the total income originating from manufacturing was contributed by the food processing industry in 1974 of which SMI contributed only 7 per cent of the total value added to food manufacturing.

22. It was revealed that there is preponderance of small establishments in the food sector. Out of the total, 3,398 are small employing 5 to 99 workers. They represent 86.5 per cent of the total number of food manufacturing establishments but contribute only 2.2 per cent to its total gross output value. These small plants increased in number from 3,398 in 1974 to 4,398 in 1975.

23. Large firms dominate the processed food export market with sugar, pineapple and coconut products accounting for a major part of these

exports. Only a few of the advanced smaller food processors have entered the export market. The traditional indigenous products are mostly manufactured by small and medium-scale establishments which have originated mainly from kitchen preparations.

24. Plant survey has identified the problems and needs of the food processing sector which should be taken into immediate consideration by the delivery system. Such needs are:

- absence of proper technical staff (foremen) with a resultant low level of processing or improper processing and a weakness in the flow of technical information;
- difficulties in financing sources;
- lack of management and marketing capability;
- need for strong government support.

25. Technical resource institutions involved in the food processing sector are NIST, UP-LB and UP-Diliman. The existing Food Technology Research Department (FIRD) of NIST will not be suitable enough to handle the present and growing needs of small and medium food processors from the standpoint of technical assistance. Highly qualified technical personnel are limited to 5 graduates only, thus their field of specialization is limited to their work. Unlike UP-LB and UP-Diliman, these institutions have on their staff highly trained professors and scientists with Ph.D. and M.Sc. degrees acquired from the best universities abroad. However, the three institutions, have just enough personnel to handle their present research and activities in their own departments. In terms of facilities, NIST and the two UPs have enough equipment and instruments available to support their activities. However, additional facilities are still needed to cope up with the increasing amount of research. Although, they render limited extension services to some walk-in clients around Metro Manila, their present programmes are not geared to the development of small and medium food processors.

Wood Processing Sector

26. Mr. Emilio Jaranilla, the national expert on wood processing, has indicated that the small- and medium-scale wood processing industry

of the Philippines consists mainly of furniture shops, woodcrafts and some toy manufacturing concerns. About 90 per cent of the total furniture manufacturers are small and medium scale, their production work-force consists of 5 to 100 workers and the great majority have about 20 workers or less. Most of the firms have limited capital and are simply organized in any backyard available. The owner manages the entire set-up with limited assistance, or none at all, from a professional staff. Technical information or assistance is rarely, if ever, available or made available to any of these firms.

27. Fourteen wood processing shops and three rattan furniture shops have been surveyed and their problems noted. Their designs depend mainly on customer requirements and full-size drawings are generally lacking. Considerations about functions, different types of material and finishing are not fully accounted for the designs.

Difficulties in raw material procurement are mainly due to non-compliance with the proper specifications. The effects of different moisture content and proper standard dimensions are not fully understood as important factors of quality, pre-processing methods and storage conditions of the raw material are not properly observed.

Several technical problems have been identified throughout the manufacturing process and particularly in the preparation, assembly and finishing operations. Wood furniture rather than rattan furniture is often harmed by improper packaging. The workers are quality-oriented, but the extent of quality control practice is not defined and responsibility for it is not allocated to any of the workers. Low levels of accuracy, low capacity of machinery and poor maintenance is reflected in the output of the workers.

It could be generalized in this respect that basic technical aspects of wood processing, technical literature, as well as instruments for essential measurements are not reaching the factories' management and plant personnel.

28. FORPRIDECOM is primarily organized to conduct basic research on the utilization of wood and other products. It has research divisions for wood technology, chemical investigation, timber physics, wood preservation, mechanical processing and development operations. It also contains in its organizational structure divisions for forest

products development, education and information. It has modest research facilities and a rich collection of books, technical journals and magazines related to forest products. Its programme of manpower training and development ranges from wood identification, pulp and paper technology, timber engineering and design, kiln-drying, charcoal-making and briquetting, particle board manufacture, veneer and plywood technology, log scaling, lumber grading, millwrighting, sawmill clinic and fibreboard manufacture.

Its plan and programmes will continue to concentrate on research aimed at increasing the economic utilization of the forest resources. The priorities are focused on basic and applied research in wood preservation, mechanical processing and developmental operations of forest-based industries.

Metal Sector

29. Mr. Atsuyuki Okada, UNIDO metals expert of the project, has stated that the operation of the project, when its functions are effectively established, should meet the hopes of the small and medium metal entrepreneurs and would be based on their actual problems which differs from the problems of the large factories.

Most of the plants visited are producing small lots of some standard items with job orders taking the majority of production time. Only a few establishments have succeeded in making subcontracting arrangements with bigger companies. There seems to be a need for guidance in determining new products and for Government assistance in the identification of subcontracting opportunities considering both the present technical ability of SMIs and their existing facilities. In this respect it has been pointed out that many shops with more or less the same capabilities are competing with each other to get a bigger share of the limited market.

30. Raw material for metal industry is severely affected by lack of working capital, insufficient supply and sudden changes in prices which makes it difficult for the plants to schedule their deliveries accurately. Working knowledge about the types and properties of different materials do not exist in most SMIs, and this is further

compounded by the absence of facilities for materials testing. Application of material identification methods to be used in the absence of testing facilities is not known to several entrepreneurs. Also, inadequate knowledge about the characteristics of the raw material is leading to other problems with regard to optimum utilization of machine and worker productivity. This is demonstrated by the owners' inability to recognize some advantages in using steel of higher quality resulting in a better quality product which can be sold at higher prices fetching bigger margins.

31. Firms are mostly equipped with general purpose machine tools. In most shops machinery and equipment are inadequate, generally old and need reconditioning and upgrading. The accuracy of these machines is generally not within the standards demanded by specific production tasks, particularly for precision parts. Several technical drawbacks have been detected in the availability or the quality of the cutting tools which is affecting directly or indirectly quality and productivity. Workers in general could be considered as semi-skilled at most, with a low level of knowledge and experience. The use of sketches or drawings to guide the workers is not common, and little effort is exerted by the management to study which methods would lead to increased productivity. This is coupled with apparent poor layout and poor housekeeping.

32. Middle management personnel as workshop supervisors or foremen are lacking and accordingly, the owner is in a weaker position to determine the technical needs, problems and opportunities for improvements in the business. The nature of labour-intensive production requires extensive control checks to compensate the possible human errors. This is insufficiently practised by the small firms and they are not well informed about quality standards and the need for quality "improvement". Medium-scale firms appear to have determined the importance of quality control, but they still need guidance as to what steps should be taken for quality control on this level.

33. Financing seems to be the most pressing need expressed by the entrepreneurs. There are so many SMI metalworking shops and foundries with more or less the same capabilities. In this case, their capability is limited to the production of parts and products which

the limited local market can absorb at preferred prices if quality considerations are not so critical. Penetration of the "import substitution market" is still difficult due to quality and/or price considerations. Therefore, the stiff competition among the machine shops and foundries to get more jobs in order to fully utilize their existing capabilities is predominant, taking into account that the local market is limited and the identification of new markets and opportunities will take time and a great deal of effort.

34. MIRDC is divided mainly into four sections: metal casting and treatment, tool and die making, metal making and training as well as analysis and research. The metal casting and tool and die making sections are actively engaged in production using their own facilities and have large-scale companies as customers. Tools and dies are designed and produced in the respective sections for further supply to the end users in different media. Machinists are being trained in the metalworking and training section; the programme is well organized and mainly geared to supply large-scale companies with trained workers. Such a programme could be amended to suit the small and medium firms which could not acquire modern facilities such as that of MIRDC. The research section covers several areas and is developing in size and facilities, which would require further strengthening of the research staff.

General Findings

35. General findings of the project were indicated by Dr. Masamoto Watanabe, the UNIDO Project Manager. He has indicated that the project activities during its first phase, have surveyed the state-of-the-art of three industry sectors and the institutions concerned as well. The co-operation of the project team with the industry counterpart and the institutions' staff during this stage was acknowledged. He highlighted the importance of undertaking the suggested follow-up programmes and implementing the experts' recommendations through immediate and long-range programmes. Combined efforts are strongly needed to proceed with such programmes, if any of the expected impacts on the industry are to be achieved.

Other UNIDO/CSMI Projects

36. Mr. M. Abou El-Khair, UNIDO Senior Adviser to the CSMI, has explained the inter-correlation between the TSDS project and the other on-going UNIDO assisted projects which are being operated in co-ordination with the CSMI. The Quality Control and Productivity Improvement Systems Project is coincidentally dealing with the three industry sectors: food, wood and metals. The project activity in general is to provide an in-depth professional look into the industry sectors, through factory visits and workshop seminars in the regions in order to diagnose the needs of the industry and formulate response follow-up programmes with the existing institutions according to what has been identified. Under this project, an operation on the small and medium-scale canning industry has been conducted and three other operations in food, wood and metal sectors have started their functions. It is anticipated that the outcomings of these operation, particularly with regard to the findings and the formulated response programmes, would be parallel to the TSDS activities and provide other dimensions to the overall technology services programme.

37. A subcontracting exchange promotional programme has started its operation in the MI/CSMI and is being assisted by UNIDO in order to build up a specialised subcontracting institution. The programme is considering the fact that subcontracting, when functioning in the country between large contractors and small or medium subcontractors, would be an effective tool in the flow of technology within the country. Further promotion of subcontracting with overseas contractors would accelerate and improve the process of technology transfer. It is expected that the TSDS programme in the long run would strengthen the infrastructure necessary for the success of the subcontracting activities on one hand, while on the other hand the subcontracting programme would provide the impetus to industry, particularly the SMI, to improve and meet the requirements set by the contractors. This should also place much emphasis on the role of standardization and quality control in the TSDS.

V. PROJECT RECOMMENDATIONS

38. Based on the foregoing summary findings, the following recommendations were made for the respective sectors.

Food Sector

39. Immediate training programmes should be organized for SMI owners, foremen and workers on food processing particularly on health hazard criteria control. It is recommended that SMI should have at least one foreman to handle processing responsibilities and to guide the workers during production.

- Food sector should be included in the present subcontracting programme and the large-scale industries or trading companies such as supermarkets should be contacted to assist in the manufacturing or marketing of SMI products. Assistance in financing, technical and managerial aspects should be given by the large-scale industries or trading companies.
- Assistance to the SMI food processors is urgently needed and should be given in a complete package containing management, financing, technology and marketing.
- Institutions concerned with food industry and particularly the MIST should have a definite programme designed specially for SMI and the programme should be supported by a research team for consultation services, research and tests. The Food Technology Research Division of the MIST should be expanded in size, capacity and manpower. A contract research system should be established with the SMI's entrepreneurs where financing of research should be supported by the Government. The main library should be strengthened to contain more periodicals, journals, magazines and books on food science and technology.
- SBAC should strengthen their staff through training and should have more facilities such as a telex system, regional library and mobile van units for training entrepreneurs, foremen and plant workers.

- UNIDO should extend the TSDS project for at least two years and should provide a food processing expert to the project to assist in the preliminary and full implementation of the recommended plans.

Wood Sector

40. The survey scope should be extended to cover additional plants and should take place in North-Eastern Luzon, Cagayan de Oro, Davao City, Zamboanga City as well as Metro Manila.

- At production level, particular attention should be given to the interchangeability of parts, size of components and specifications of material other than wood such as upholstery, foam, rubbers, hardware, etc. as well as other methods to organize production and lower production costs.
- FORPRIDECOM should be the training site for subjects identified or to be identified. The SBAC should be trained initially in wood technology including physical and mechanical properties, wood processing, finishing and packaging.
- Research results should be rewritten in simple language for further dissemination to personnel at middle management level. Extension staff should be strengthened to handle technical inquiries of the SBAC/industry needs.

Metal Sector

41. Technical assistance is needed by the SMI and should be provided in the form of labour-intensive technology which if implemented would require minimal capital outlay. Emphasis should be given to upgrading the skills of the workers, on optimizing machines as well as on material and tools substitution and quality and process control.

- MIRDC should strengthen its staff to cope with the SMI needs. A special department should be established to collect detailed information on the SMI particularly with regard to quality control methods and improving productivity of labour-intensive industry. The department's

research should be oriented to the proper ways of utilizing indigenous raw material.

- UNIDO should provide the TSDS with suitable expertise to assist in building up the concept of low-technology technical assistance in co-ordination with the SMI/SBAC/MIRDC while the counterpart staff should be trained throughout this recommended operation.

VI. IMPLEMENTATIONS CONSIDERATIONS

42. Within the framework of the first phase of the project, the following study tours and training programmes were implemented:

- Training course to the SBAC's on food processing, Manila, 22 participants
- Training course to the SBAC's on wood processing, FORPRIDECOM, 25 participants
- Study tour for the national project co-ordinator on metals industry, Japan, 1 fellowship
- Study tour for national counterparts on wood processing, Japan (two weeks), 3 fellowships

43. Further implementation arrangements have been discussed with the TRIs concerned and it was revealed that they are agreeable in principle to the concept of the project and its foreseen impacts on the industry. In the meantime, several constraints are hindering immediate implementation, based on the limited resources of the TRIs, non-availability of additional technical staff and national experts as well as deficiencies in the equipment required for such operations. However, the MI in collaboration with the TRIs will discuss further the working arrangements and possibilities of tapping additional resources necessary for early implementation.

VII. FOLLOW-UP PROGRAMMES

44. Immediate Programmes

A. Pilot Implementation of Initial TSDS

- Technical Case Referral Sub-System - assistance with plant level technical problems will be limited initially to plants selected from those surveyed during the initial stages of the project. SBAC field officers will be instructed to visit these firms for the purpose of referring problems presently experienced by these firms to the appropriate technical resource institution.
- Plant Technical Training Sub-system and Technical Information Dissemination Sub-system. Both these systems will be implemented on a pilot basis in regions where particular industries are predominant. A pilot project for both sub-systems will be implemented for all three industry sectors in relation to the test implementation of technical case referral and will be evaluated before further expansion. Expert assistance will be utilized here.

B. SBAC Training Component

- Short Term Formal Training Programme on Metals Engineering for the SBACs. This programme will be implemented jointly by the Ministry of Industry and the MIRDC and the methodology will follow the pattern of the programme already implemented for the food processing and wood and rattan processing sectors.
- Continuation of Information Training. The Support Unit of the SBACs, in close co-ordination with their counterparts in the technical resource institutions, will intensify its efforts in the selection of appropriate technical material for dissemination to the SBACs. Priority in dissemination will be given to material directly related to the areas covered by the training programmes. Other types of information such as those on new equipment and advanced processes will be disseminated.

Further assistance from UNIDO is expected to be available from the balance of the project funds. This assistance will include expert inputs for the food and metal sectors as set out in the job descriptions in Annex VI A and B respectively.

C. Dissemination Seminar of TSDS

- The proposed dissemination seminar, with the participation of representatives of ASEAN countries and of selected countries within the ESCAP region, is envisaged to cover ideas and experience of the Philippines in relation to the initial implementation of the TSDS project. The meeting will serve as the occasion for the possible adoption of a similar system in other developing countries, and as a source of practical ideas to improve the TSDS.

- It was suggested that the Seminar could take place some time in 1980, in Manila. The date, participants, topics to be covered and venue would be finalized later in co-ordination with all organizations concerned.

45. Long-range Programmes

The experience gained from the implementation of the pilot TSDS will determine in detail the further activities and requirements for the development of the TSDS into a permanent network for Technology Transfer. At this point it is projected that the areas of concern may include inter alia the following inputs:

a) Expertise - top calibre expertise will be required in the planning and development of specialized units or offices within the participating agencies of the project. Particular emphasis may be placed on the TRIs where the development of units/offices to handle the technical requirements of the selected SMI sectors will have to be built up with the capabilities required to service the SMIs. Further investigations will have to cover the expansion of the network to include agencies and institutions which may directly or indirectly participate in the exercise.

b) Equipment - consequent to the activity mentioned beforehand, it is expected that the build up of additional equipment will

be a required input to the long range activities of the project. These will cover required research and testing facilities in terms of software and hardware, otherwise not available within the targeted institution but which are necessary in the proper arrangement of required services.

c) Fellowships - To ensure the continuity and availability of qualified personnel services after the international expert component has been exhausted, fellowships and training components should be made available to the key operatives (national cadre) serving within the TSDS. These may cover specialized courses in the respective fields or observation study missions to similar technology transfer set-ups in other countries where useful experience may be gathered and adopted.

VIII. COMPLEMENTARY DISCUSSIONS

46. The meeting was followed by discussions on the outcome of the Mid-term Review with Mr. Takanashi, Industrial Attache of the Embassy of Japan in the Philippines. This meeting was attended by:

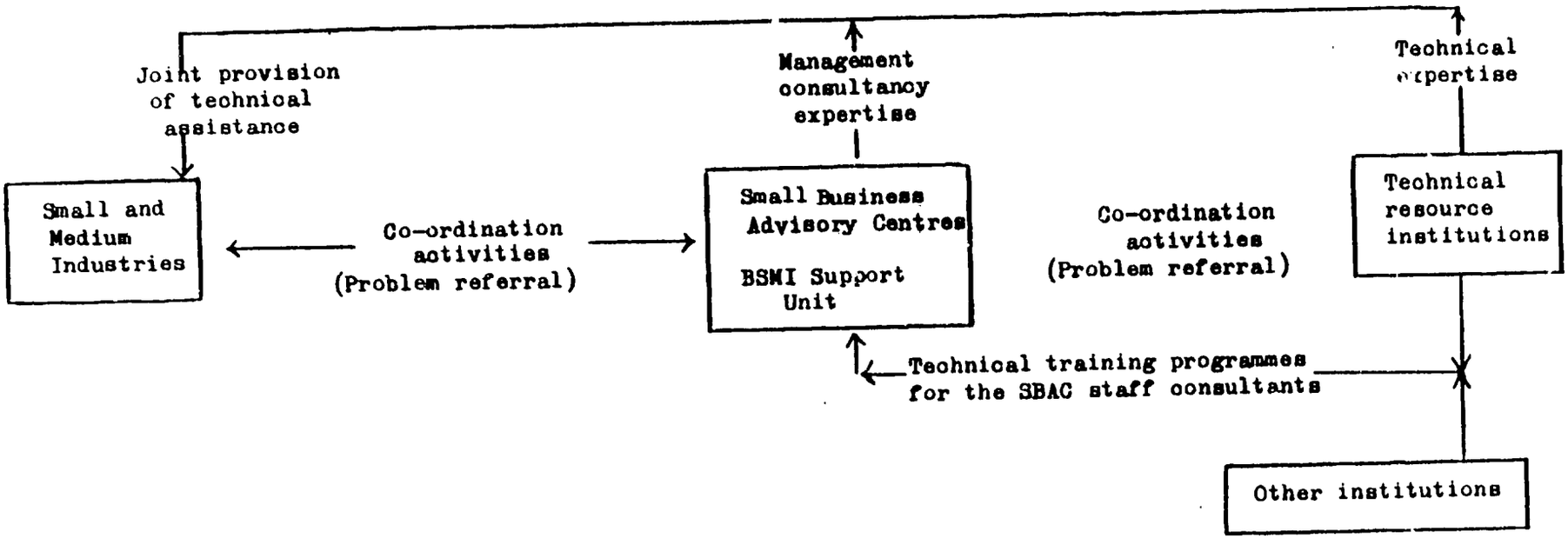
- a Philippine government official
- the UNIDO head of mission
- the UNIDO Senior Industrial Development Field Adviser
- the UNIDO Project Manager and team of experts
- the UNIDO Senior Adviser to the CSMT

Highlights of the recommendations of action emerging from the meeting were discussed with the Japanese Embassy official. A request was made for a possible further assistance grant from the Japanese Government to implement the follow-up programmes identified. The Japanese Embassy official responded to this by stating that the request would be conveyed to the Ministry of International Trade and Industry (MITI) for consideration.

Annex I

INITIAL TECHNOLOGY SERVICES DELIVERY SYSTEM

Schematic Diagram of Operations and Support Programmes



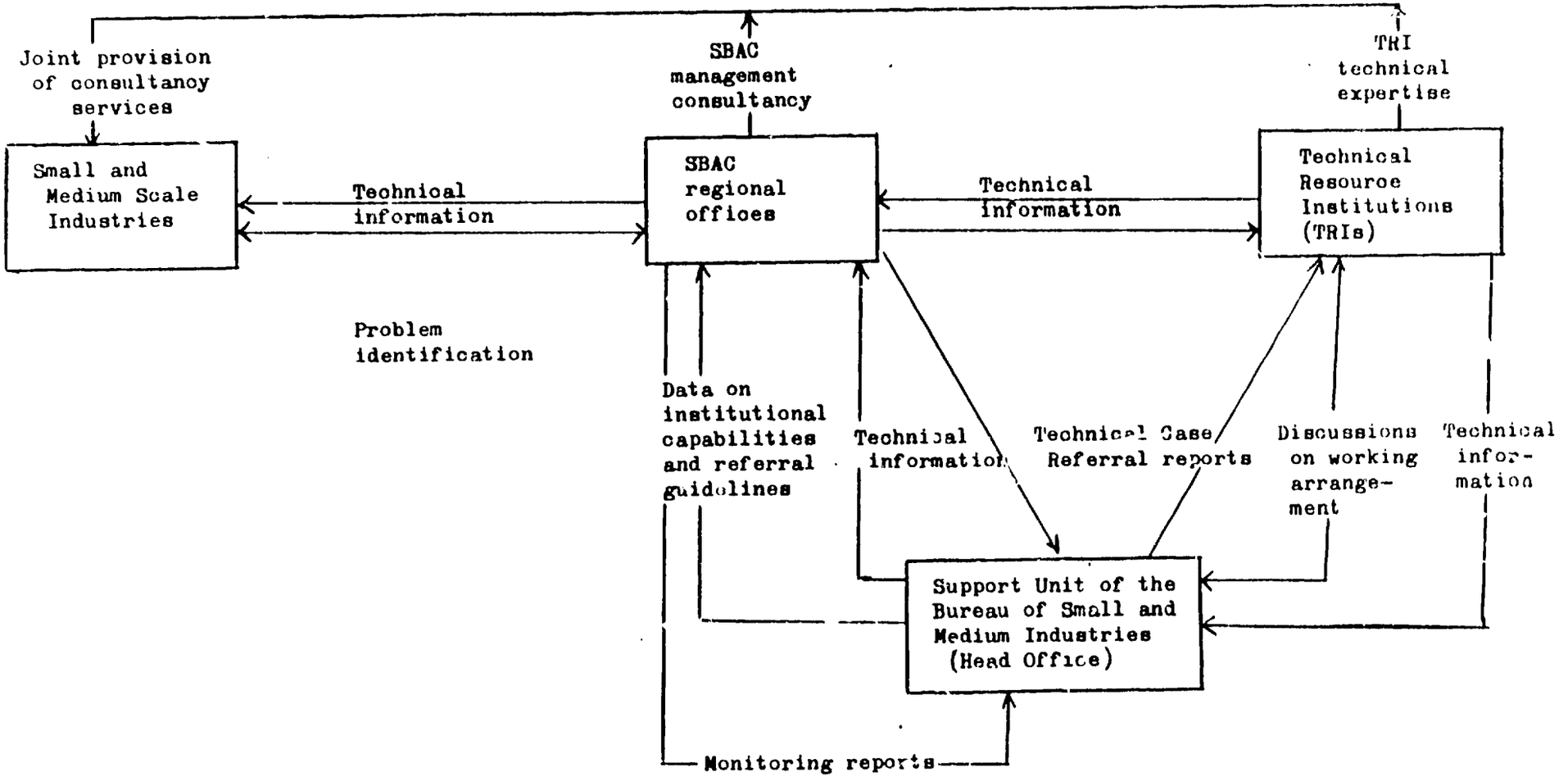
* Assistance through:

1. Technical Case Referral Sub-system
2. In-Plant Training Sub-system
3. Technical Information Dissemination Sub-system

Annex II

TSDS TECHNICAL CASE REFERRAL SUB-SYSTEM

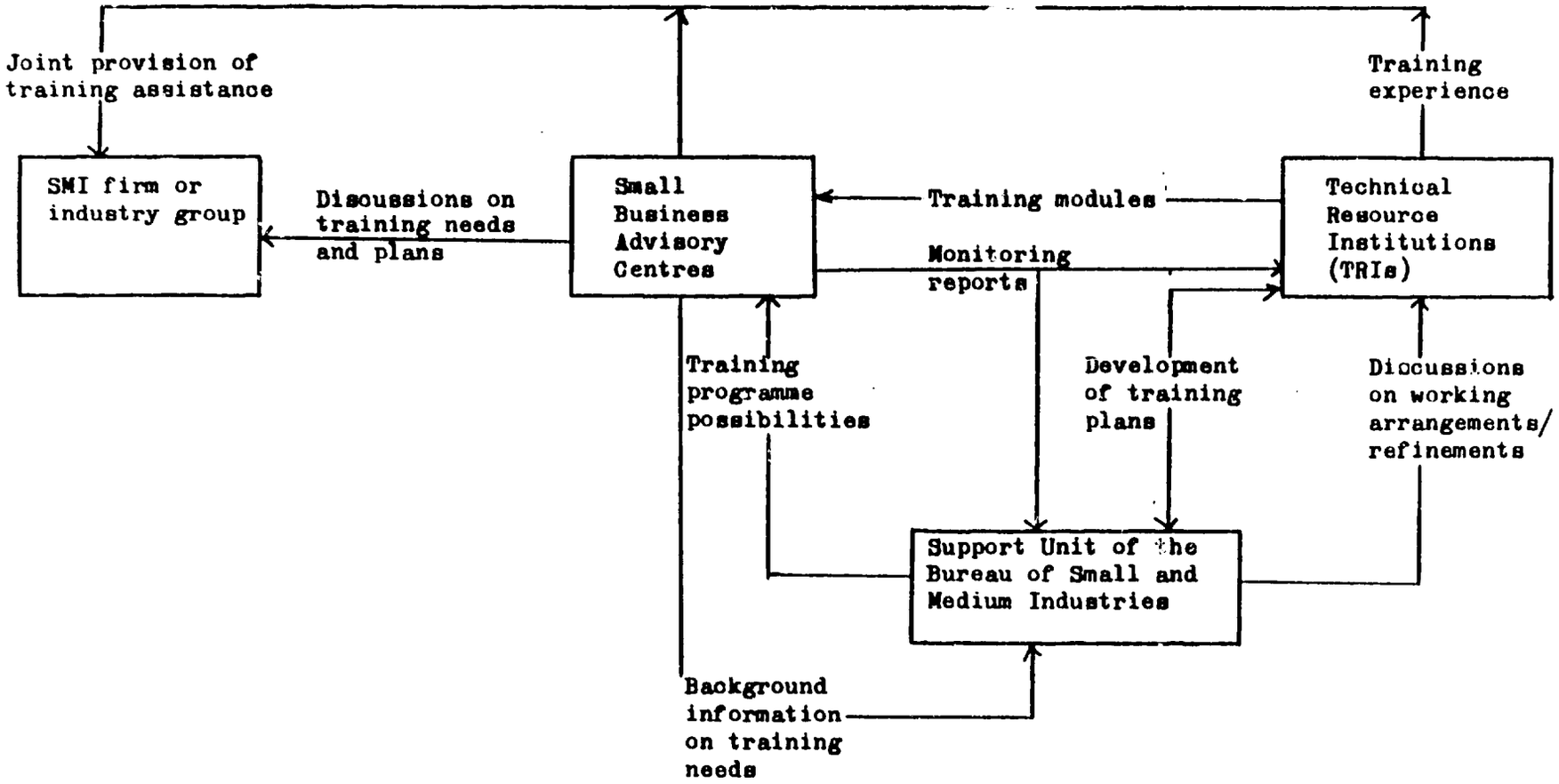
Schematic Diagram of Operations Plan



Annex III

TSDS IN-PLANT TECHNICAL TRAINING SUB-SYSTEM

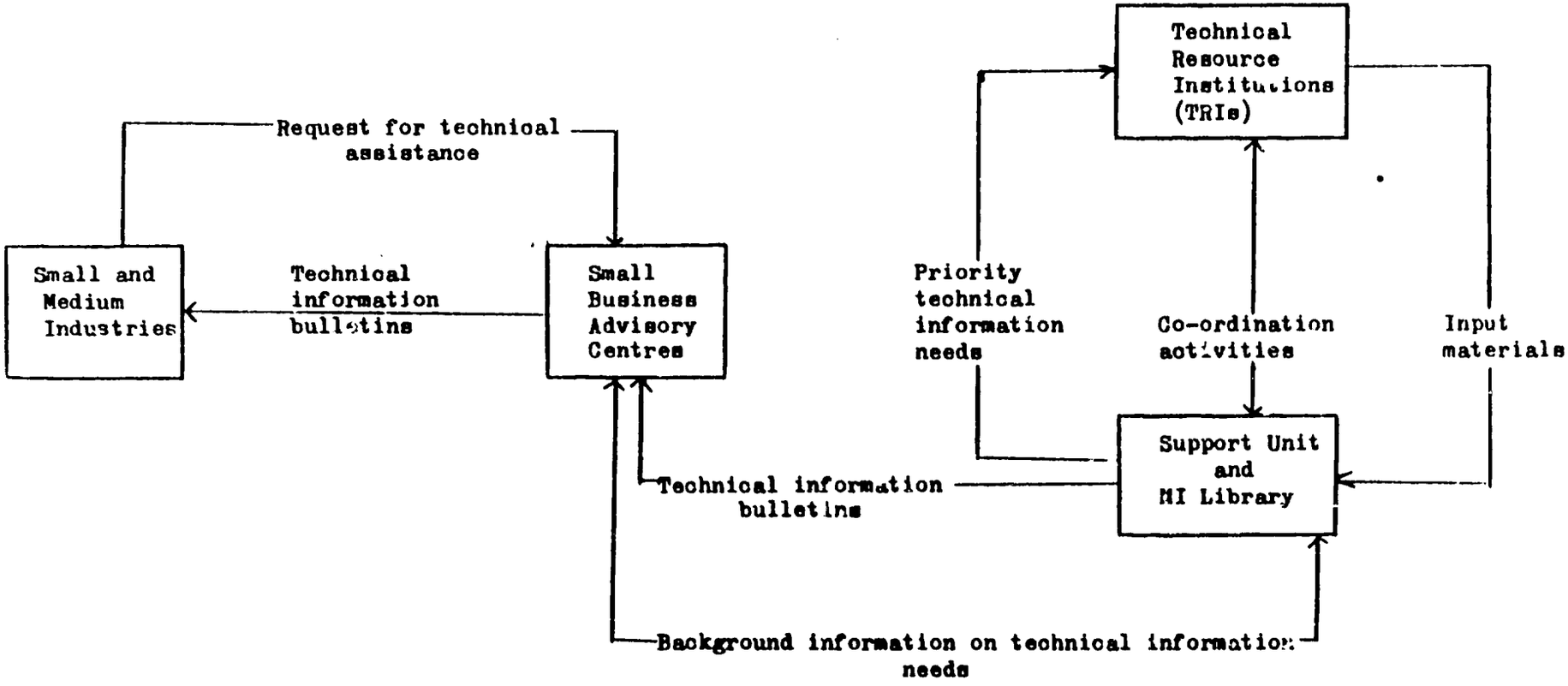
Schematic Diagram of Operations Plan



Annex IV

TSDS TECHNICAL INFORMATION DISSEMINATION SUB-SYSTEM

Schematic Diagram of Operations Plan



Annex V

Areas of Relative Specialization

Based on the research and studies previously conducted by the three participating institutions in the food processing sector of TSDS, the following areas of relative specialization have been identified and agreed upon to be the basis of problem referral.

Product/Process Category	Appropriate Agency
I. Fruits and Vegetables	
A. Fermentation	
1. Wine processing using local fruits such as mango, chico, papaya, berry, banana etc.	UP-LB
2. Pickling of local fruits (cucumber, ginger, ampalya, onion, papya) - long and short cure	UP-LB
3. Nata production generated from coco, pineapple, chico etc.	UP-LB NIST
4. Vinegar production from coco water, sugar-cane, pineapple etc.	UP-Diliman UP-LB
B. Canning	
1. Fruit juice (mango, guayabano, duhat, guava-santol, tamarind etc.)	UP-Diliman
2. Fruit cocktail, mango scoops, pineapple, tomato etc.	UP-Diliman
3. Canning of baby corn, papaya, string beans, langka, water-chestnuts and mushrooms etc.	UP-Diliman
4. Canning of chicharo, togue, beans, kangkong, ubod, puso ng saging etc.	NIST
5. Bottling or canning of fruits in syrup	UP-Diliman NIST

C. Drying/Dehydration	
1. Utilization of fruit peels (watermelon rind, kalamansi peel, pomelo rind etc.)	UP-Diliman
2. Dehydration of mango santol, banana, etc.	UP-Diliman NIST
D. Sugar Concentrates	
1. Jams, jellies, fruit preserves, marmalades, etc. made from local fruits	UP-Diliman
II. Meat	
A. Slaughtering practices	UP-LB
B. Curing of meat into sweet-cured ham, American ham, longaniza, hot dog, tocino, bacon etc.	UP-Diliman UP-LB
C. Canning of meat	UP-Diliman NIST UP-LB
III. Fish and Shellfish	
A. Dehydration/drying, sun drying, solar, general drying of different fish - milkfish	UP-LB NIST
B. Canning of fish and shellfish, shrimps etc.	NIST
Poultry	
A. Raw materials - processing (frozen)	UP-LB
Cereals/Cereal Products	UP-LB

(Annex VI A)

JOB DESCRIPTION
(Draft)

Title:	Expert, technology transfer for food processing industry.
Duration:	Four months, with possibility of extension.
Date Required:	As soon as possible.
Duty Station:	Manila with travel within the country.
Purpose of Project:	To assist the Commission on Small and Medium Industries, Ministry of Industry, in a pilot operation for transfer of technology from national technological resource institutions to selected small and medium food processing firms.

Duties: The expert will be attached to the Ministry of Industry, Commission on Small and Medium Industries, and will be working extensively with the Small Business Advisory Centres (SBAC) and counterparts from the Technology Resource Institutions (TRI). Specifically the expert will be expected to:

(a) Supervise the technical case referral system through participating in in-plant visits to selected enterprises, together with the SBAC counterpart and national experts from the TRIs.

(b) Identify cases of production floor shortcomings and recommend necessary adaptations or improvements to be undertaken by plant manager, or when necessary, report identified cases to the concerned TRI with guidelines for further action as required.

(c) Assist in identifying the needs of the TRIs in order to operate effectively on a large scale and make recommendations on how the efficiency of the system could be improved.

(d) Train national counterparts in the above-mentioned duties through practical demonstrations and recommend on infrastructure requirements, particularly manpower and training needs.

(e) Prepare a report citing findings and recommendations on further action which might be taken.

Qualifications: Food technologist with extensive experience in providing assistance on small and medium scale industry levels.

Language: English.

(Annex VI B)

JOB DESCRIPTION

(Draft)

Title:	Expert in technology transfer for metals industry.
Duration:	Four months with possibility of extension.
Date Required:	As soon as possible.
Duty Station:	Manila with travel within the country.
Purpose of Project:	To assist the Commission on Small and Medium Industries, Ministry of Industry, in a pilot operation for transfer of technology from national technological resource institutions to selected small and medium metal firms.
Duties:	The expert will be attached to the Ministry of Industry, Commission on Small and Medium Industries and will be working extensively with the Small Business Advisory Centres (SBAC) and counterparts from the Technology Resource Institution (TRI). Specifically the expert will be expected to:

(a) Assess the situation of SMI metal and foundry shops with special reference to circulation routes of material and tools, marketing of products, price and price difference from imported goods, owners' sense of management as well as workers' technical level and working ability, bearing in mind the highly labour-intensive characteristics of this sector.

(b) Supervise the technical case referrral system through participation in in-plant visits to selected enterprises, together with SBAC counterpart and national experts from the TRIs.

(c) Identify cases of production floor shortcomings and recommend necessary adaptations or improvements to be undertaken by plant manager, or when necessary, report identified cases to the concerned TRI with guidelines for further action as required. Demonstration to plant managers/owners of suggested techniques would be required.

(d) Assist in identifying the necessary changes in the TRIs structure so as to set up a special division for the SMI services in order to undertake effectively operation on a wider scale, and recommend on means to improve the efficiency of the system.

(e) Train national counterparts in the above-mentioned duties through practical illustration, and make recommendations on the infrastructure requirements particularly manpower, and training needs.

(f) Prepare a report, citing findings and recommendations on further action which might be taken.

Qualifications: Basic knowledge on characteristics of metal material with experience in designing, assembling procedures as well as subcontracting in the metals industry. Knowledge on metal casting, quality control and cost accounting is required.

Language: English.