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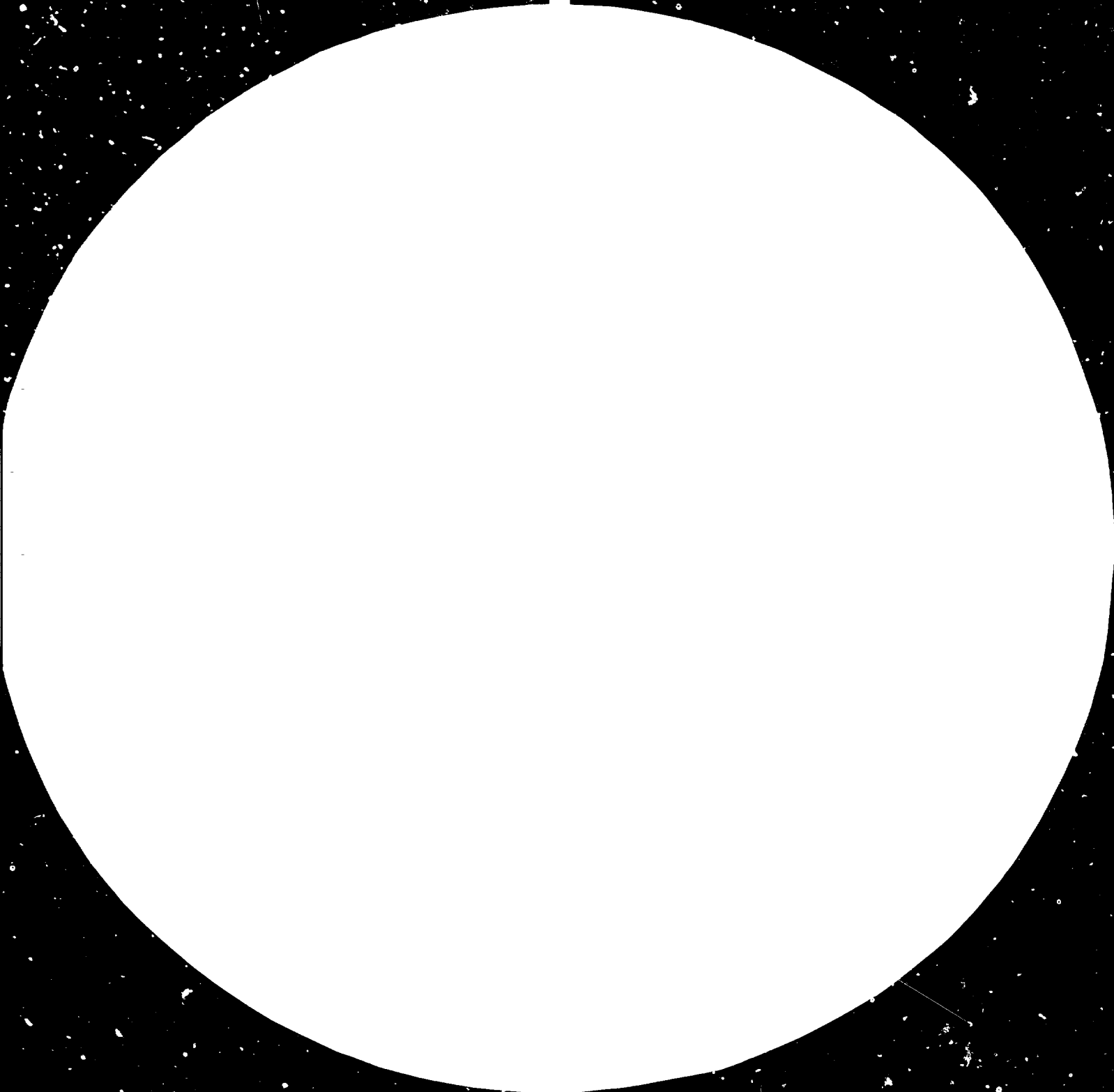
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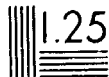
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Concept Paper
on the
Technology Services Delivery System (TSDS)

Based on Experiences in the Philippines*

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I. BACKGROUND

1. The UNIDO project (TF/RAS/77/004) developed the Technology Services Delivery System (TSDS) on a pilot basis in the Philippines, during the years 1978 and 1979. The project was funded by UNIDO from a Japanese voluntary contribution for an ASEAN regional project. From the outset it was understood that, upon completion its results within the Philippine experience, would be disseminated to other interested developing countries.

2. The Technology Services Delivery System as developed in the Philippines, enables existing technological know-how, experience and facilities, contained in the Technological Research Institutes (TRIs) located in the Metro Manila area, to be transmitted to Small and Medium Industries (SMIs) in the provinces. The TSDS system established the required links to make this transfer of technology possible.

3. The TSDS system and its links were field-tested during the implementation of the UNIDO Quality Control Project and proved to be effective. As a consequence of the positive results obtained during the pilot stage of the project, the Philippine government has allocated funds from its own budget, to ensure the continued and extended use of the Technology Services Delivery System.

4. In view of the above, it is opportune to hold the UNIDO Dissemination Seminar in Manila. The objectives of this seminar are to:

- (a) Discuss and learn from the existing Technology Services Delivery System as illustrated by the Philippine experience.
- (b) Discuss and formulate possible improvements to the system.
- (c) Ascertain whether the TSDS, suitably modified to take account of local

conditions, could be made to work in other developing countries.

- (d) Investigate the feasibility of operating a Technology Services Delivery System on a sub-regional or regional level.

5. Taking the Technology Services Delivery System in the Philippines as our example, let us now analyse this experience and thereby determine its general applicability in other developing countries.

II. THE TECHNOLOGY SERVICES DELIVERY SYSTEM - THE PHILIPPINE EXPERIENCE CONCEPT

6. Whereas large firms have the means to acquire, adapt and develop technologies, small firms in developing countries do not have the means and the capacity to improve their technological performance and thereby their competitiveness. This lacuna can be filled only by the provision of the requisite technological services as required from the technological infrastructure available in a country. At the same time whereas most developing countries have already established a number of Technological Research Institutes and other technological institutions, the activities of many of them rarely reflect the real technology needs of local industries. There is a wealth of accumulated technical know-how and experience within each of these Institutes which for the most part does not reach local industries and most especially Small and Medium sized Industries located in the provinces. The TSDS system is, therefore, an attempt to bring together, through the creation of a number of institutionalized links, the technological know-how contained in the Technical Research Institutes on the one hand, with the needs for technical information and gaps in know-how experienced by Small and Medium Industries on the other. In the process the TSDS are also enabled to develop more realistic programmes of activities of direct relevance to actual requirements.

7. The TSDS system as envisaged by UNIDO relies for its effectiveness on the full utilization of existing technology sources and institutions and does not require the creation of additional new institutions. Existing institutions will, however, have to adapt their work programmes to accommodate the specific requirements of the Technology Services Delivery System. The main emphasis is on a systems approach with continuous linkages and feedback.

Methodology:

8. To establish the TSDS pilot project in the Republic of the Philippines the following methodology was adopted. As the country is well endowed with Technical Research Institutes it was first necessary to survey them so as to determine:

- (a) The extent and scope of their activities.
- (b) Their facilities in terms of equipment, trained manpower, etc., and
- (c) Their ability to participate in the TSDS pilot project.

At the same time, a parallel survey was conducted in the provinces covering selected industry sectors, i. e., metalworking, food processing and furniture. The purpose of this survey was to determine technological services actually needed by specific Small and Medium Industries units.

9. Once the technology needs in each of the selected industry sectors have been identified, the Technology Research Institute best suited to supply the required services can be determined. When this preliminary work is completed, the next step is to establish the required links through which the Technology Services Delivery System can function.

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T. S. D. S. - Structure:

10. The Technical Services Delivery System in the Philippines consists of the following elements:

- (a) The Bureau for Small and Medium Industries (BSMI) of the Ministry of Industry - the TSDS co-ordinating unit.
- (b) The Technology Research Institutes - technology source.
- (c) The Small Business Advice Centres (SBACs) of the Ministry of Industry - regional link with Small and Medium Industries.
- (d) The Small and Medium Industries (SMIs) - recipients of technical assistance made available by the TRIs through the TSDS.

T. S. D. S. - Functions:

11. Once the above links were established and institutionalized, a programme for the transfer of technology from the TRIs in Metro Manila to the SMIs in the provinces could be developed. For this purpose, three (3) sub-systems were created:

- (a) The information sub-system.
- (b) The training sub-system.
- (c) The in-plant consultancy sub-system.

Each of the above mentioned sub-systems works through the links established by the TSDS and differs mainly in terms of manhours and therefore cost, when implemented by the appropriate Technical Research Institute.

12. The information sub-system is the least expensive to implement. This is because it merely involves the TRI disseminating existing written material on different aspects of the technology used

in a given industrial sector. Such material can be of a general or specific nature, but its distribution in the provinces through the SBACs, makes it available to local SME entrepreneurs, often for the first time.

13. The training sub-system, involves the TRI in a greater commitment of time and money. The planning and preparation of lectures, seminars, practical demonstrations etc., plus travel expenses of staff members visiting the provinces all incur considerable costs. If visits to the regions are frequent, extended additional costs in terms of dislocation of normal work programmes at the TRI may also occur.

14. The in-plant consultancy sub-system is the most expensive and the most difficult to cope with, from the point of view of the TRIs participating in the TSDS. This is because it can often involve the necessity for protracted absences of more than one member of the TRI staff thus disrupting on-going research and development work. This function of the TRIs within the TSDS is however crucial for the effective transfer of technology and must therefore, be made operational in spite of all difficulties.

15. The above mentioned functions are the vehicle through which the TRIs transfer their know-how to the SMIs in the provinces within the framework of the Technology Services Delivery System. To make the sub-systems operational and to achieve technology transfer, the TSDS depends upon the strength of its institutionalized links. Let us therefore analyse the links and elements of the TSDS.

III. ANALYSIS OF THE LINKS AND ELEMENTS OF THE TSDS. THE BUREAU FOR SMALL AND MEDIUM INDUSTRIES (BSMI)

16. The Bureau for Small and Medium Industries is a department of the Ministry of Industry in Manila, which acted as the Counterpart Agency for the UNIDO-TSDS pilot project during 1978 and 1979. Since

that time it has continued to function as the Co-ordinating Agency for the Technology Services Delivery System. Under BSMT guidance and with its funding, numerous projects have been initiated in the provinces.

17. BSMT's main functions can be summarized as follows:

- (a) To discuss the concept of the TSDS with the TRIs and to persuade the selected Institutes to participate fully in its implementation.
- (b) To guide and motivate the Small Business Advisory Centres (SBACs) in the provinces and to persuade their managers to identify, collate and pass on to the proper TRI the technology needs of the SMIs in their area.
- (c) To administer, finance and co-ordinate the work programme of the TRIs and the SBACs arising out of TSDS activities.
- (d) To initiate when necessary new activities that are compatible with or complimentary to the TSDS.

18. The outcome of BSMT involvement in the co-ordinating function over the last three and a half years has been impressive. The information and training sub-systems were fully mobilized in all the regions, with the result that valuable technical know-how has been transferred and has benefited the SMIs and SBACs in the provinces. This flow of technology has inspired requests for the provision of additional and more specific training as well as in-plant consultancy.

19. Once the needs for and the type of technical assistance were identified for an industry sector, it became apparent that many of the problems were common to all SMIs in that sector. Faced with this phenomenon BSMT therefore took the initiative to create new or to revitalize existing local Industry Associations. To persuade individual firms to

join such associations, BSMI decided that lectures, seminars, demonstrations, etc., would only be arranged if the request for such a programme was made by an active local association through the SBAC manager. Furthermore these associations have proven their appreciation of the know-how provided through the TSDS by sharing the local costs of the meetings.

20. The BSMI's co-ordinating function within the TSDS is by far the most dynamic link in the system. This is natural, as it was a UNIDO/BSMI initiative that made available the funds which first launched and then expanded the system. Having concentrated on three industry sectors in the pilot stage, additional sectors were subsequently added. These are textiles, ceramics, leather products and plastics. With the original three, namely: food products, metal working and furniture, seven industrial sectors are currently benefiting from technology transfer through the TSDS.

The Technical Research Institutes (TRIs):

21. It should be noted that the Technology Services Delivery System often makes new demands on Technical Research Institutes. This is largely due to the fact that most TRIs were created primarily as Research and Development Centres. As such, their functions and day to day activities are confined to fairly narrow if in-depth investigations of various aspects of technology within their specialist field. In many cases, their strength lies in pure science rather than applied technology.

22. More important, however, from the TSDS viewpoint, the administrative and financial structure of these Institutes makes it difficult for them to allocate manhours, materials and funds to activities which are not strictly within their terms of reference. The lack of budget allocation can be overcome fairly easily by the provision of funds from other sources. The TSDS call on the limited staff resources, however, is a far more serious problem.

23. All the TRIs in the Philippines have staffing problems. Although all the top posts in each of the Institutes are staffed by highly qualified specialists, due to relatively low salary levels which cannot compete with posts in private industry, they find it difficult to attract and keep good middle level technologists. This is despite the fact that most of the Institutes train such personnel themselves, but tend to lose them as soon as they qualify.

24. Despite these difficulties the TRIs in the Philippines, or at least those selected to participate in the TSDS, have managed to get effectively involved in the system. Their active participation in and support of the TSDS has contributed greatly to the overall effectiveness of the system as a whole.

The Small Business Advice Centres (SBACs):

25. The Small Business Advice Centres (SBACs) are the regional offices of the Ministry of Industry. There is an SBAC office in each of the twelve regions in the Philippines. The SBACs were set up to give advice to Small and Medium scale Industry on a wide range of problems, i. e., raw material procurement, management, financing, production planning, product development, marketing, etc.. These offices were thus ideally placed to act as the provincial focus for TSDS activities.

26. The effectiveness of these offices varied considerably and depended largely on the personality, social standing, ability and training of the local manager. The majority of SBAC managers and their staff were young graduates with little or no experience of industry and its problems at the shop level. Whereas, they could cope quite adequately with requests for assistance from the SMIs which was of a non-technical nature, their ability to deal with questions requiring technical solutions was often inadequate.

27. One of the first priorities of the TSDS programme therefore

became the technical up-grading of SBAC staff members. Appropriate short-term formal training courses were implemented by the TRIs. These were supplemented with on-the-job training, re-inforced by the field activities generated by the implementation of the TSDS.

28. The aim of this training was not to transform SBAC staff into highly qualified technicians, but merely to give them sufficient technological background, to make them into better, more useful and effective generalists.

Small and Medium Scale Industries (SMIs):

29. The last link in the chain which makes up the Technology Services Delivery System in the Philippines -is of course the recipients of the technical know-how, the Small and Medium Scale Industrialists in the provinces. These have been grouped into local Industry Associations through which TSDS activities are channelled. The formation of local associations has acted as a catalyst, resulting in numerous requests for additional information, training, etc..

30. Working together, association members soon realized that many of their problems were common and could best be solved on an industry-sector basis. This brought them to the conclusion that in some cases, to improve their products, the only viable solution lay in the acquisition and use of common facilities.

31. Two examples of such common facilities are currently being implemented:

- (a) In the province of Isabela, a local Industry Association of 47 SMI furniture manufacturers are setting up a jointly owned Kiln-Drier of 10,000 board feet capacity, to improve the quality of their furniture.
- (b) In Cagayan de Oro, the Metalworking Association

formed as a result of the TSDS programme, is currently negotiating to set up a jointly owned Heat Treatment Plant.

32. In both these cases, the appropriate TRI is designing and supervising the installation of the equipment. This TRI assistance, apart from ensuring that the correct equipment is installed, also saves the joint owners a considerable amount of money in terms of consultancy fees. In this way, the TSDS has benefited the SMIs not only in terms of technology but also in terms of costs.

33. Apart from the above, the TSDS programme has generated many other projects that are in the discussion and/or planning stage. Many of these are in the food-processing sector, while other projects cover the newly added sectors, i. e., garments, ceramics, leather products and plastics.

IV. TRANSFERABILITY OF THE TSDS TO OTHER DEVELOPING COUNTRIES. GENERAL OBSERVATIONS.

34. From the analysis of the Philippine experience it would appear that, the basic concept of the Technology Services Delivery System is sound. The system has been field-tested through its pilot stage and has continued to work well, producing tangible results beyond the time scale of the original UNIDO project. The basic reason for its undoubted success is its conceptual simplicity combined with operational flexibility. Furthermore, based on the TSDS concept an effective delivery system has been developed, which for the first time reaches the SMIs located in the provinces. It is different from conventional extension services for small industry in that it has to marshal in a flexible way the interest and expertise of all technological institutions.

35. Based on the above, there is no doubt that the TSDS concept can be transferred to other developing countries. Its implementation, however, may well need modification in different countries to take full

account of local conditions. These modifications can be accommodated by the TSDS without major difficulty. Depending on local conditions, the system will work on a small scale with, for example, one TRI and one industry sector, or on a substantially larger scale, as in the Philippines.

36. Starting the TSDS on a limited scale and subsequently enlarging scope and coverage, has in any case many advantages. It is far more manageable when at first it is confined to a few industry sectors. This allows time for personnel engaged in the various activities to become accustomed to them and therefore to run-in the system more systematically.

37. All the participating institutions forming the links in the system, can in these circumstances adjust to the special requirements of the TSDS more easily, thereby causing minimal dislocation in work schedules and existing commitments. This is an important point to bear in mind in the case of the TRIs, whose whole-hearted co-operation in the TSDS, as principal suppliers of technological know-how is essential, if the system is to be effective.

38. A limited scope start is equally important to the regional link in the system. The local office managers and staff need time to absorb the influx of technical data and training directed at them by the TRIs. The initial limited scope approach will therefore be of benefit to them.

39. Whichever country decides to implement the TSDS, it will have to institutionalize the functions which form the links of this system. How this is implemented will of course depend on local conditions and will therefore vary from country to country. In principle, however, the system should be grafted onto existing institutions in such a way that it will continue to function irrespective of subsequent, inevitable changes in staff.

The Co-ordination Function:

40. The most crucial link in the TSIS is undoubtedly the co-ordination function. The transplanting of the TSIS to any other developing country will therefore require the establishment of an effective co-ordinating team. As its function is to initiate the project and then to manage it on a day to day basis, great care should therefore be taken in choosing the most appropriate institution to take on this vital task.

41. The most appropriate institution may or may not be the Ministry of Industry or its local equivalent. Depending on local conditions, it could turn out to be the Development Bank, the Ministry of Technology, the Office of the President, the Ministry of Trade and Co-operatives or some Specialized Agency catering for the needs of Small and Medium Scale Industries, to name but a few alternatives. The most important criterion is not who should perform the co-ordinating function, but which institution has the required drive, initiative and staff to do it effectively.

42. Once an appropriate institution has been designated to perform the co-ordinating function for the TSIS, adequate funds must be placed at its disposal to enable it to establish and then maintain the system. Its first task will be to appoint a co-ordinating team which will:

- (a) Survey the technical resources available in the country.
- (b) Ascertain the needs for and type of technical assistance required by the Small and Medium Scale Industries.

The results of these surveys, will form the basis on which the co-ordinating team can identify, the priority needs for technical assistance and the most suitable Technical Research Institutes that

can provide this assistance.

43. The next step is to establish a good working relationship with the selected Technical Research Institutes and with their co-operation, plan and instigate a work programme for the pilot stage of the TSDS. This work programme must of course take into account the needs and priorities of SMIs in the regions and be fully co-ordinated with whatever government regional office network exists.

44. In the absence of such a network of government offices in the regions, the TSDS can still be implemented provided the co-ordinating team can establish good working relationship with industry sector associations where available. Where these do not exist, the co-ordinating team must encourage their formation.

45. As can be seen from the above, the function of the co-ordinating team is vital to the effective establishment of the TSDS. It is essential therefore, that the team is staffed by trained people with flair, initiative and dedication. Young graduates straight from university can perform some of the routine tasks, but the team must include two or three individuals with at least some industrial experience to act as supervisors. It is on their managerial and negotiating skills that the effectiveness of the TSDS will ultimately depend.

Technology Sources:

46. These will differ widely from country to country. In most of the larger developing countries numerous Technical Research Institutes covering a wide range of industry sectors already exist. In some of the smaller least developed countries the numbers of TRIs are, however, more restricted. Despite this fact, it is still possible to envisage the establishment of a scaled down TSDS even in some of the least developed countries.

47. The TSDS need not restrict its sourcing of technology to

that available from TRIs, in order to assist the SMIs in the provinces. Any local source, be it a university, visiting foreign expert, a government laboratory, R and D department of a large-scale local industry, etc. they can all be utilized as technology sources to enlighten and assist the SMIs in the provinces.

48. The main technology source, however, should be the Technical Research Institutes where they exist. Where these are utilized, it should be borne in mind that their primary function is research. They are thus quite often not too keen to participate in projects which will divert their limited staff resources from their primary objective. The negotiating skill and persuasiveness of the co-ordinating teams supervisors will thus often be stretched to the full to overcome this obstacle.

49. As seen from the Philippine experience, TRIs in developing countries are particularly prone to the effects of a brain-drain. Unable to pay competitive salaries, they tend to lose most of their best trainees upon the completion of their courses. They thus suffer from an acute shortage of trained middle-echelon staff. These are precisely the types of people best suited to participate in the TSDS.

50. On the other hand, the TSDS can itself act as a catalyst, which to some extent can counter-act this deficiency. It can do this by providing the TRI with additional funds for travel, per diem and honoraria and opening opportunities to supply problem oriented technical assistance. This can help to retain some staff members at the TRIs, who would otherwise leave in the absence of the TSDS.

51. In the long term, however, governments of developing countries must solve the brain-drain problem. As long as they persist in paying specialists according to their government service rank, instead of in accordance with their special skills, the problem will persist. It is unfortunately a very common problem which few developing countries have even attempted to remedy to-date.

52. Most TRIs in developing countries are more than adequately equipped to assist the SMIs in the industrial sector covered by their specialization. In many cases, however, the co-ordinating team must be vigilant to ensure that the type of assistance given by the Institute matches the actual and most pressing needs of the industry sector concerned. Sometimes there is a tendency to blind with science which must be avoided. For this reason all literature, brochures, lectures, training seminars and demonstrations should be phrased in the language which contains the minimum of technical jargon. This is essential, if Small and Medium Scale Enterprises are to benefit from these exercises.

Regional Organization:

53. In the Philippines, the regional offices of the Ministry of Industry, the SBACs were ideally suited to act as the provincial link for the TSDS. In other developing countries this function can be performed by similar government offices where they exist. In the absence of such offices, local branches of the Central Bank, Development Bank, Provincial Governor's Offices, etc. could be used as substitutes.

54. The primary function of a regional office in the TSDS is to maintain day to day contact with the local SMIs. This is in order to help them to identify their technology problems and to formulate these in order of priority. The local office also acts as a channel for technical information emanating from the TRIs, which is passed through the office to the appropriate SMI sector.

55. Acting as the mouthpiece of the local industrialists, when requesting technological know-how and as that of the TRIs and the co-ordinating team when delivering information, the regional office is the initiator of projects. It is also the supplier of first-resort of technical, managerial, financial and other relevant assistance. The effectiveness of the local offices performance of these functions depends upon the ability and experience of its staff.

56. Staffing these offices with effective people is even more difficult than in the case of the TRIs. Provincial postings are not popular, while salaries and allowances are usually even lower than in the capital. It is essential therefore to devise effective training programmes for the managers and staff of these offices, to upgrade their technical capacity so that they can make a positive contribution to the TSDS.

57. To be truly effective, the regional officers must possess sufficient technical knowledge to be able to solve some of the simpler production and product problems themselves, without having to refer every detail to the appropriate TRI. On the other hand, they should work strictly within their own technical capacity and never attempt to take on problems beyond their competence. Provided they work within these limits, their assistance will be appreciated by the local business community and their judgement will come to be trusted.

58. It takes time and a great deal of effort to build up this trust in the regions, where local entrepreneurs tend to be rather conservative in outlook and suspicious of change. Having run their businesses for years without assistance, they have to be convinced that the local government office offering help under the TSDS, is truly interested in their problems and has the ability to come up with viable, cost-effective solutions.

Technology Recipients:

59. These are the Small and Medium Scale Industries in the regions. Their owners as a group, make up the most enterprising section of the local community. They were either local shopkeepers or traders who saw the opportunity to set up as manufacturers of a certain product line, or artisans who decided to set up in business on a larger scale. As long as they are content to remain very small, they usually manage to stay in business despite many difficulties.

60. Their real problems, however, begin to escalate as soon as they attempt to expand the scale of their manufacturing operations. Few of them have the necessary capital, to finance such expansion from their own resources and bank credit, is difficult to obtain without adequate collateral. Apart from the lack of finance, expansion plans are often inhibited by the lack of new product ideas and only a rudimentary knowledge of manufacturing processes and techniques.

61. Their know-how may be adequate to produce small numbers of products of variable quality for local customers, but is quite insufficient to cope with the problems of batch production. Having no regular access to sources of technical know-how, they are usually unaware of cheaper and more efficient production methods, processes, product design and quality requirements.

62. It is not very surprising therefore that the TSDS programme has met with general SMI approval once the potential benefits were fully explained and understood. The majority of SMI businessmen have taken advantage of the technical assistance offered through the TSDS programme and where practicable, applied some of the suggestions in their own businesses.

63. A similar reaction can be expected from the SMIs in any other country where an effective TSDS programme is introduced. Small and Medium Scale Industry entrepreneurs suffer from similar deficiencies in technology and are therefore willing to co-operate with any government programme that can assist them in the acquisition of this know-how.

V. THE TSDS ON A REGIONAL OR SUB-REGIONAL LEVEL

General Comments:

64. From the analysis it would appear that the TSDS suitably modified, could be introduced and made to work effectively in most developing countries. The question now arises whether the same system

would still be effective when applied in a wider context, on a regional or sub-regional basis. In theory at least there should be no problem, in practice, however, the initiation of such a scheme would require considerable modification of the single-country TSDS model.

65. The question of a regional TSDS becomes relevant, in view of the fact that UNIDO has received requests for TSDS type assistance from several developing countries in Africa and the Caribbean. These countries have only a few Technical Research Institutes and are thus able to provide TSDS assistance to only one or two industry sectors from their own technology sources. In such cases it would be beneficial if these countries could draw on the technical resources of their neighbours on a regional or sub-regional level.

66. Regional co-operation with Technical Research Institutes exchanging and complementing each others know-how and experience, would be of great benefit even to a single-country based TSDS. This type of co-operation becomes crucial for the success of a regionally based multi-country TSDS project.

Allocation of Functions:

67. As in the case of the single-country TSDS, the co-ordinating function of the regional project is vital to its ultimate success. It must therefore be allocated to the most dynamic and efficient institution in the region. A body such as the Caribbean Development Bank, or other similar regional institution could be considered to perform this difficult but vital function.

68. In a regional context, the existing Technical Research Institutes would have to be persuaded to agree to service requests for technical assistance to Small and Medium Industries throughout the region. Each one of the TRIs would thus become the technology source for a particular industry sector for the region as a whole. These TSDS activities of the TRIs would have to be supported and financed by the regional co-ordinating institution.

69. The local office function of the TSDS would have to be performed by a designated office in each of the participating countries. This office would be in day to day contact with the local SMIs, with the responsibility to define the type of technical assistance and to request its supply from the TRIs in the region. In small countries such as some of the islands of the Caribbean, this function could be performed at least initially by say one man at the Ministry of Industry, with additional staff allocated as the TSDS programme develops.

Practical Difficulties:

70. The difficulties inherent in the establishment of an effective single-country TSDS are intensified when it is attempted on a multi-national, regional level. Due to the need for trans-national consultation and agreement, the preparatory stage of the project is inevitably more complicated and slower. Distance, slow inter-country communications and language barriers combine to impede the establishment of a regional TSDS.

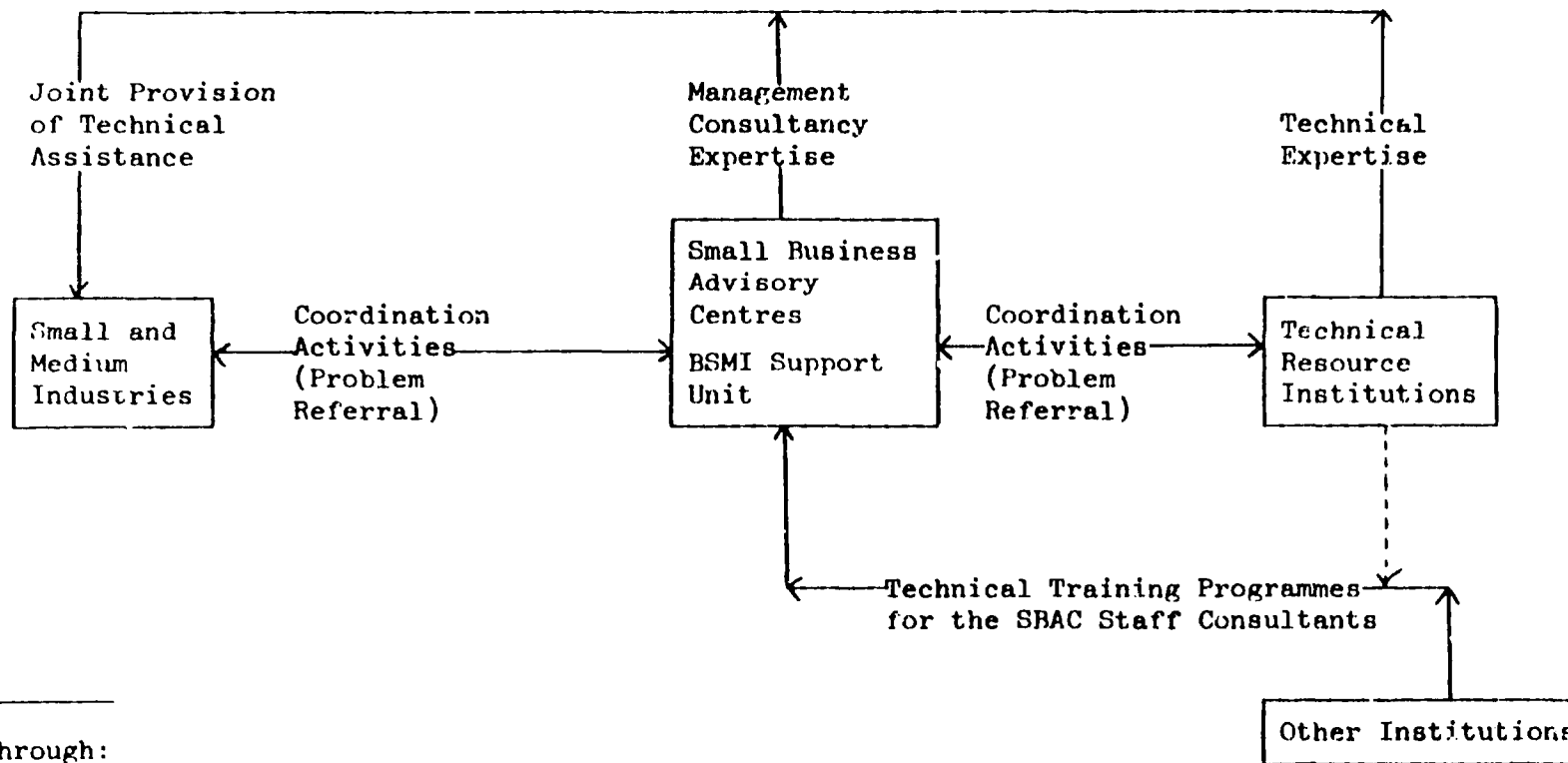
71. In these circumstances the co-ordinating function becomes that much more difficult and loses some of its vitality and impact through delayed communications. Spontaneous initiatives are difficult to implement, as any proposed changes of policy or adjustments in implementation have to be cleared and agreed with sovereign governments.

72. The Technical Research Institutes participating in the regional TSDS, face these same delays. Additionally, the regionally based TSDS programme imposes even greater sacrifices on them, in terms of prolonged staff absences etc., than in the case of the TRIs servicing a single-country TSDS.

73. By the same token, the essential staff training programme which forms an integral part of an effective TSDS may be seriously inhibited. This would affect adversely the efficiency of all the links of the regionally based TSDS programme. Bearing these practical obstacles in mind, it would appear that to launch an effective regional TSDS could prove very difficult.

(ANNEX I)

TECHNOLOGY SERVICES DELIVERY SYSTEM (TSDS)
SCHEMATIC DIAGRAM OF OPERATIONS AND SUPPORT PROGRAMMES*

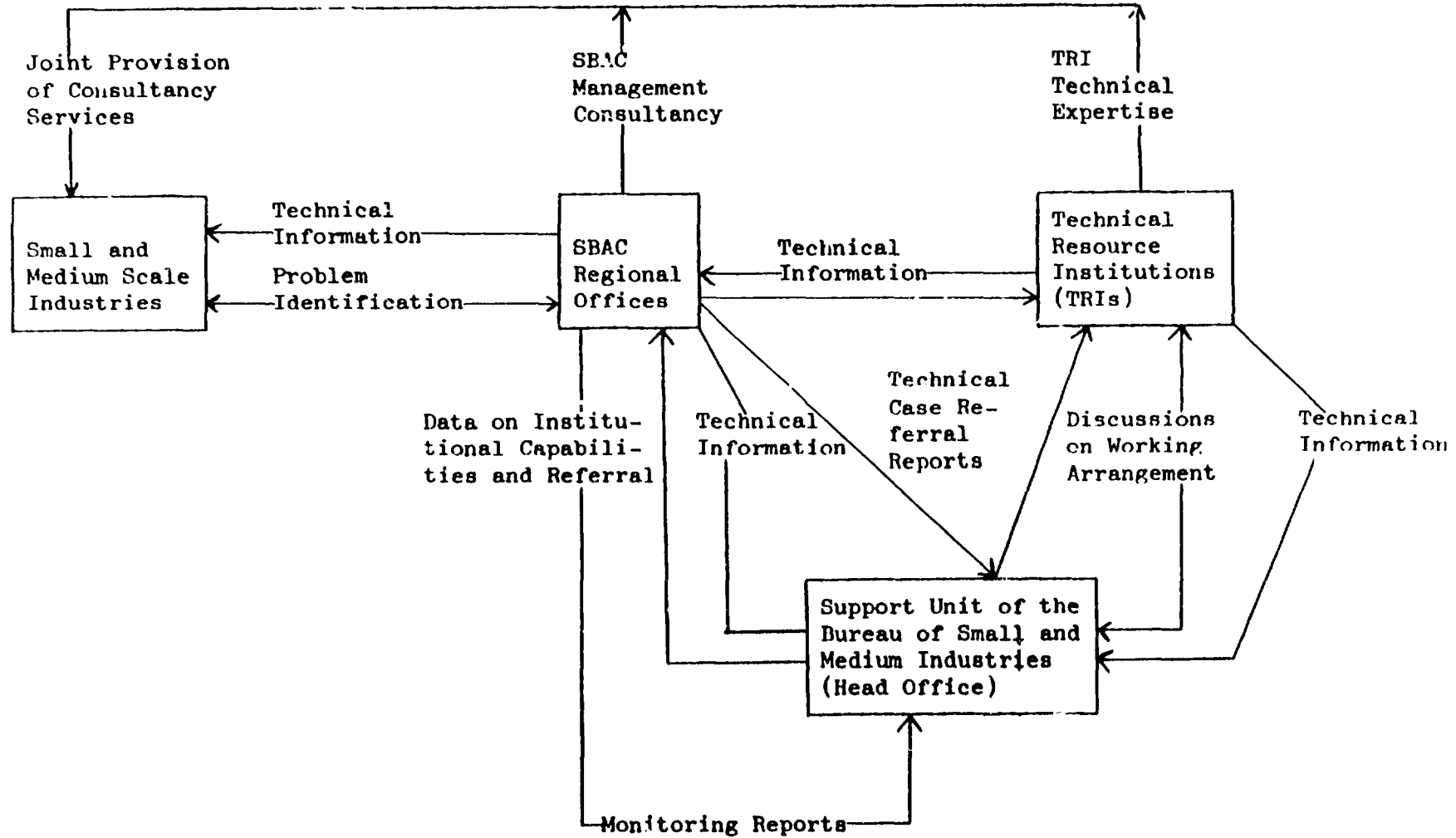


* Assistance through:

- (1) Technical Case Referral Sub-system
- (2) In-plant Training Syb-system
- (3) Technical Information Dissemination Sub-system

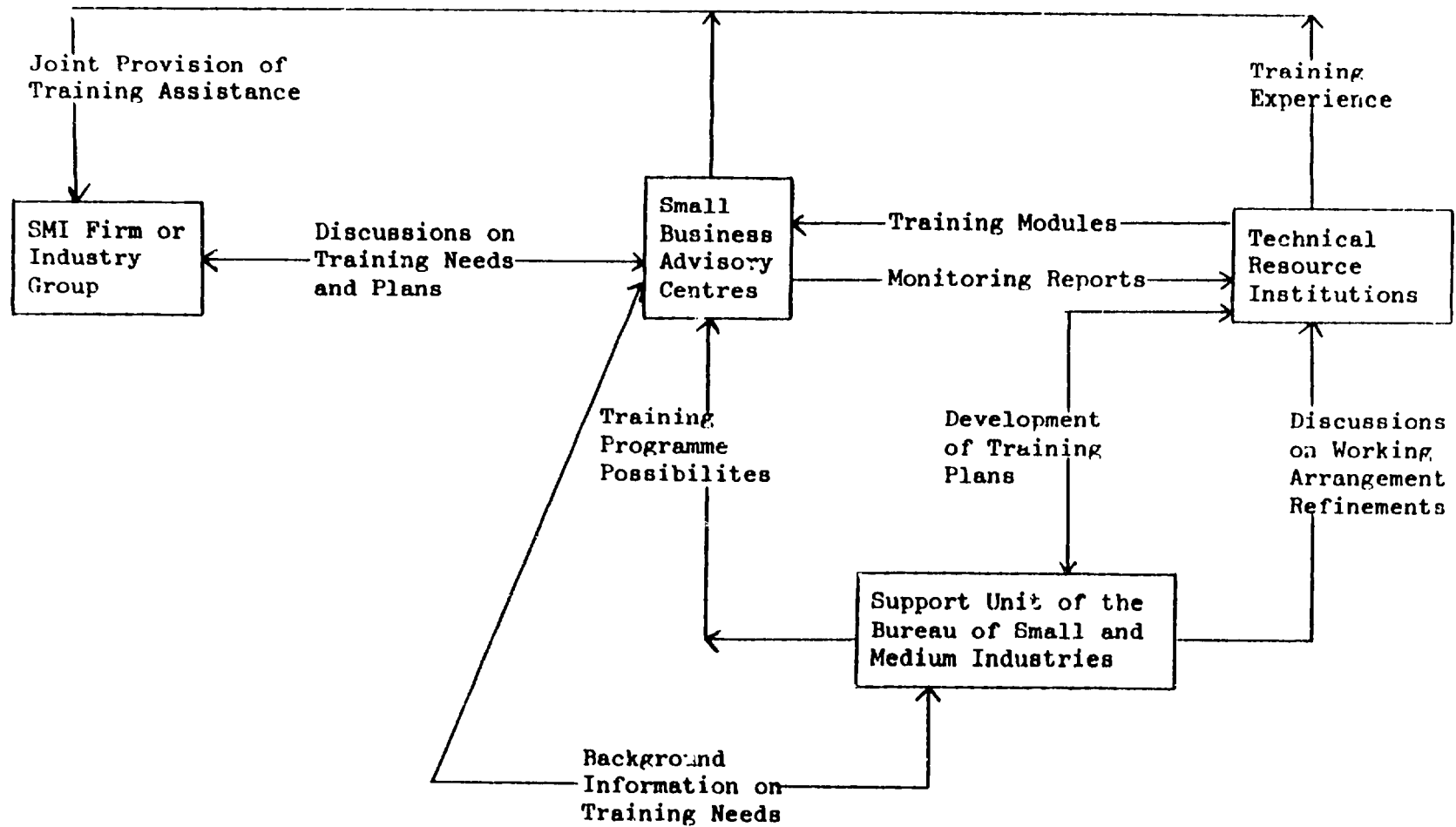
(A N N E X I I)

TSDS TECHNICAL CASE REFERRAL SUB-SYSTEM
SCHEMATIC DIAGRAM OF OPERATIONS PLAN



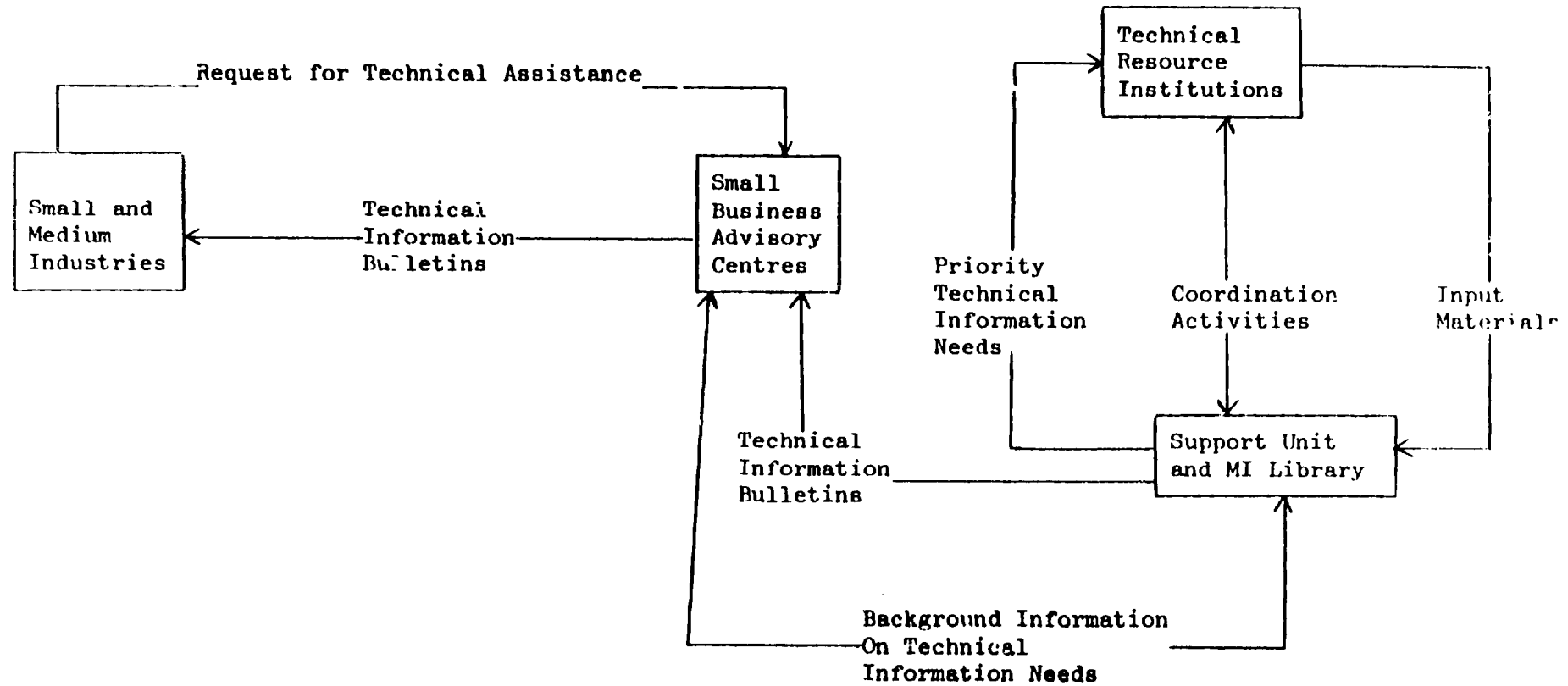
(ANNEX III)

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



UNIDO - TECHNOLOGY SERVICES DELIVERY SYSTEM (T S D S)

CONCEPTIONAL DIAGRAM

