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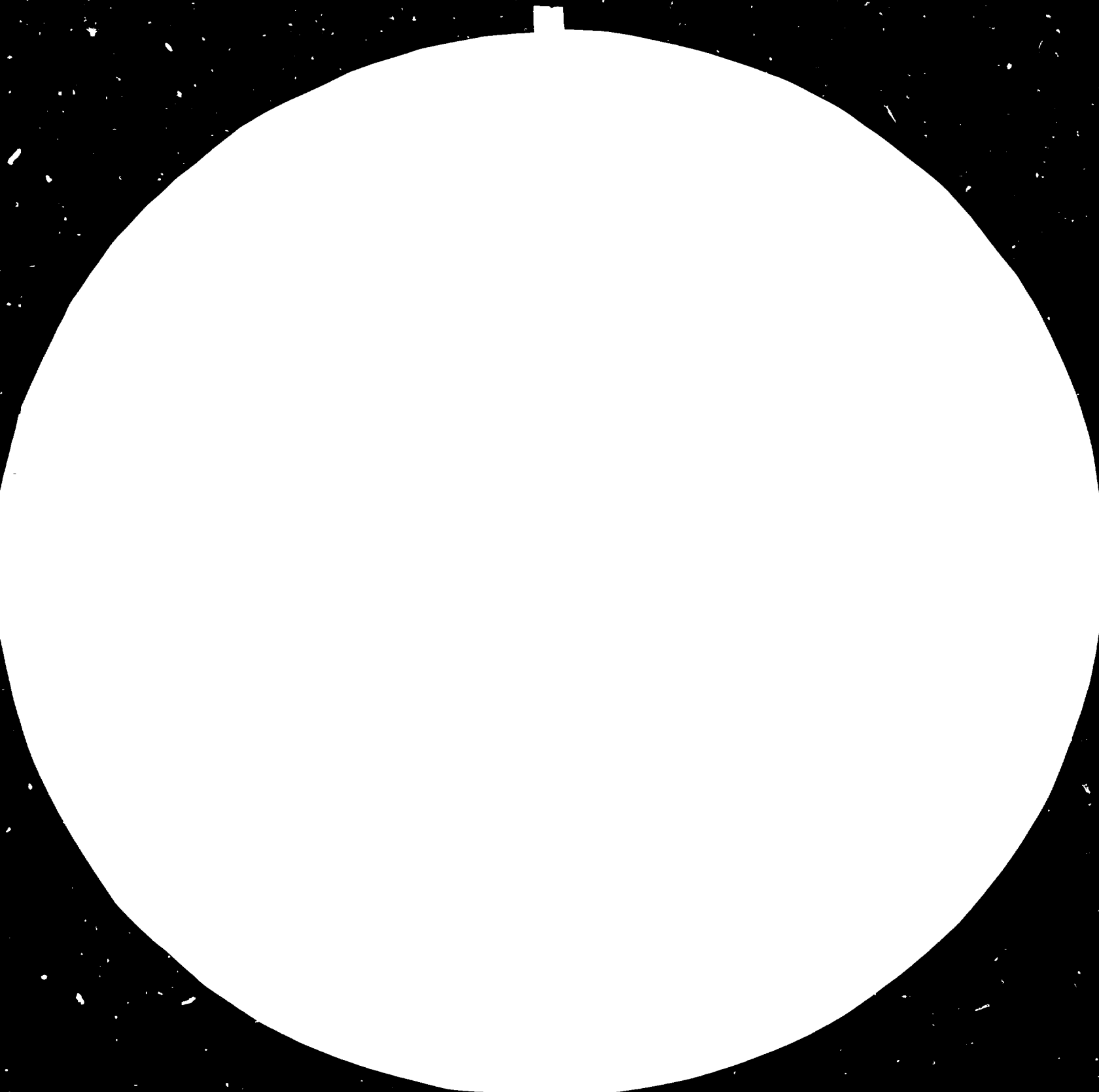

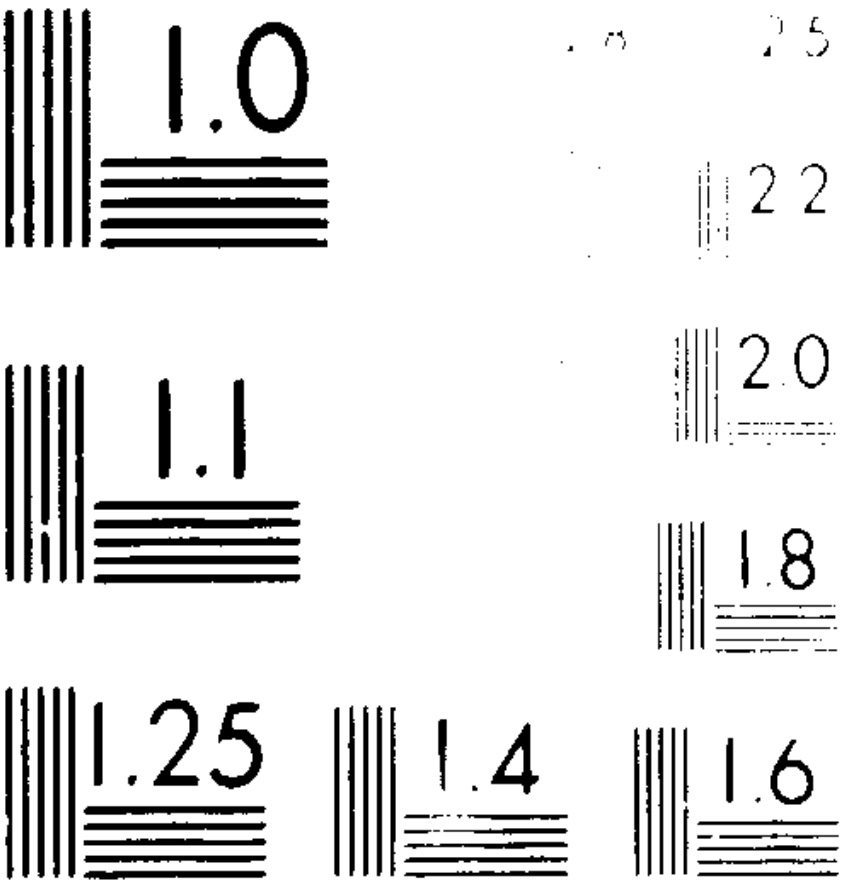
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10 February 1983

SUB-CONTRACTING AND SUB-CONTRACTING EXCHANGES IN MALAYSIA

SI/MAL/82/801

Terminal Report

Prepared for the Government of Malaysia
by the United Nations Industrial Development Organization,
executing agency for the United Nations Development Programme

Based on the work of E. Edwards,
expert in Sub-contracting Exchange Operations

United Nations Industrial Development Organization

Vienna

List of abbreviations (of organisations) used in the Report

BPMB	Bank Pembangunan Malaysia Bhd (Development Bank of Malaysia Ltd.)
EPU	Economic Planning Unit
HICOM	Heavy Industries Corporation of Malaysia Ltd.
ICU	Implementation and Co-ordination Unit
MARA	Majlis Amanah Rakyat (consultancy for small units especially in rural areas)
MIDA	Malaysian Industrial Development Authority
MIDF	Malaysian Industrial Development Finance Ltd.
MITEC	Metal Industry Technology Centre (part of SIRIM, below)
NPC	National Productivity Centre
SIRIM	Standards and Industrial Research Institute of Malaysia
UTM	Universiti Teknologi Malaysia (in Kuala Lumpur)

The Report follows the Government of Malaysia's definition of a 'small company'.

1M$ = 2.2 US$

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List of Appendices

I. INTRODUCTION

The project was initiated by a letter of 25 November 1981 from the Ministry of Trade and Industry. It was submitted to UNIDO on 10 June 1982 and cleared by UNIDO on 7 July 1982.

UNIDO's contribution was US$16,000 and the Government of Malaysia's contribution was in kind. The expert arrived in Kuala Lumpur on 8 December 1982 and left for Vienna on 31 January 1983. During his time in the country, he was attached to the Small Enterprise Division of the Ministry of Trade and Industry.

The purpose of the mission was to examine the sub-contracting arrangements between large and small industries. The specific objectives were:

(a) to survey and assess the present situation in the interplay between large and small companies;

(b) to examine the feasibility of setting-up Subcontracting Exchange(s);

(c) to select industries to be covered by the Subcontracting Exchange(s);

(d) to work out a legal framework for subcontracting;

(e) to devise a system for extending the system (including the Subcontracting Exchange(s) for export work.

At a meeting between Mr. Mohammedia Moner, Director, Small Enterprise Division, Ministry of Trade and Industry, Mr. P. Luttik, JPO, UNIDO, and the expert on 9 December 1982, the Job Description was amended to read:

1. to identify possible areas/subsectors having great potential in promoting ancillary works, e.g. leather industry, electrical and electronic components, etc.;

2. to suggest the establishment of ancillary units (small-scale), either by creating new enterprises or upgrading of existing ones, specifying the definite roles of the parties involved, i.e. the government, the entrepreneurs and the private sector;

3. to draft a scheme that would enable the establishment of mutually beneficial linkages between small-scale enterprises, medium and large companies.

At a further meeting between the Director and the expert on Saturday, 18 December 1982, it was agreed that, in view of the shortness of the mission, it would not be possible to survey all sectors. Accordingly, it was agreed that he should concentrate on industries where it was known that a substantial amount of subcontracting already took place. The sectors were:

(a) automobile manufacture
(b) electrical (equipment) manufacture: switchgear, transformers, distribution boards, etc.
(c) consumer electrical products: refrigerators, air-conditioners, radios and TV sets
(d) mechanical and small structural engineering.

During a brief 3-day visit to Penang and Butterworth (16 to 19 January 1983) opportunity was taken to visit some of the electronic companies on the Bayan Lepas Free Trade Zone (Penang Island).

The expert, after a visit to the Economic Planning Unit, early in the mission, was asked to take into consideration also, the report of the Small-scale Bumiputra Enterprise Development Project: Macroeconomic Policy Assistance Subcommittee for Project Preparation.

22 Government and official organizations were in and around Kuala Lumpur visited, along with 25 industrial companies (mostly in KL) but some also in Penang and Butterworth.

A draft report was submitted on the 28 January 1983. It was discussed at a meeting with the Director, S.E.D., his two Deputy Directors, Mr. Luttik, UNIDO, and the expert. In order to clarify several points raised at the above meeting, and to explain, and emphasise more strongly the main recommendations of the report, it was redrafted during the expert's stay in UNIDO, Vienna, from 1 to 10 February 1983.

As the concept of the Subcontract Exchange is new to Malaysia, a brief description of its philosophy and methodology is given in chapter II of the Report. It is also shown how an Exchange, although basically

a simple information point between a main- and sub-contractor brings many additional benefits to the small companies it serves. In the Appendices, very detailed descriptions are given of the procedures for operating an effective Exchange.

II. THE SUBCONTRACT EXCHANGE

A Subcontract Exchange is an organization, which, from one central point, can supply detailed and up-to-date information about the productive capabilities of a country or region. This implies an ability to advise a Buyer, who can make or supply any type of manufactured product, either a component part, or the whole. 'Manufactured', in this context, is to be understood in the widest sense, to embrace all clothing ('confection'), fruit products, sports equipment, machine-tools, furniture, electrical and electronic equipment, etc., as well as materials and 'bought-out' components (i.e. catalogue items). Hence, its operation is not limited to 'engineering', but extends into any sector, where there exists 'capacity', coupled with ignorance of its existence.

The system must be speedy in operation, and reliable in fact. This implies quick and assured communication between the Buyer, the Exchange and the subcontractors. The information supplied to the Buyer, in addition to 'price and delivery', must also include detailed facts about the companies taking part in the enquiry.

In every industrialized country in the World, there are 'Directories' which contain, very briefly, details of manufacturing and other establishments. Published information is historical (having been collected a considerable time before publication) and is never sufficiently detailed for this purpose. Also, its accuracy is questionable, being simply unverified information supplied by the companies advertising in the Directory. The Exchange's information system can record information on any company on (both sides of) an A4-sized card. For a population of 4,000 companies, the volume of such a Directory can be imagined. There is, additionally, the problem of up-dating the information contained therein. It is for this reason that the Exchange never publishes a Directory.

It has been our experience, talking to Buyers of international companies, both in Europe and elsewhere, that a Buyer is happier in his mind, if he knows that the company 'recommended', has already been visited and assessed

by a competent technical person. He does not expect an 'auditor's report'. He accepts the information offered by the Exchange as an useful preliminary: a filtering-out of irrelevant and sub-standard data. He does not then have to carry out a depressing search through the mass of unsuitable companies, often only vaguely related to his field of interest. The Exchange's services narrows down his task to the inspection of a few preselected units. So complete and accurate can be the information supplied, that the Buyer, when he finally visits the factories, has the experience of 'déjà-vu': that he has been there before.

A Subcontract Exchange does not require either a large staff, or extensive facilities. However, the staff must be of very high calibre, and the facilities though modest are essential.

In a developing country, the close relationships and good industrial communication are not as advanced as in a Western, highly industrialized one. It is for this reason, that an Exchange, simple as it is in conception, can act as a powerful information source for local industry. It can assist large companies more easily and effectively to find good sub-contractors. It enables small companies to be put in touch more positively with potential sources of work.

However, its great strength, especially for the small entrepreneur, is that it is a 'one-stop agency' able to solve most of his problems: finding work; upgrading his product quality; improving his facotry layout; grouping small firms together to quote for large contracts, etc. 'Technical Assistance' only really assists when it is applied specifically to an individual firm, to solve its specific problems.

The Exchange idea, when operated by grouping together State-based Exchanges into a national network, can then work on an international scale, since foreign enquiries can be routed through a centralizing (input) Exchange in Kuala Lumpur, into all the State Exchanges, and thus to the appropriate subcontracting/manufacturing company.

Many of the important ideas appertaining to the Subcontract Exchange have already been fully set-out many years ago, in a UNIDO report ID/WG.41/9 "Subcontracting Exchange". Another useful UNIDO handbook is "Subcontracting for Modernizing Economies".

III. FINDINGS

The sectors surveyed were the large foreign car assemblers, a few companies making electrical (industrial) equipment, domestic appliances including refrigerators and air-conditioners, and a few electronic companies (mainly in Penang).

Our most important findings relate to the cooperation between large and small companies; the state of the 'local content' programme: the weak position of small Bumiputra companies tendering for Government contracts; the lack of technical consultancy applied specifically to small units.

1. Cooperation between large and small firms

Many companies complained about the poor quality and erratic delivery of supplies from sub-contractors. Firms making cars at the higher price end of the automobile market had greater difficulty in finding good suppliers: their quality standards were higher, and their market share smaller than for the other car manufacturers. Occasionally, a company would admit that part of the blame lay with itself, for not giving sufficiently detailed information to the subcontractor, or enough advanced warning of its production requirements and changes.

Small companies were often unaware of items that the large and medium-sized companies wanted to subcontract locally. Or, if they were, did not realise that parts apparently different from their normal production, could easily be made with their present machinery and skills. They often lacked the ability to make the mental jump to realise that their skills could be applied to make products completely different from the ones they were at present making. (e.g. an injection moulding factory could, with new machinery, make ferrite rods, for radio receiver aerials). This is akin to the lack of ability to look at a product, and to 'break it down' into the production processes necessary to make it.

In both Kuala Lumpur and Penang/Butterworth, companies stated that there was a shortage of specialist sub-contracting services. The most important of these was tool-making, followed by heat-treatment. Many companies imported their press-tools and plastic moulds from Singapore, and in one case, even from Hong Kong.

There was, even amongst large companies, a lack of what one would call a 'generic' approach to production: realising that items, with different names, and end uses, were operationally the same, and could be made by the same machines and techniques. An example is the radiator of a car which is basically a heat-exchanger. Heat-exchangers (of different shape and performance) are also used in refrigerators and air-conditioners.

Working conditions in factories were not good. Examples would be tool-making in an open atmosphere (temperature not controlled); bad lighting (even in large companies); poor work layout; holes in the floor; use of dangerous substances (glass-fibre 'dust'), etc.

2. Local Content

The 'local content' (i.e. locally manufactured parts) component in the automobile industry is of the order of 18 to 20%. In one electronic company (Penang) it was as high as 90%. According to HICOM, the items available for manufacture (by small units) for the Malaysian car, is limited to a few minor items. In most sectors of industry, there is no forward planning of the 'local content' items. There are often only two suppliers (automobile industry), and the local price is usually at least twice (and can be high as four times) the imported price.

Some large companies would resist strongly any increase in the 'local content' component of their production. Others, however, would welcome such a change to local supply, as giving them a greater reliability in delivery.

From a small industry point-of-view, a forward 'local content' programme is very important, as it represents a ready source of increased work, and if it is planned, then small companies (and their technical consultants) can be ready to supply the items when they are needed.

3. Small Bumiputra Companies

Government Supply Officers do try and give sympathetic considerations to small units. However, despite this, and MARA's work in acting as middle-man (for example in the supply of bread to the Army), small companies

suffer from their small size (both physically and financially) and are, generally, unable to tender for any but the smallest Government contracts.

Also, the concession of being able to buy a local product, in preference to an imported one, if the price diffential does not exceed 10%, is usually insufficient to influence the Buyer's decision.

4. Technical Consultancy

In addition to SIRIM, MITEC and MARA, University Faculties (e.g. Universiti Teknologi Malaysia, University Sains Malaysia (Penang)) are extremely interested in making available their skills, to assist small industry.

For a small Bumiputra company wanting to export, but lacking the money to travel, there is no easy way of knowing the technical specifications (as opposed to quota legislation, etc) of a market: taste and colour preferences, the competition it faces, quality standards, etc.

Whilst seminars and workshops are useful, only firm-by-firm 'on-the-ground' specialist assistance is of any lasting value in upgrading the standards of small industry.

IV. CONCLUSIONS

Although many conclusions are possible from the Findings, the Report confines itself to 5 main ones: the need to set-up a Subcontract Exchange in Penang; a planned forward 'local content' programme; better use of trained (graduate level) manpower to establish new firms and also to strengthen existing companies; that a means must be found to improve the position of small units vis-à-vis Government tendering; the need for consultancy to be available for small units, on a specific firm-by-firm basis.

1. Setting-up a Subcontract Exchange in Penang/Butterworth

After visiting companies in the Kuala Lumpur and Penang areas, we believe that co-operation between large and small companies is inhibited by a lack of information: knowing what the main-contractors want to sub-contract; knowing of the existence of competent sub-contractors. The expert considers that this can be remedied by the establishment of Exchanges, and that these Sub-contract Exchanges can be developed into a country-wide network to be used to process enquiries originating from overseas. The industries first to be selected for this treatment will be in the engineering field, but the idea can be extended into other areas of manufacturing. We conclude that a Sub-contract Exchange should be set-up, as a pilot project, to service the Penang and Butterworth industrial areas. The Exchange can, of course, serve additionally, adjoining parts of kedah, and, on a short-term basis, the States of Kelantan and Trengganu, until such time as these three States establish their own Exchanges.

Location

We have chosen the above area in preference to Kuala Lumpur for the following reasons:

(a) The companies in the Federal area being large and well-established have, generally, a good knowledge of the capacity available locally.
(b) The initial recording of such a large number of companies would merely delay the real work, the establishment of a working Exchange in the shortest possible time.
(c) There is sufficient industrial 'weight' (200 varied companies) in Penang/Butterworth for the Exchange to function.
(d) They are comparatively new companies (in electronics and in other growth industries), with great dynamism and active reception of new ideas.

Benefits

(a) The successful implementation of an Exchange would greatly facilitate the switch to local manufacture of many items, at present imported, thus saving valuable foreign exchange.

(b) It would increase the volume of all sub-contracted work, by advising main-contractors of the existence and location of competent sub-contractors, and the sub-contractors of potential work, which they might otherwise not hear of.

(c) It would enable small units to group together to tender for both Government contracts and also foreign orders, by forming 'consortia' or 'sogoshoshas'. By acting as the normal 'middleman' (or agent), the Exchange, charging only a modest commission for this service to its Members, would thus increase their chances of a successful bid.

(d) By combining all the Exchanges in the important industrial centres in Malaysia, and coordinating them through an Exchange in Kuala Lumpur, we have the makings of an International Exchange. A foreign company then has only to contact this central point, to be put in touch with all the companies able to satisfy his wants. The system, taking into account the detailed knowledge which an Exchange possesses, thus offers a foreign Buyer all-Malaysia coverage with accurate, detailed, on-the-spot knowledge.

(e) In a similar way, the Exchange can provide a location service to a company re-locating, either from elsewhere in Malaysia, or from abroad. It can advise what is available, and what is not. This latter information can be 'turned' into advice to a local small company of a new outlet for its skills.

(f) The data gathered automatically by the Exchange from its own day-to-day operations, can be of great importance to economic planning, both State and Federal. This will include the general level of industrial activity; any lack or over-supply of specific capacity; the impact of Government legislation on industry, especially small units.

(g) An Exchange can advise sub-contractors of new outlets for their skills ('innovation').

(h) The visiting, vitally necessary to any Exchange, if it is to operate successfully, enables it to carry out (from its own resources) simple consultancy. It has also the necessary contacts to bring in more specialised advice from SIRIM, MITEC, UTM, etc., when needed.

Justification

The ultimate benefit in the 'local content' programme is the complete switch over from imported to locally manufactured parts. However, although a target, its realization is, at present, a long way ahead. However, if we consider that one item (a telescopic aerial as used in small FM radio sets) represents M$250,000 annually, the foreign exchange savings of a working Exchange could be several millions ringgits annually.

The benefits through:

(a) increased local subcontracting
(b) 'innovation'
(c) the formation of 'consortia' or 'sogoshoshas' for Government contracts and possible export work
(d) the upgrading of the skills of small units

are all real and substantial, but nevertheless extremely difficult to quantify.

Using the Exchange to group small units into 'consortia' or 'sogoshosas', it should be possible to tender for large Government contracts, and also entertain the possibility of executing export orders.

The operating relationship between the Exchange and an user company can be regulated by the Service Agreement (Appendix 9).

The general relationship between a large main-contractor company and a small sub-contractor, is a question for civil/commercial law and is beyond the scope of this brief mission. (It is very easy to legislate, but much more difficult to enforce!)

2. Planned 'Local Content' Programme

In each of the important industrial sectors, there is need of a forward programme of 'local content'. This will assist both the main contractors the better to plan their production, and also assist those working in the small entreprise field, to anticipate the manufacture of these items for the benefit of the small units in their care.

Each sectoral programme should be decided by joint discussion between MIDA and the particular industry. Especially important in this programme is the creating of the necessary specialist companies (e.g. tool-making, heat-treatment).

The protection afforded (by limiting a market to 2 suppliers) although reviewed annually, should have a definite cut-off point, which will probably vary from industry to industry. At the same time, in other sectors, free competition should be allowed to establish the most effective system: open- or restricted-market conditions.

3. The training of technology graduates for industrial management

The New Economic Plan calls for the creation of ? million new jobs by 1990. A recent World Bank Report comments on the slow growth (less than 3%) of the small Bumiputra sector in the decade to 1979.

Although some of the new jobs will be found in an active 'local content' programme, clearly, more drastic action is necessary to create employment on this scale.

Malaysia spend in excess of US$400 million annually on the higher education of students overseas. Many of these graduates in the field of technology and science need to be introduced into industry, to strengthen the technical management of existing industry. More importantly, however, they should be used to create new companies and industries, especially in the fields of high technology.

Instead of bonding such graduates to 10 years of Government service, they should be given the opportunity (for up to 5 years after graduation) to start new companies. Their place in Government would be taken by 'technical administrators'. Degree courses have been available for many years in Western countries to train such people. The graduates who opted for an industrial life would be selected by a rigorous, Army-style, Officer's Selection Board, followed by a 3-month intensive business course. They would then be sent overseas to an established industrial company to 'learn the business'. In the meantime, MIDA would have entered into negotiations with the company to set-up a Joint Venture Project in Malaysia. On the graduate's return, he or she would be expected to play a large part in running this company, with eventual control as the final target.

4. Government Procurement

Government help is needed to make obligatory the sub-contracting of a fixed and substantial portion of any Government contract (over a basic threshold value) to small companies. The American Small Business Act provides for this very form of positive discrimination in favour of small business.

5. Technical Consultancy

Most of the production and managerial problems of small industry can be solved by consultancy. As explained earlier, the simple problems can be solved by the Exchange's Field Officers, during their visits to such units. More difficult problems will need specialist help, such as that available from SIRIM, MITEC, UTM, University Sains Malaysia.

It is possible also to use retired businessmen and industrialists as consultants, on an 'expenses only' basis. There is also another useful idea: the 'consultant for a day'. In this case, a small firm can call a consultant for a day, the forward cost being known. The consultant takes in this one day an overview of the firm, enough to highlight the most important problems facing it. He then leaves, and returns only when requested by the owner to discuss in more detail specific aspects of his company's operation. This overcomes the very real fear of a small company of having to meet a large consultancy cost at the end of such an assignment.

V. RECOMMENDATIONS

1. Setting-up a Sub-contracting Exchange

We recommend that a pilot Exchange be set-up for an initial period of two years to serve the Penang/Butterworth areas. It should be funded for this period by the Federal Government, and could organizationally be part of a wholly-owned Government subsidiary of the Small-scale Enterprise Corporation, or of PERNAS. However, as an Exchange is primarily a local 'self-help' organization, it is essential to enlist

the sympathetic and practical help of local industry, if the Exchange is to succeed. It should operate originally in the mechanical engineering and electronics fields.

2. Publicity for the Launch

The initial launch should be in Penang (Georgetown) at a meeting, advertised beforehand, and followed by personal invitations to the heads of the principal companies in the area. If possible, the chair should be taken by a prominent and respected local industrialist. The tone of the meeting should be informal, as it is being held to impart information about a new idea, of great utility to the area. (At a later date, smaller meetings can be held in areas further away from Penang).

3. Operation of the Exchange

The method of collecting information, which is the lifeblood of the Exchange, the system for storing and retrieving information, and the detailed, step-by-step explanations of how to process an enquiry, are all fully dealt with in the Appendices.

4. Staff

We must stress yet again that the Exchange is a small high-po. ... entity, needing very little in the way of staff and of equipment. The equipment (Appendix 4) is essential. The staff, though small in number, must be of correspondingly high quality. Nowhere is this more true than of the Technical Director. If he is lacking in technical ability, unimaginative and has no drive, then the Exchange has only a very short life ahead of it.

Appendices 5 and 6 set-out in great detail the job specifications of the Technical Director, Field Officers, and Stenographer/Secretary.

5. Funding

We estimate the annual cost for the first two years to be M$60,000 annually. This comprises the salary of the Technical Director and the Secretary, and office with telephone (and perhaps a Telephone Answering Machine and a Telex) and, of course, a car.

We recall the figure of several million ringgits suggested as a figure of possible 'local content' benefits. If we also bear in mind that the usual commission for 'finding work' (in the engineering industry) is between 5 and 10%, then the M$60,000 figure for the first year's cost is not excessive. There are also other benefits, which although difficult to measure, are, nevertheless, real and substantial.

6. Post-experimental Period

If the Exchange is to succeed, it will do so in the first two years of its life. After that, if it has shown itself to be an effective instrument, it should be able to charge for its services. There is no all-embracing way of paying for this service. Commission, although superficially attractive, is in fact, difficult to collect. However, on overseas enquiries, which are more readily isolated, and are substantial, the Exchange would be able to charge a modest commission.

One simple way of charging for the service is by an annual subscription, based on the number of full-time employees in the firm. This is not unfair, as when the Exchange locates a competent sub-contractor for a main-contractor, both gain, and hence, both should share the cost.

One should remember that whilst an Exchange should not operate at a loss, it does not set out to be primarily a commercial profit-making organization. However, an operating surplus would enable it to broaden the scope of the services it extends to its Member companies.

Another possibility is to make the Exchange a type of co-operative, where all registered companies would buy shares in the Exchange. The cost would be in proportion to the size of the company, but would entitle a company to one vote only.

7. Follow-up

The Conclusions stress the importance of cultivating amongst small units, improved proficiency in marketing, 'generic' engineering and 'innovation'.

One way of doing this is through the Product Adaptation Programme for Export offered by UNIDO (Appendix 19).

Appendix 1

Job Description of the UNIDO expert

JOB DESCRIPTION

SI/MAL/82/801/11-01

Post Title:	Expert in Sub-contracting Exchange Operations
Duration:	Two months
Date required:	As soon as possible
Duty Station:	Kuala Lumpur, with travel within the country
Purpose of project:	To explore the possibilities for setting-up sub-contracting arrangements for selected industries between large-scale and small-scale firms to increase their ancillary production.
Duties:	The expert will be attached to the Ministry of Trade and Industry (Small Enterprises Division) and will specifically be expected to:

1. survey and assess prevailing situation in the industrial co-operation between large-scale and small-scale firms in the country and examine the feasibility for setting-up the sub-contracting exchange(s);
2. select industries (products) to be covered by the sub-contracting exchange(s) between large-scale and small-scale firms aimed at the increase of their ancillary production;
3. work out proposal for setting-up
   (a) legal framework for sub-contracting with the preparation of technical specifications for legislation on sub-contracting, and
   (b) operation framework for sub-contracting including the possible extension for export production.

The expert will also be expected to prepare a final report, setting out the findings of his mission, and his recommendations to the Government on further action which might be taken.

Qualifications:	Industrial economist with extensive experience in the operation of sub-contracting exchanges.
Language:	English

Background Information: According to the draft of the Third Country Programme from September 1981 the overall strategy of the Government of Malaysia in manufacturing will be to expand and diversify the manufacturing output. The Government will also continue to pursue policies for the dispersal of industries to promote balanced industrial growth among regions and to generate substantial employment, especially in rural areas. An Industrial Master Plan (MAL/79/001) is being formulated to assist the Government in assigning priorities for industrial development and will provide a basis for selecting industries for export promotion and further import substitution. Recognising the important role the small-scale industry plays in the national economy of Malaysia, the Small Enterprise Division was recently created within the Ministry of Trade and Industry. One of the priority areas identified for the work of this Division is a programme for ancillary production arrangements between large and small firms. In this respect the UNIDO assistance is requested by a letter of the Small Enterprise Division of the Ministry of Trade and Industry dated 25 November 1981. A cable from the UNDP Resident Representative received on 10 June 1982 urges the UNIDO action since the Government is eager to initiate the programme in sub-contracting arrangements.

Proposed Job Description of UNDP Technical Expert

(Given at a meeting between Mr. Luttik, JPO UNIDO, Mr. Mohammediah Moner, Director SED, and the expert, 9 December 1982).

1. To identify possible areas/subsectors having great potential in promoting ancillary works, e.g. leather industry, electrical and electronic components, etc.

2. To suggest the establishment of ancillary units (small-scale), either by creating new enterprises or upgrading of existing ones, specifying the definite roles of the parties involved, i.e. the government, the entrepreneurs and the private sector.

3. To draft a scheme that would enable the establishment of mutually beneficial linkages between small-scale enterprises, medium and large companies.

At a meeting between the expert and the Director on Saturday, 18 December 1982, it was agreed that, in view of the shortness of the mission, that it would not be possible to survey all sectors. Accordingly it was agreed that we should concentrate on industries where it was known that a substantial amount of sub-contracting already took place. The sectors decided on were:

(a) Automobile manufacture

(b) Electrical (equipment) manufacture: switchgear, transformers, switchboards, etc.

(c) Consumer electrical products: refrigerators, air-conditioners, radios and TVs

(d) Mechanical and small structural engineering

During a brief 3-day visit to Penang and Butterworth (16 - 19 January 1983) opportunity was taken to visit some of the electronics companies on the Bayan Lepas Free Trade Zone (Penang Island).

The expert was also asked to take into consideration the report of the Small-scale Bumiputra Enterprise Development Project: Macroeconomic Policy Assistance Subcommittee for Project Preparation.

Appendix 2

List of non-industrial Organisations and Government Bodies visited

Malaysian Industrial Development Authority (MIDA)	Dr. Richard Will (UNIDO) Mr. Wong Thim Ms. Mardziah Abdul Aziz, Director, Electrical and Electronic Industry
Majlis Amanah Rakyat (M.A.R.A.)	Mr. Abdul Aziz Mahmud, Principal Development Officer Mr. Zahudi, Dep.Director
Standards and Industrial Research Institute of Malaysia (S.I.R.I.M.)	Mr. Mohd. Shazali H.J. Othman, Head, Ind. Extension Unit Ms. Jayamalar D/O Savarimutu, Research Officer
Metal Industry Technology Centre (M.I.T.E.C./S.I.R.I.M.)	Mr. Faisal Ismail, Presswork Research Officer
*Economic Planning Unit (E.P.U.)	Mr. Anwar Jaafar, Asst. Director Dr. Yusof, Director
*Implementation and Co-ordination Unit (I.C.U.) * (both of the Prime Minister's Department)	Puan Fauziah Ismail, Director
Keretapi Tana Melayu (Malaysian State Railways)	Mr. Ahmad Mudzaffar bin Zahariman, Senior Development Engineer
National Electricity Board (N.E.B./L.L.N.)	Mr. Haji Supian bin Haji, Ch. Purch. and Supplies Officer Ms. Hajjah Maimunah, Director, R + D
National Productivity Council (N.P.C.)	Mr. Mustapha A. Kadir, Assistant Director
Heavy Industry Corporation of Malaysia (H.I.C.O.M.)	Abdul Rahim bin Abd.Manaf, Deputy Director, Corp. Planning Ms. Sharifah Halimah Syed Ahmad, Assistant Manager
Federation of Malaysian Manfuacturers (F.M.M.)	Mr. Lee Cheng Suan, Senior Assistant Director
Malay Chamber of Commerce and Industry of Malaysia	Mr. Zulkipli Haji Abd. Ghani, Executive Director
Malaysian Industrial Development Finance Ltd. (M.I.D.F.)	Mr. Habali Shahidan, Manager, Bumiputra Dev. Div.

Ministry of Defence, Supply Division (MINDEF)	Mr. G.S. Sidhu, Head Ms. Ainum Kuntum
Ministry of Education, Supply Division	Mr. Idris Hj. Noor, Secretary Mr. Ahmad bin Konchoni, Principal Asst. Secretary
National Industrial Training and Trade Certification Board (N.I.T.T.C.)	Mr. Zaghlol Bin Haji Hanafiah, Director
Bank Pembangunan Malaysia Bhd. (BPMB, The Development Bank of Malaysia Ltd.)	Mr. Nik Ibrahim Abdullah, Senior Manager, Planning and Development Division
University Sains Malaysia, Penang Island (University of Science Malaysia) (Industrial Research and Consultancy Service)	Professor Francis Morsingh, Co-ordinator
University of Technology Malaysia	Mr. Samad Solbai, Head Dept. of Production and Industrial Engineering
University of Malaya	Dr. Chee Peng Lim, Economics Faculty
Malaysian Export Trade Centre	Mr. Mohamat Yahaya Lik
Negri Agro Industrial Training Complex, Kuala Pilah, Negeri Sembilan	Mr. Richard Stenlund, Principal

Industrial Units visited (Kuala Lumpur)

	Field	Contact
S.T.J. SDN. BHD.	Plastics Importers	Mejar(B) Abdul Rahman Ibrahim, Managing Director, also Chairman, Public Relations Branch Malay Chamber of Commerce Robert L. Moog, Volunteer Executive Int. Exec. Service Corps.
PATCO (Malaysia) SDN. BHD.	Air-conditioners	Mr. Sarip Hamid, General Manager
Pacific Engineering SDN. BHD.	El.Water Heaters	Mr. Hing Fook Yong, Factory Manager
Electrical Power Engineering (M) SDN.BHD.	Electrical switchgear Distribution boards	Mr. Tan Kheng Chiong, Manager, Contracts
Carrier International SDN. BHD.	Air-conditioners	Mr. Ooi Kim Swee, Finance Director
Malaysian Gauge and Tool BHD.	Tool and die making	Mr. I.B. Gupta, Director
George Kent (Malaysia) BHD.	Valves and meas.devides for public water authorities	Mr. K.S. Chan, Managing Director
Salaty Auto Service	Brake and accel. cables, hyd. hoses	Mr. Suhaimy Sayuti, Partner
U.D.A. - Sinbor SDN.BHD.	Automobiles	Mr. Moehamad Izat Emir, Managing Director
Asia Motor Co. (K.L.) SDN. BHD.	Automobiles	Mr. Phng Hooi Chay, Tech. Director
Cycle and Carriage Bintang Bhd.	Automobiles	Dr. Tarcisius Chin, Director/ Gen. Manager
Tan Chong Motor Assemblies Sdn Bhd.	Automobiles	Mr. Steven W.L. Chen, Manager Purchasing
Assembly Services Sdn.Bhd.	Automobiles	Mr. Chan Boon Eng, Methods Engr. Mr. Ho, Gen. Manager
Toshiba (Malaysia) Bhd.	Air-contitioners Fans, refrigerators	Mr. Paul Ong, Prod. Control Manager
ROXY Electric Industries(M)Bhd.	Television Sets	Mr. Ooi, Manager
UMW Industries Sdn. Bhd.	Importers Repairers of earthmoving eqpt.	Mr. See Ching, R + D

Industrial Units visited in the Penang and Butterworth areas

Armstrong Auto Parts Sdn.Bhd.	Parts for Honda Scooters	Mr. Choo Chong Hooi, Manager
Yuasa Battery (Malaysia) Sdn. Bhd.	Car and scooter batteries	Mr. Hiroshi Shimomura, Director Mr. Katsuhiko Kondo, Director/Gen. Manager
Bahagia Mrg.Works Sdn. Bhd.	Special m/cry Industrial structures	Mr. Soo-Hoo Tuck Yee, Man.Director Mr. Yap See Keat, Exec. Director
Syarikat COMMUNICO	electronic t/formers and transistor power supplied	Mr. Eu Khuan Kew, Director
Micro Machining Sdn. Bhd.	Precision tool-making	Mr. Leong Fook You, Financial Controller
Atlas Electronics (M) Sdn.Bhd.	Radios, clocks micro-computer parts	Mr. Ernest S.C. Liu, Managing Director
Granek Sdn. Bhd.	Radios	Mr. Lew Wa Chow, Man. Director
Polynic Industries Sdn. Bhd.	Inj.mouldings for auto and electronic inds.	Mr. Khor Chong Kee, Man. Director
M.E.M. (Malaysia) Sdn. Bhd.	Electrical switchgear and fuses	Mr. Hon Ah Tuang, Financial Manager Dr. R.G. Bryans, General Manager

Appendix 3

Operating criteria for an International Exchange

"An 'International Sub-contract Exchange' in whatever country it operates, is a communication centre for joining foreign Buyers with potential competent sub-contractors in that country".

From this definition we can very briefly set-out the necessary criteria for a proposed International Sub-contracting Exchange. It is assumed that the Exchange is set-up in the Federal Capital.

(1) Careful selection of all sub-contractors.

(2) Provision of factory-level consultancy and expert services to assist good units.

(3) Importance of the Exchange itself adopting an aggressive marketing policy overseas.

(4) Necessity for fast and accurate communication links between the Exchange and its overseas information gathering points.

(5) Need for high-calibre porfessional staff (overseas, in Kuala Lumpur and in the State Exchanges).

(6) Location in a central, prestige point, for example in one of the banks.

(7) Ability (itself) or through the State-based Exchanges, to help with all exporting problems (see (2) above).

(8) Necessity for close and co-operative working with other Government departments also working in the same field. (Export Trade Centre).

(9) Aims and working procedures of Exchange to be under constant review.

(10) Principal aim, not to be forgotten: to put a Malaysian sub-contractor or supplier, before a foreign Buyer.

Whilst the staff of State Exchanges are drawn generally from the technical/engineering field, those in the International Exchange should be drawn from the Purchasing Officer/Sales Representative class. Periodic short interchanges of State and International personnel are desirable.

The purpose of setting-up a network of State-based Exchanges linked to foreign markets, through a central co-ordinating Exchange, is to give a foreign Buyer, all-Malaysia sectoral coverage, coupled with detailed on-the-spot information on all units. The information on the units and quotations are passed to Kuala Lumpur, for onward transmission to the Buyer. A summary of the quotations is telexed to him, and the full (written) quotations accompanied by photocopies of the Item Cards of units (company profiles) are sent on to him, by air-mail.

Our performance target should be that, if the Buyer eventually takes up the offer, and pays a visit to the units who have quoted, he should feel that he had already 'been there before' ('déjà-vu') so complete and accurate is the information which we have sent him. If the Exchange system can provide data no better than the scanty (and usually unverified) information available in the various sectoral Directories, then it has not basis for existing.

Appendix 4

Basic Equipment required for a Sub-contract Exchange

Standard Telex m/c complete with paper-tape transmitter and perforator and table.

Dialling Telephone with direct outside line. (A 'repeater' telephone on the Stenographer's desk is often useful).

Electric Typewriter with 18" carriage, 'Elite' (12 point/inch) type.

Stenographer's Desk.

Desk for Engineer (on duty in Exchange).

2 Lateral-filing Cabinets (one complete with shelves, the other with rails and 500 linked pockets (or similar system, and 500 foolscap folders).

Usual standard office equipment sundries: stapler; paper-punch; filing baskets, etc.

Photocopier: dry, 'Xerox'-type (P.P.C. 'Plain paper copier') capable of copying from either side of the same original (from books and catalogues), and or producing multiple copies from one original, size of print 20 cms x 40 cms (approx).

Roneo-Vickers (UK) (or equivalent) 'Stripdex' quick access panels HD 50S complete with frame (for holding panels) and 5.000 strips to suit.

Roneo-Vickers (UK) or equivalent 'Multicard' Unit M 30/11/12 complete with 100 separators. (Storage for Item Cards and Concept Cards. Total number 4.400).

Mark V 'Visiscan' Punch (1/12" dia. cutter) Supplier
'Autospot' Hand Punch (ditto) Information Systems Ltd.
) High Wycombe, UK

Telephone Answering Machine (optional).

The above is the equipment required for the inner, operations room part of the Exchange. Additionally, for the room where visitors can be met and received, we require

2 low Tables ('coffee tables')

4 Easy Chairs

Locally printed/made

4.000 Item Cards (nominal size A4, colour: yellow)

400 Concept Cards (grey, printed in blue and black, as sample)with 4.000 co-ordinate spaces 1/8" (3 mm) square.

40 Concept Cards, for 'Geographical' Cards. If the Concept Cards are grey, these can usefully be yellow.

If used with the Roneo, or other similar storage unit, the bases of all Concept and Item Cards must be 'notched' to suit.

Enquiry Forms (yellow, blue, pink) and Check Sheet (pink).

Light-box. Wooden box, slightly larger than A4-size, with illuminated ground-glass screen and coloured filter, for viewing stacked Concept Cards.

Enquiry Rack. Wooden rack, for storing enquiry folders of current enquiries (9 mm/3/8" dowels at 38 mm 1 1/2" pitch).

Enquiry Folders made from Foolscap Folders (pink, to tie-up with pink (Master) Enquiry Form). Folder made from one folder and 1/2 of another, stapled on the back of the first, to form a pocket. Bottom is 'notched', using a 3/8" (9 mm) leather punch to fit enquiry rack.

Appendix 5

Personnel requirements for an Exchange; Accommodation

A working Sub-contract Exchange does not employ many people, but, like a Commando unit in the Army, they all have to be highly trained. Foremost amongst them is the Technical Director. If he is in any way ineffective, the whole Exchange will quickly crash.

Technical Director

He must be quite a remarkable man. Aged about 35 to 40, with a first degree in Science, Engineering or Business Studies. He must have a missionary zeal, be an innovator and a catalyst, in the area where the Exchange operates. In a large Exchange, the Director does not need to be a 'technical man', provided he is adequately supported by specialist staff. However, in the way the suggested Exchange is to be launched, it is essential that the Director be a very experienced engineer.

He must be 'at home' with Government officials and with all levels of industry. He must be a good publicist, able to advertise the Exchange's function to the industrial and commercial interests in the State.

It should be noted that, when an International Exchange is launched, the staff need to be drawn rather form the Purchasing Officer or Sales Representative side of industry and commerce.

Field Officer

Although the Technical Director must not become 'desk-bound' and will visit units from time to time, the bulk of the industrial visiting will be carried out by these Officers. Initially, one Officer will have to cover many fields or to 'double-up' (i.e. an Electrical Engineer may have to cover Electronics as well).

He must be of first degree (or Diploma) level in Engineering, Technology, or Science. Intelligence, and the ability to absorb new ideas rapidly, are more important than mere factual knowledge. He must

enjoy working in an industrial environment, in meeting people, and in solving their problems. As the Exchange develops, the collective experience of the Field Officers engaged should extend over all the important sectors in the State. One Officer can deal with about 3.000 companies (assuming no consultancy is being done), but only visiting. (Appendix 6).

It is important that all Officers, including the Technical Director, are 'rotated' from Office to field, and vice versa. The Technical Director must not 'live in the office' and lose contact with industry, nor must the Field Officers lose the ability to operate in the office, analysing and recording data, and processing enquiries.

It may sometimes be politic for the Technical Director to accompany a Field Officer when visiting large companies. We were told in one Exchange, that large companies 'would not entertain dealing with anyone below the rank of Director' !

Secretary

A man, or woman, able to take dictation (120 wpm) and type (65 wpm) with a good grasp of business and technical language, and able to operate a Telex machine.

Able to receive visitors at all levels, and of pleasing appearance.

During the temporary absence of the Exchange Duty Officer, able to answer simple technical queries over the telephone.

Accommodation

The space requirements of an Exchange are modest. There are two rooms, one housing the Exchange proper (the 'operations room': a 'prohibited area'), and the other a reception area, where visiting industrialists, sub-contractors, Buyers, etc. are interviewed. If the Exchange is located near a Trade Centre, it may be possible to have a common reception area for both the Centre and the Exchange.

For the 'operations room', an area of 5 m x 5 m will be adequate, as it has to house only two to three lateral-filing cabinets, a Telex m/c and table, a Stenographer's desk, and an Engineer's desk, with two chairs. See 'Basic Equipment' (Appendix 4).

The reception area of about 7 m x 7 m will have a few easy chairs, and low tables ('coffee tables') where informal discussions can take place without undue interruption.

Job Specification for Stenographer

Take dictation. Type letters, Item Cards, Enquiry Forms, 'Stripdex' strips, etc. as directed by the Officer.

Answer the telephone, and in the absence of the Officer, to receive visitors.

File correspondence.

Send and receive Telex messages.

After initial selection of likely sub-contractors by the Officer, to process an Enquiry.

To file (returned) blue Enquiry Forms in the Enquiry Folder.

To maintain the filing system and the stationery stores.

Field Officer

This specification applies to any Officer, either within or outside the Exchange.

Dictate letters, as necessitated by the demands of the Exchange.

Receive enquiries, either by visiting units himself, or from Buyers and proprietors of small units, calling at the Exchange Office, or by telephone, Telex or letter.

Analyse an enquiry, determine the Concepts, and hence locate the Item Cards of the possible sub-contractors. By examining the Item Cards, to make the final selection of the likely units.

Record their numbers and names on the Check Sheet. Approach them, either by telephone, by visit, or by letter. (In the latter case, at this stage in the enquiry, the work can often be taken over by the Stenographer).

Collect and up-date information on existing and new sub-contractors.

Analyse 'capacity information', before recording it on Item Cards.

Take part in publicity compaigns (under the direction and supervision of the Technical Director) to consolidate and extend the position of the Exchange in its area. This may involve talking to Small Industry organisations, groups of businessman, etc.

All Officers from the Technical Director down, must have a very developed 'production' ability. They must be able to examine any product and decide what manufacturing processes are involved. They must, additionally, be able to see how a company's facilities, at present being used to produce a particular item, could very easily be re-directed to make, with the same machinery, a completely different product, and also how the company's skills can be usefully employed in other fields.

The Technical Director is going to be found amongst the Production Manager class, whilst the Field Officers should be sought from the ranks of young and keen Production Engineers.

When demanding people of this calibre, the salary offered must match and there is also need of a clear career structure, which can be offered if the Exchange is eventually to develop its own consultancy services.

Appendix 6

Manpower Chart for Visiting Industry

The table (below) applies to one Field Officer (full-time) visiting about 20 companies each week, 50 weeks of the year. Each company has to be re-visited at least once a year, because companies change: they dispose of their machinery, buy new ones, develop new lines of business.

It is assumed, arbitrarily, that a return visit takes the equivalent of 1/3 initial visit, in time. Hence, when all units have received an initial visit, the 'ceiling' number of companies for one man, is 1.000 : 1/3 = 3.000.

A larger population of units will, of course, require more Officers. We consider that 4.000 companies or (at the absolute maximum) 8.000 units, is the largest number which an Exchange can handle, without losing touch with its Members. The problem is not one of information processing.

Year	1st Visits	Visits (repeat)	Equivalent
1	1.000	nil	nil
2	667	1.000	333
3	444	1.667	556
4	296	2.111	704
5	198	2.407	802
6	132	2.605	868
7	88	2.737	912

The information processing is a comparatively minor problem, and is within the complete control of the Exchange. In physically large States, thought must be given to 'satellite' Exchanges, servicing industrial areas far from the State capital, where the principal Exchange is located. This will overcome the problems of Exchanges overextended, both in the number of units which they handle, and in the distance which their Officers have to travel to visit them.

As a rough (but by no means inflexible) rule the furthest company should be no further than a day's car journey (there and back) from the Exchange. However, an Exchange in Penang could, for example, service a few units in Kelantan and Trengganu, before these States set up their own Exchanges. Then the units could be transferred to 'local ownership'.

Appendix 7

QUESTIONNAIRE

1. Name of company
2. Associate companies
3. Factory (address/telephone number/Telex Number/code)
4. Office address

   telephone number; cable address; Telex number (answer back code)
5. Person(s) to contact
6. Form of organisation: public/private/partnership
7. Directors/owner(s)/partners
8. Capital structure (incl. foreign participation)
9. Bankers
10. Trade associations/Federations
11. Factory area; access and loading facilities; bonded warehouse
12. Personnel: (a) managerial
    (b) supervisory
    (c) skilled
    (d) unskilled

    Number of shifts
13. Line of manufacture/business (incl. catalogues and brochures, etc.)

    brand names/trademarks/patents
14. Production
    (a) annual output
    (b) export (countries, % of total production)
    (c) well-known clients in Malaysia or abroad
    (d) inspection/quality control:
    personnel; specialised equipment
15. Detailed information on the company's machines and processes.

    For some companies, for example, in the clothing industry, this section will merely amplify information already given in item 13.
16. Any other information.

Note

As explained elsewhere, it may not be able, or even desirable to try and obtain all this information at the first visit. As a company sees the value of an Exchange in operation, it is usually then more willing to co-operate in giving more detailed information about itself. This applies especially to the small unit, where, at the first visit, merely general information is sufficient. When it has received useful work through the Exchange, it is then usually willing to give more detailed information.

Appendix 8

Collecting information from industry

The successful operation of any Exchange, as we have seen, is founded on facts: specific, accurate and up-to-date facts about the capabilities and production facilities of units in the different manufacturing and producing sectors. This kind of data can be obtained only by visiting the factory, in discussion with the management, and by touring the factory.

It is quite true that visiting each unit, assessing and recording its capacity is a lengthy process. We do not think that there is any other reliable way of obtaining this type of information. Some units, if sent a Questionnaire (Appendix 15) will never reply. Others will do so, but with vague and inaccurate information. Some important facts come to light, often through a chance remark made during the tour of the factory. Other facts omitted are, for example, the qualifications of management and staff, the existence of an apprentice-training scheme, a design office, well-known clients for whom they work (especially if internationally known), which are all important 'selling points' when put before a Buyer.

Visiting will most definitely eliminate the firm, graphically described to us by a certain Commercial Attaché, as 'a man with a typewriter in a bedroom' who merely collects enquiries and delivers them to local sub-contractors. Visiting can be a check also, on extravagant claims. We have seen expertly produced glossy sales leaflets describing a firm as 'precision engineers'. The machines were old, badly maintained and foundry sand was drifting over the bedways.

It is a good idea to think of the Questionnaire as a 'Job Application Form', but for the company and not for an individual. The information based on the Questionnaire is placed before a

prospective Buyer, with the quotations of the units involved. It should be such as to 'sell' one unit in preference to another, other things being equal. It should be a word-picture of the factory. If the interview has been properly carried out, the Buyer, when he visits the factory, should have an experience of 'déjà-vu': that 'he has been there before'.

The completion of the Questionnaire by the Field Officer is not to be conducted as a police-type interrogation! It is often useful to start with 'line of business', as most companies are only too willing to talk about their company's products. This, of course, leads to output figures, exports, and to quality control. By this time, a rapport should have been established between the Officer and the Manager, or Director. The visiting Officer can now ask the more routine questions, such as the company's full designation, address, associate companies, bankers, trade associations, etc. It is often quite useful to break off the interview part of the way through, and with permission, to make a tour of the factory. This often leads to further questions on the return to the office.

We have found that it is almost impossible either to write down notes, or to remember all the important details, given often as an aside, when walking between two parts of the factory. A small, hand-held dictation machine is very useful, as quick impressions and facts can be easily recorded. For example, a company making electric motors and large transformers, supplied also airfield lighting systems, although this fact was not mentioned in their sales literature.

Appendix 9

Suggested form of Service Agreement between the Exchange and its Member companies

This agreement is made the day of 198 between the Exchange (hereinafter called /The Company') and a subscriber firm (hereinafter called 'The Member')

Information: 1. The Company operates this service as a centre for finding out those persons capable of carrying out a particular task at a particular time. At no time will the Company undertake to be responsible for the manufacture of a specific item or the performance of a specific service.

Machine File: 2. The Company agrees to
(i) compile a list ('The Machine File') based on information supplied by the Member of all his machines, equipment, processes, skills which he wishes to make available to other Members;
(ii) to keep the said list accurate and to amend it at any time on receipt of written instructions from the said Member during the term of the Contract.
The Company will not wilfully disclose the details of the Machine File of any Member to any other person whether a Member or non-Member.

Service: 3. When asked a specific question by a Member about the particular means of production available the Company endeavours to find Members or other persons technically capable of carrying out the specified work or service. The Company then communicates with these persons to find those able and willing to do the work or give the service required. These names are then communicated to the enquiring Member who himself approaches the persons of his choice. If expressly asked by the enquiring Member, his identity will not be disclosed to any of the persons able to do the work.

Third Party: 4. Information received by the Member under the provision of this Contract is to be used solely for the purpose of work or services to be performed for or by the Member and shall not for any other purpose be disclosed to any person or persons unless the written consent of the Company is first obtained.

Non-warranty: 5. Under no circumstances does the Company warrant or guarantee the quality or suitability for any particular purpose of any work or service performed by any persons whether such persons are Members or not and under no circumstances will the Company be held responsible for loss, damage or expense which may be incurred by the Member as a result of any information supplied to the Member by the Company whether such information be supplied negligently or otherwise.

Impartiality: 6. At no time will the Company prefer or recommend any one Member rather than other Member nor will it report to one Member on the activities of any other Member.

Contravention: 7. (i) A breach by either party of any of the foregoing provisions shall entitle the party not in default to rescind the Contract unless such breach is one capable of remedy and is remedied within seven days of a demand by the party not in default;

(ii) Upon recision of the Contract by the Member there shall be repaid such proportion of the Member's subscription as the period between the date of renewal and the date of recision bears to the whole period to which the payment relates;

(iii) Upon proper recision of the Contract by the Company no subscription payment or any part thereof shall be repaid to the Member.

Annual Fee and Commission: 8. Payment for the aforementioned service shall be by means of an annual charge as set out in the attached Schedule and payable in advance.

For the purpose of calculating this sum the 'number of employees' shall be taken to be the total number of full-time employees of the Member at the date or signature or renewal. Subject to the provision of clause 7(ii) hereof no subscription or entrance fees shall be returnable.
In addition to the annual subscription there shall be payable a commission on all work received by the said Member through the agency of the service operated by Company. The commission will be assessed as 2% of the value of such work.

Renewal: 9. The Contract shall be for a period of two years from date of signature and thereafter yearly until three months' notice of cancellation is given by either party in writing such notice to take effect on the expiration of the period of two years or any anniversary thereafter.

Information Service only: 10. The Company offers the service aforementioned as an information service. Although the Company will endeavour to the best of its ability to advise a Member of enquiries suited to his capabilities and available capacity this Agreement implies no contractual obligation on the part of the Company to supply the said Member with work.

The schedule referred to

Number of employees	Annual Charge
1 to 49	
50 to 249	
250 to 1000	
over 1000	

It is hereby declared that the number of employees employed by the Member company at the date hereof is .....

As witness my hand of .....
on behalf of the Company (the Exchange)

and the hand of .....
on behalf of the Member

this day of One thousand nine hundred and eighty

Signed by the said .....

in the presence of .....

Appendix 10

Co-ordinate Indexing

The information gathered from the various industrial units is analysed and typed out on an ITEM CARD. This is a yellow A-4 size card (both sizes of which can be used if necessary) and the information is recorded according to a pre-arranged layout pattern. All Item Cards and Concept Cards (below) have a series of V-shaped notches along the bottom edge, at 1/2" (13 mm) (or other convenient) pitch, so that they can be 'fanned out' in their storage location, permitting rapid visual search and location of a desired card. (In training, an operator is told not to move his hand, until his eyes have found the card).

In the co-ordinate indexing system used in the Exchange, for retrieving data, there is no rigid, hierarchical classification, as found (say) in the Universal (Dewey) Decimal Classification, used in many libraries. The method of classification depends on the 'addition' of successive ideas, or Concepts. The ideas MEN SHIRTS SPORTS and COTTON make up the composite idea 'Men's Cotton Sports Shirts'.

To establish a working system, we have first to compile a 'Basic English' type of Dictionary, in the sectors of interest. (The idea, of course, applies equally well to any other language).

The Dictionary (Appendix 11) will contain the most commonly occurring words in that field, e.g. in mechanical engineering, we would find ELECTROPLATING, ANODOSING, MILLING, BORING, etc. The Dictionary should be sufficiently comprehensive to be able to define the essentials of any typical enquiry received in the Exchange. This idea of locating an item with certain defined characteristics (out of a population), can, of course, be applied to other fields, other than the one we are now considering.

Generally some 200 to 300 words are sufficient, at the outset, but the list can be altered, in the light of operating experience. To improve precision, we must first remove synonyms, so that the entries

Clothing = GARMENT

and Male = MAN

mean that 'clothing' and 'male' are not 'preferred' words, and must be looked up under the terms GARMENT and MAN. This is necessary, because if one person classifies a company under CLOTHING, and another under GARMENT, the company will not appear if the 'wrong' word is used during the search.

Another refinement is the use of the term 's.d.' (meaning 'sub-division'). BLOUSE, being a garment, is a sub-division of the class GARMENT. So, if we are unable to find any company under BLOUSE, we may search under GARMENT to find all companies who manufacture garments. The converse of 's.d.' is the general term. For example SURFACE-COATING embraces all types of 'covering the surface' such as galvanising, anodising, electro-plating, plastic-coating, metal spraying, etc. Similarly, the term FASTENERS (incorporating the idea 'Fastening') covers such items as screws, bolts, rivets, clips, adhesive fastening. If a supplier for one type of fastener cannot be found, the Exchange can, using the Concept FASTENERS, suggest other types of 'joining two objects together'.

Let us assume that a company, registration number 1705, is listed under Concepts A, F, L and Z (whatever these letters mean). In the system, we have then the information (symbolically):

1705-A 1705-F 1705-L and 1705-Z

Let us also assume that the Concepts A and F mean 'VERTICAL' and 'BORING' and that L and Z mean 'HORIZONTAL' and 'MILLING' respectively. If we now search for a machine, a VERTICAL MILLER,

out will come the number of the unit, 1705. But this is not so, as the company possesses a Vertical-Borer, and a Horizontal-Milling machine. This is called a 'false drop'. The problem can easily be surmounted by making 'VERTICAL-BORER' and 'HORIZONTAL-MILLING' combined Concepts. If one is aware of this problem when compiling the Dictionary, no serious difficulties should be encountered.

The CONCEPT CARD is similar in size and shape to the Item Card (above). However, on the front side are printed 4.000 small squares of 1/8" (3 mm) size. The squares are arranged in a logical pattern, so that a unique 4-digit numerical value between 0000 and 3999 can be assigned to each one of the squares. Each company recorded in the system is assigned such a number, which is unique to that firm. (This is similar to an employee's Works Number, or to the accession number of a book in a library).

To register a company's capacity and line of business, the information on the Item Card is analysed. Concepts are then selected from the Dictionary so that, using these ideas, we can completely describe the facilities and activities of the company. Each Concept Card has written on it a word or phrase from the Dictionary. On all the relevant cards (above) we punch a hole in the square whose number corresponds to the registration number of the company we are dealing with. This operation is carried out during the initial registration process, or when information is up-dated or altered at a later date.

We must stress that the information recorded on the Item Card is of two kinds: that which is to be retrieved, and that which is not. The first kind of information is that used in processing an enquiry, and includes the obvious details of the company, such as line of business (HEAVY ENGINEERING, ELECTRONIC ENGINEERING) as well as details of its individual machines (LATHE-CENTRE,GRINDING-CENTRELESS). This is the information which is used to find a particular unit in response to an enquiry.

It may be thought that the system deals only in facts directly related to the company's production processes. This is not so. It can list such ideas as, quality standards (to some pre-agreed norm), number of shifts, volume of production (pieces/week or month), factory area, countries to which it exports, size of factory, etc. At any time, any one or more of these ideas can be included in the Dictionary, so that if we require to find a factory of 'X m^2' this can be listed as a Concept.

One use of 'non-production' information is the use of a yellow GEOGRAPHICAL CONCEPT CARD. It is used as follows. All factories within (say) 20 km radius of KUALA LUMPUR have their registration numbers punched into this card. (The same idea can, of course, be applied to other industrial areas). We now wish to find companies in the Kuala Lumpur area to machine a very large and heavy grey-iron casting, requiring the use of a Horizontal-Boring machine. We withdraw form store the Concept Cards BORING-HORIZONTAL and KUALA LUMPUR. We superimpose them. (The yellow card behind). The holes passing through the two cards indicate the registration numbers of the companies (in Kuala Lumpur) able to do this work. Yellow discs, however, indicate companies able to do the work, but <u>not</u> within the 20 km/KL circle. (This operation is equivalent to a logical NOT operation in Boolean Algebra).

If we have a population of 4.000 firms, 20 of them being in the GARMENT field, the use of the Concept GARMENT will immediately reject the other 3980 units, who do <u>not</u> make garments, or clothing of any kind. If additional Concepts are selected (e.g. WOMAN) this will further narrow down the search to companies making women's clothing. OUTERWEAR or UNDERWEAR will further refine the search.

However, it is sometimes quicker to sort through the remaining few Item Cards, by hand, in order to make the final selection of which sub-contractors to approach. It is also preferable, as further limiting of the field, by adding more Concepts rule out a company on the borderline of a Concept class.

To illustrate the principle of the co-ordinate indexing system, we have used examples taken from the field of mechanical engineering. It should not, however, be thought that the system is limited to this field! It can handle electrical and electronic engineering, textiles, agro-based products, engineering materials (steel, plastic, brass, etc.) and also the supply of 'bought-out-components' (i.e. catalogue items).

The use of a 'light-box' (made locally) can sometimes assist the reading out of the numbers of the holes punched in the Concept Cards. A light-box is simply a small wooden box, slightly larger than a card, with a uniform system of internal illumination, and closed with a ground-glass screen. On this screen are stacked the relevant Concept Cards, assuming some system of correct edge registration of the cards. The 'holes' corresponding to the firms are shown by bright coloured discs. If, additionally, a coloured filter is used, this sometimes can increase the contrast and simplify the reading operation.

Appendix 11

Concept Dictionary

A simple way to compile a list of Concepts(Dictionary) in any field, is to write down all the main ideas/words in that field. (One can do this from memory or by consulting a standard reference work etc.) The words are then sorted into groups, synonyms are removed, and possible 'false drops' eliminated (Appendix 10). This is not as serious a problem as might be imagined, as the system is 'fail safe'. When starting a new field (say that of glass containers, optical glass, glass sheet) it may be quite adequate at the outset, to use merely the one Concept GLASS. If there are only a few companies (say 5) in this field, the use of this one Concept will immediately reject all those (3995) companies (in a total population of 4,000 units) not making glass. We can then consult the Item Cards of these 5 units to find which of them make glass containers (bottles, jars, etc.) which make optical glass, and those who manufacture glass, either for domestic windows, or for automobiles. At any later date, if necessary, we can add the words CONTAINERS, SHEET, OPTICAL, if this is really necessary.

In the Exchange the Dictionary usefully has to be standardized in one language, and we recommend that, for purely practical purposes (bearing in mind the possibility of future export enquiries) it should be English.

The attached page 2 is a typical but not exhaustive Concept Dictionary.

ALUMINIUM
ALLOY
ASSEMBLY = MECHANICAL
" = ELECTRICAL
" = ELECTRONIC
" = FINE (MECHANICAL)
ASSEMBLY = HYDRAULIC
ANODISING
ARMATURE=WINDING
AUTOMOBILE
ANNEALING

BORING = FINE
BORING = VERTICAL
BORING = HORIZONTAL
BORING = JIG
BROACHING
BUFFING
BRASS
BLOUSE (s.d. GARMENT)
BRONZE
BERYLLIUM
BENDING

CONTAINER
CRANE
CABINET = MAKING
CASTING = DIE
CHROMIUM/CHROME
CASTING = NON-FERROUS
CASTING = FERROUS
CASTING = PRECISION
COPPER
CUTTING = OFF
CROPPING
CLIP
CONSULTANCY

GARMENT
GLASS
GALVANISING
GOLD
GEAR = CUTTING

FOOTWEAR
FABRICATION = SHEET=METAL
" = PLATEWORK
" = SMALL=STRUCTURAL
" = PIPEWORK

HONING
HYDRAULIC
HEAT TREATMENT

INSPECTION
INTERNAL

KNURLING

JIGS AND FIXTURES
JOINERY

LAPPING
LOGIC
LATHE = CENTRE
LATHE = AUTOMATIC = SWISS
" " = TURRET
LATHE = TURRET
LATHE = CAPSTAN

MEASUREMENT
METAL = SPRAYING

PRESSWORK
PIPEWORK
PRESS = TOOLS
PIPES
PNEUMATIC

Appendix 12

Processing an Enquiry

Below we describe in some detail, a methodical procedure for handling all types of enquiries. It should be realised that this is a basic system which can be modified to suit the conditions of each enquiry. The standard forms used for an enquiry are an ENQUIRY FORM (Coloured yellow, blue or pink) and a CHECK SHEET, also pink. (Appendices 15 and 16).

Before proceeding with any enquiry, it is essential that:

(1) the enquiry is fully understood. (Outside experts must be consulted if necessary).
(2) the enquiry is complete in every detail: material, delivery date, quantity, rate of delivery, inspection, etc.

The Enquiry Form, though apparently simple, has been designed with these requirements in mind.

When there is a query, or lack of information, the Buyer must be advised, and the enquiry held until this is forthcoming. (In certain cases, when the enquiry is urgent, it may be prudent to issue the enquiry in part, with the proviso that further information is to follow). This procedure is at the discretion of the officer handling the enquiry.

The enquiry is first recorded in an ENQUIRY REGISTER, which records briefly the details of the enquiry: date of receipt, company originating, details of the work involved. From this Register is assigned the Enquiry Number.

In most business letters, the substance of the enquiry is contained in a few words and phrases scattered through the text of the letter. It is the task of the Exchange to gather together the relevant parts of the enquiry. Underlining these parts with a felt-tip pen, and roughing out a Draft Enquiry on a yellow Enquiry Form, is an useful method. Then the Enquiry can be typed out on a pink (Master) Enquiry Form.

When this has been done, and using an electric typewriter, it is an easy matter to type at one and the same time, 8 blue copies, along with the (pink) Master Enquiry Sheet. It is important to do it this way, so that the blue copies are exactly the same (contain the same information) as the original and the Master. This is especially important, as the blue sheets are for sending to the 4 (assumed) sub-contractors. Each one receives two copies, one of which he retains and the other he returns to the Exchange with his quotation.

The pink (Master) Enquiry Form and Check Sheet are stapled on the opposite inner faces of the Enquiry Folder. (Appendix 13). The Buyer's identity (company) is written briefly at the top of each form. On the top of the Check Sheet is written or stamped, the date, and the number of the enquiry taken from the Enquiry Register.

The person handling the enquiry writes down on the second line of the Check Sheet, the Concepts defining the enquiry. These must all be 'preferred' words (to be found in the Dictionary). For example, if 'Radiographic Inspection' is called for, the Dictionary will list

Radiographic Inspection = X-RAY

In engineering and similar enquiries, the Exchange may simply be sent drawings and asked to locate the sub-contractors. It is then the responsibility of the Exchange's staff to decide, from their experience, the machining operations and facilities to carry out the work. These ideas in 'preferred' Concepts are written down in the appropriate spaces on the Check Sheet.

The Concept Cards corresponding to the Concepts listed (above), are then withdrawn from storage, and superimposed. The numbers of those squares (where light passes through all the stacked cards)

are noted on the Check Sheet (1 - 10). These numbers are the registration numbers of the potential sub-contractors. This information merely establishes those units with capacity suitable for the enquiry. Bearing in mind the details of the enquiry already typed out on the Master Enquiry Form, the searcher consults the Item Cards of these numbered firms, to make the final decision on which firms to approach.

It must be realised that the Concept Card system is a rough 'sieve', which narrows down the search (from 4.000 cards) to the few relevant companies meeting the technical requirements of the enquiry. The final analysis is made, consulting both the Item Cards and the Master Enquiry Form.

If on reading his card, a sub-contractor is, for whatever reason, ruled out, his number is simply crossed of the Check Sheet. For example, an enquiry may specify '10.000 pieces/month'. This will clearly rule out a company, otherwise competent, who can produce only 2.000 pieces/month.

Once the companies who are, in all respects fitted to tender, have been finally established, they must be approached to find out if they do, in fact, wish to tender. Contact is made by sending a pair of blue forms to each of the (4) sub-contractors. Each one is invited to send his quoted price, along with one of the (2) forms already sent him. If time is limited, the sub-contractors can be first approached by telephone, before issuing the enquiry. (This avoids wasting time, when the enquiry is urgent, with units who, for whatever reason, do not wish to tender).

As quotations are received from each sub-contractor, brief details of his quotation are entered in the appropriate numbered box (opposite his name) on the Check Sheet. Returned blue Enquiry Forms, any correspondence, telex messages, sketches, etc. are all filed, temporarily, in the pocket at the back of the Enquiry Folder. When all sub-contractors have replied, their quotations are sent off to the Buyer. In the case of export enquiries, photocopies

of the sub-contractors' Item Cards are also sent back to the Buyer. In this type of enquiry, a Telex message can quickly convey price and delivery information, with the written quotations and photocopies following by air-mail.

The Enquiry is now complete. The pink Enquiry Form and the Check Sheet are removed from the Enquiry Folder and filed in the Buyer's (company) file. Returned blue Enquiry Forms are filed in the relevant sub-contractor's file. In this way, a complete record is kept of all enquiries put and received by any company.

We have described in great detail, the processing of a written enquiry. In practice, it is a very speedy process. The above procedure, using standard forms, enables the 'state' of any current enquiry to be seen at a glance. This can be done by any person working in the Exchange. It does not have to be the person who first handled the enquiry. Similarly, it is possible to 'rebuild' an enquiry at a later date. If one knows the company, and the approximate date, one can easily find the Master Sheet and the Check Sheet, to know who quoted, what they said, and other details.

The foregoing describes the processing of an enquiry sent to the Exchange either by letter of Telex. It is equally likely that a Buyer may call at the Exchange personally with his enquiry. In this case, the enquiry is first recorded on a yellow Enquiry Form. (The same rules regarding completeness and understanding still apply). The same procedure is followed to find suitable sub-contractors by using the Concept and Item Cards. The relevant Item Cards can, if necessary, be photocopied, and the prints only given to the Buyer. He may also require photocopies of the relevant pages of their sales catalogues. It may be thought that the taking of many photocopies (which may subsequently be discarded) is an unnecessary and wasteful process. However, each Item Card represents a considerable amount of effort, visiting a unit, recording the information, analysing it, and recording it, finally, on the Item

Card. It is unwise, therefore, to leave such valuable information unattended in the presence of stranger. Also excessive handling of the Item Cards by all and sundry, will result in their premature deterioration.

It remains to describe only, the processing of an enquiry received by telephone. The details are recorded on a yellow Enquiry Form. (It is convenient to keep a few in a file near the telephone). The search for, and the contact with the sub-contractors is as before. The names, addresses, persons to contact, etc. of interested sub-contractors are simply telephoned to the main-contractor placing the enquiry. If required, for record purposes, the details of the enquiry (on the yellow form) can be typed up onto a pink (Master) Enquiry Form.

In all the procedures above, we have assumed that the identity of the Buyer/main contractor is withheld. Equally, the Exchange can, as its normal procedure, tell the sub-contractors the name of the company placing the enquiry. The sub-contractors then send their quotation direct to the firm, and return the one blue copy to the Exchange. In this case, the norm will be the 'open' system, with 'concealed identity' being only at the special request of the Buyer.

The Concept Card system operates by identifying suitable units by means of their 4-digit numerical code (registration number), by which they are indexed into the system. It is necessary to have a list which, against the registration numbers (in ascending order) lists the names, addresses, telephone numbers, etc. of the companies. (See Appendix 7). If we wish to know the serial number of a company, it is simply a matter of looking it up in the company correspondence file.

Computerised Coding of Concepts

It is possible to adapt the present system to a computerised system by compressing all Concepts into (say) an 8-letter code. The company (say, in Penang) will be coded (if in Electronic Engineering) as PE1867ELTROENG. (It is assumed that the registration number of the company is 1867). It is thus possible to develop the computerised system from one which is understood, and already working, rather than by changing to a completely new one!

For inter-Exchange and international work, we strongly advise against the use of codes, especially those of a numerical type, where transposition of digits is always a possibility. It is far better to send all messages in 'plain language', and thus avoid any expensive misunderstanding.

Appendix 13

Enquiry Folder; Dictionary of serial numbers vs. company information

The information is typed out on a stiff card supplied in strips 1/3" (4 mm) wide lightly held together by a paper backing. When a strip has been typed, it is a simple matter to tear it off. The strips when typed are assembled onto a flat 8" x 12" (20 x 30 cms) double-sided (metal) carrier plate. These plates have pins at top and bottom, along the long edge of the plate so that they can be pivoted about their vertical axis when held in a fixed desk frame. In this way rapid access can be made to a company's name, address, telephone number, etc. once its serial number is known.

Typical Card Layout

0000	Precision Machining Sdn. Bhd. Lot 238, Prai Industrial Estate P.O. Box 333 BUTTERWORTH	Chee Wa Ling, Manager Tel. 313548 346111 Telex 41572 (PREMAX)
0001	Kedah Woodwork Sdn. Bhd. Tikam Batu Industrial Estate Sungei Petani Kedah	Choo Khuan You, Man.Dir. Tel. Sungei Petani 81173 Telex 40777 (WOODEK)
0002	Micro-Robotics Sdn.Bhd. Bayan Lepas Free Trade Zone Penang	Leong Wa Liu, Man.Dir. Tel. 8322245 Telex 43076 (ROBMIC)

The company names, addresses, officials, telephone and Telex numbers are, of course, fictitious!

Enquiry Folder

As explained earlier, the Enquiry Forms and Check Sheet and all associated paperwork during an enquiry are kept together in an ENQUIRY FOLDER.

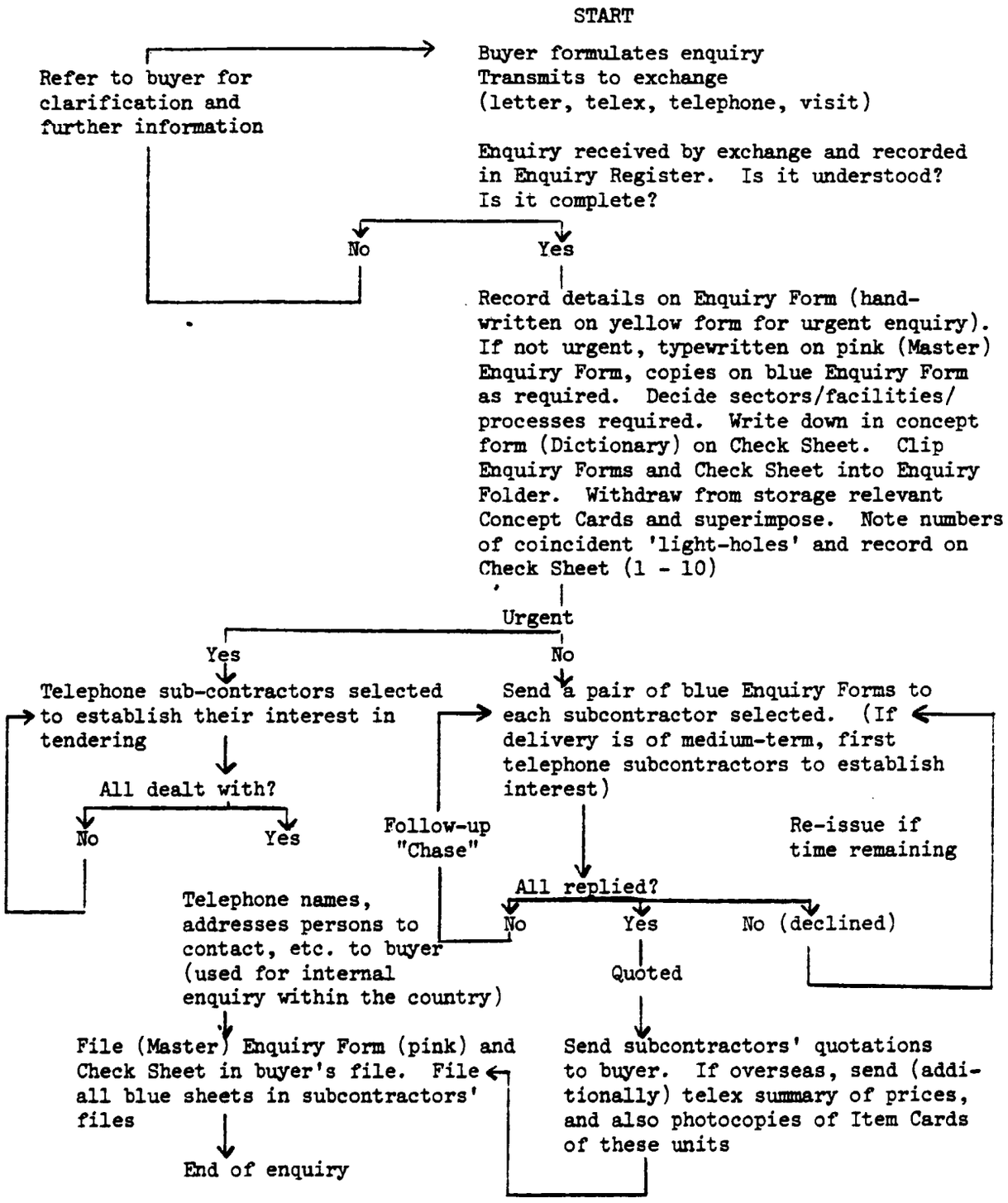
This is made, quite simply, from 1 1/2 foolscap folders, three folders being required to make 2 folders. One is torn in half along the spine. One half is stapled to each of the other full folders, so as to form a pocket. This is used to hold drawings, sketches, and letters dealing with the enquiry. On the top front r.h. corner is affixed a white gummed label, 1 1/2" wide and 3" long (38 mm x 75 mm). This type of label is easily bought at any Stationer's, in the form of a perforated roll.

Along the bottom of the folder are punched (with a leather punch!) a series of 3/8 (9 mm) semi-circular notches, at 1 1/2" pitch (38 mm). This is to enable the folders to be 'fanned out' in a wall-mounted rack, in the same manner as the Concept and Item Cards in their storage location. Such a rack is easily made locally and consists of a series of 3/8" (9 mm) wooden dowels (pegs) set 1 1/2" (38 mm) apart in a long double strip of wood. Such a rack, besides forming a convenient storage for the Enquiry Folders, serves also as a 'barometer' showing directly the number of enquiries still current.

When an enquiry has been completed, the folder can be re-used, simply by gumming a fresh label over the old one. The label usually records the Enquiry No., the date of receipt, and the name of the company originating the enquiry.

Appendix 14

FLOW DIAGRAM OF AN ENQUIRY



Appendix 15

Enquiry

Company placing enquiry (Division/Department, Name, Position)

We would be pleased to receive your quotation for

Operation
Facility
Component
Material
Service
etc

Sketch (or use reverse side)

Please return ONE of these forms to CPIR with a (carbon) copy of your quotation. When declining, simply return form and drawings to CPIR, without referring to originator.

Drawing Nos.	Total quantity	Monthly rate	Weekly rate	In batches of

Start	Complete	Inspection	Deliver to	Quote by (date)	Quote Direct	Quote via CPIR

fold

For tendering	Work in hand	Restrict Sub-Contrcators (Area)	Firms not to be approached

Day	Month	Year	Quote		Enquiry No.

Sub-Contractor

Appendix 16

Check Sheet

Company placing enquiry	T L V	Day	Month	Year	Code	Enq. No.

Operation – Facility – Component – Material – Service

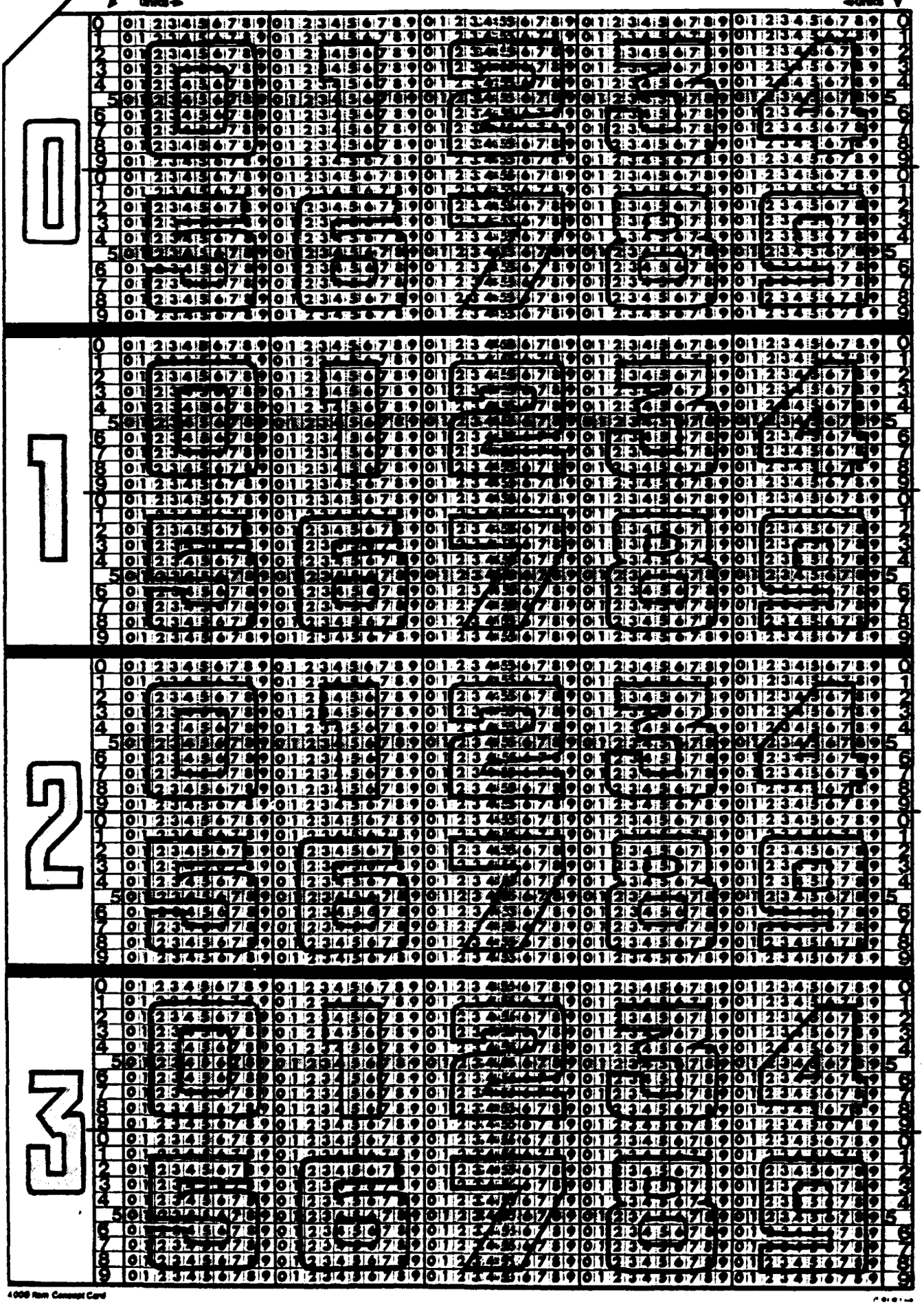
Remarks

	Sub-Contractor	Day	Month	Year	T L V	Quote
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						

series 0000|3999 4000|7999 8000|11999

CONCEPT CARD

Appendix 17



Appendix 18

Training syllabus for Exchange operating personnel

1. Collecting information from industry

Sources: Firms' capacity lists; visits to firms; catalogues; trade journals; newspapers; exhibitions.
Starting an Item Card with a 'nucleus' of information.
'Be squirrels'. Inspection and Testing Centres; Consultants.

2. How to visit a company

Small firm: be content with a little to start, and build up.
Interviewing: not a police interrogation!
Importance of visiting: gets enquiries; maintains personal contact; brings consultancy work.

3. Information retrieval

Basis of co-ordinate indexing system. Dictionary: how to compile.
Concept and Item Cards. Relation of punch diameter to square dimensions.
How to select Concepts. Extending the basic system. 'On not being too clever'. Concepts for products, services, materials.
Concepts for 'non-manufacturing' features: size of factory no. of shifts, managerial/technical staff qualifications, exporters to ..;
Use of Item Card for more than unit ('General' or 'Group' Item Card)
Use of the 'Geographic' Concept Card (of contrasting colour) for the NOT function.
Possible retention of nos. 3990 to 3999 (say) for 'Questionnaire' use (Concept = Sector + QUESTIONNAIRE)
Layout of Item Card to bring salient points of a company at a glance. Preferable to pre-printed cards.

4. The Enquiry

Understanding; completeness.
Method of handling different types of enquiry.
Analysis of a business letter/enquiry.
Use of three colours of Enquiry Form and Check Sheet.
Explanation of form design and use.
Enquiry Register and Folder. 'Stripdex' system.
Use of Concept and Item Cards to locate sub-contractors.
'Division of labour' between the Engineer and Stenographer during an enquiry.
Enquiry Folder and Storage Rack.
Flow diagram of an Enquiry.

5. Use of Telex

Brevity versus redundancy, for accuracy.
'Rebuilding' an enquiry sent by Telex, using a pre-agreed layout.
Use of an Exchange as a 'repeater station'.
Multiple transmission.
Use of plain language for enquiries, not codes. 'Say what you want'.

6. Filing of correspondence

Alphabetic or numeric codes (for company) for correspondence filing.
Alphabetic 3- or 4-letter codes. Internal layout of the filing cabinets.
Use of coloured files, and coloured index tabs, for rapid searching.
Miscellaneous (alphabetic files).

7. Registers

Telephone and Telex: record of calls.
Enquiry Register: 'Stripdex' for serial no. to company, etc.

8. Exchange Personnel

Job specifications; duties; qualities.

9. Exchange office layout

Work study, for arrangement of filing cupboard, Concept/Item Cards, stenographer, etc.
Security of files and Concept/Item Cards. 'Operations Room' and room for visitors. Photocopying of Concept and Item Cards.

10. Publicity and Advertising

Advertising by Telex. Leaving of yellow Enquiry Forms with units.
Publicity material: direct mail, quarterly and annual calendars;
Handouts for Seminars and Exhibitions; 'Sub-contracting Fairs'
e.g. MIDEST, France; VAT, Utrecht, Holland.

UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION (UNIDO)

UNIDO PRODUCT ADAPTATION PROGRAMME FOR EXPORT

Purpose and main characteristics

a) Based on the UN General Assembly resolution 2626 (XXV) and following a resolution (17 (III)) adopted by the UNIDO Industrial Development Board at its third session in May 1969, UNIDO in early 1970 initiated the Programme of Product Adaptation and Development for Export Industries. Since then over 50 technical assistance projects were implemented by UNIDO in almost 30 developing countries in the field of product adaptation. From this Programme benefitted mainly countries in Asia and the Americas but also in Africa and the Arab States.

b) It is recognized that a successful export development effort requires in particular a balanced approach incorporating both supply and demand aspects. Following the Memorandum of Understanding concerning the co-operation between the United Nations Industrial Development Organization and the International Trade Centre UNCTAD/GATT from 1976, UNIDO has primary responsibility for supply activities while ITC is primarily responsible for demand activities. The main aim of the Product Adaptation Programme (PAP) is to assist the manufacturers in developing countries to adapt their products to the requirements of the international markets. Over the years the PAP has been developed and in its present form it can be characterized as follows:

- oriented to assist small- and medium-scale industries;
- its approach is multi-disciplinary, i.e. several product groups/industries are covered by a PAP project;
- implementation is carried out mainly through short-term missions of highly qualified experts who supply in-plant assistance to selected factories;
- usually operated without the assistance of a chief technical adviser or a team leader.

The achievements of successfully implemented PAP projects could be manyfold: increased earnings of foreign exchange, higher employment, better use of installed industrial capacity, narrowing information and communication gaps due to the inadequate knowledge of production techniques adopted in the foreign markets, orientation for further development of export industries based on experts recommendations, etc.

Operation of the Programme

There are two main forms under which the PAP for Export is implemented. When the product groups are selected and the needs for their upgrading are identified by the counterpart agency concerned, the project can be designed and executed directly by UNIDO following a request of the Government. Another form is a close co-operation with the ITC/UNCTAD/GATT. The projects designed by ITC in the field of trade promotion include the following phases: supply survey - desk and field market research - product adaptation - promotion activities. The UNIDO PAP is firmly embodied in these projects and can benefit from the relevant information on market requirements for the development of products.

When preparing the requests for technical assistance,due attention is given to the selection of product groups to be covered by the PAP projects. Industries with the best export potential are given priority, e.g. labour-intensive industries, those based on indigenous raw materials, industries with adequate supply capacity and substantial added value to improve the net foreign exchange earnings in the developing countries. In recent years, the following product groups have been covered by UNIDO PAP or ITC/UNIDO projects:

> Leather and leather goods inclusive sports goods; silk fabrics; garments; mechanical and electronic toys; precious and semi-precious stones and jewellery; glassware; hand tools; pencils; gas lighters; seats for vehicles; optical lenses; metal and wooden furniture; fishing rods; ceramic giftware, china; yachts; jigs and fixtures; press tools and dies; rubber goods and rubber moulded balls; industrial fasteners; tennis rackets; bicycles; camping equipment; metal film resistors; power solid-state devices; tantalum capacitors; etc.

Based on experience, the following production disciplines are identified and advice for improvement is given during the experts' in-plant assistance:

- raw material and its suitability for production of high quality products;
- product quality related to market requirements;
- quality control and its application on the factory level, testing facilities;
- design in relation to the markets, needs for diversification of production line;
- technology, layout incl. flow of equipment, handling of products, storage of goods, safety, etc.;

- equipment, its suitability and replacement, needs for maintenance;
- training, various forms of better training suggested;
- comments on marketing activities.

Depending on their findings, the experts' recommendations cover also other fields such as industrial information, associations forming, recording systems on work and cost, cooperation between manufacturers, government policies helping manufacturers to expand their production for export (duties on imported raw materials, loans for purchase of equipment), etc.

The duration of experts missions is usually three to four months. Preferably a smaller number of factories should be selected so that the expert can spend enough time for adequate in-plant assistance, i.e. at least two weeks at each factory. At the end of their missions, the experts hold seminars on their findings and recommendations with the participation of representatives of industries, government officials and UNDP. They also discuss the follow-up activities with the counterpart agency concerned. In order to improve monitoring of the implementation of the accepted recommendations, and to supply additional technical assistance needed, split experts missions could greatly contribute to the efficiency of the project.

Within UNIDO the PAP projects are backstopped by the Institutional Infrastructure Branch of the Division of Industrial Operations.

In January 1983