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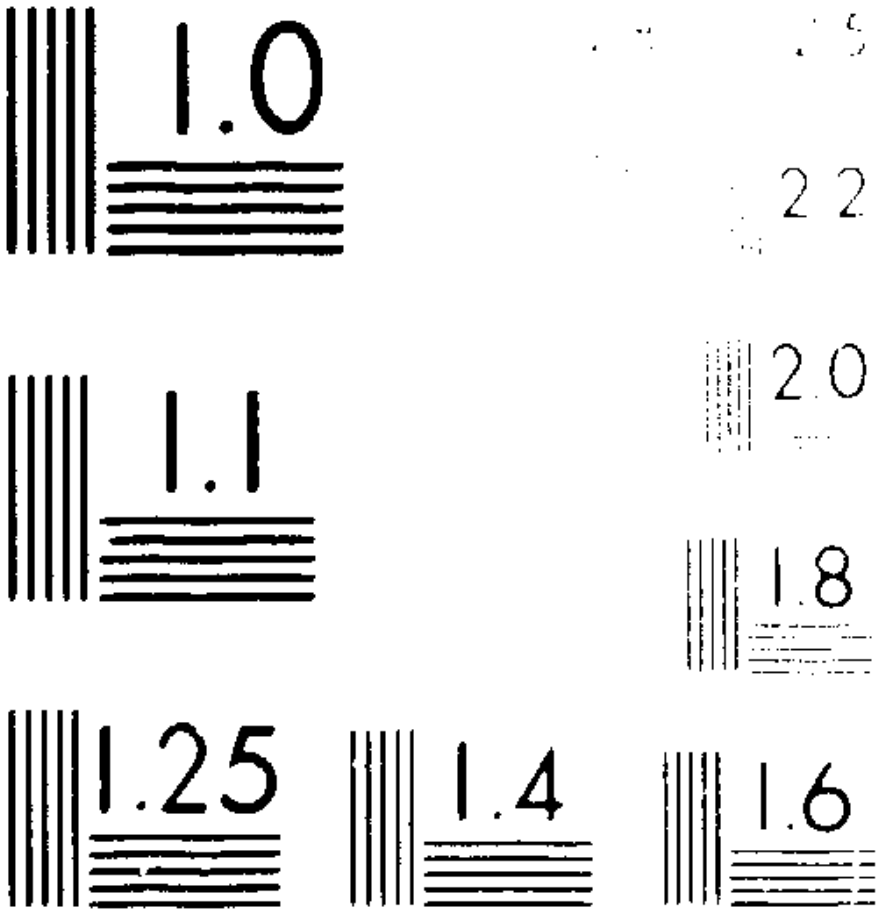
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Report on Identification of
Partner Enterprises in Sweden 2nd India
for units selected for the
Transfer of Technology Programme
in Karnataka State and a Detailed
Plan of Operation.

S.R. Vijay

1982

CONTENTS

INTRODUCTION

This is a report on a Special Assignment offered by the United Nations Industrial Development Organisation in the context of the programme for Plant Level Co-operation between units in Sweden and small scale units in Karnataka. It is almost two years since the programme has started.

The objective of the assignment was to identify possible partner enterprises in Sweden, elicit their response, and to formulate further proposals for the implementation of the programme. The Swedish Coordinating Agency had just been appointed at about the time of my visit. The scope for eliciting the response of partnership enterprises was therefore rather limited. This important component of the assignment was attempted only in a very limited way and will have to be gone through in more detail by the Swedish Coordinating Agency - M/s. Scandiaconsult.

About eighty five percent of transfers of technology between the developed and developing countries have taken place via Transnational Corporations. According to one UNIDO Report use of Transnationals as a major source of Technology has given rise to many problems. The indiscriminate extension of the technologies into the Third World has resulted in confusion over basic values and social priorities.

Project of this type help at correcting such imbalances and help to extend the benefits of the programme for International Transfer of Technology to small scale units also.

It is necessary to mention that since the date of visit of the undersigned yet another Mission consisting of Mr. Thomas Grahn of Scandiaconsult and Mr. F.M. Kulur, Assoc. Industrial Development Officer, Transfer of Technology Branch, UNIDO have visited Karnataka. One Entrepreneur in the programme Sri A.S. Prabhakar of M/s. Swarna Electricals has visited Sweden and another, Sri Ravi C Sonalkar of M/s. Sonalkar Tool Works, is on his way to that country.

I would like to acknowledge the assistance extended to me by M/s. Scandiaconsult by way of co-ordinating my visits to units in Sweden. I also wish to acknowledge assistance rendered to me in the preparation of this report by Sri K.V. Sathyanarayana, Deputy Director, Small Industries Service Institute, Bangalore.

For those who may not be able to find time to peruse the report in entirety, I would refer them to Part VII.

S.R. VIJAY

Bangalore,
August 20, 1982

PART - I

THE BACK DROP:

The Third General Conference of the United Nations Industrial Development Organisation was held in New Delhi between 21st January 1980 to 9th February 1980. An important declaration followed the Third General Conference which also incorporated a plan of action for international cooperation for industrial development. The Declaration in particular noted the continuing difficulties faced by developing countries in the acquisition, development, adoptation and absorption of industrial technology and expressed the view that industrialisation of developing countries was closely linked with the factor of their access to technology and called for measures to accelerate the pace of the transfer of technology from the developed countries.

Subsequent to the Third General Conference of United Nations Industrial Development Organisation in New Delhi, Mr. Wafa Kamel, Industrial Development Officer, Development and Transfer of Technology Branch, UNIDO in his letter dated 12th December 1980 indicated that three projects had been approved by the UNIDO and the Government of India to facilitate International Transfer of Technology.

The three programmes are:

1. The Project for Plant Level co-operation for the Transfer of Technology to Small Scale Industries with particular reference to metal working and light engineering industry.

2. The Project of strengtheningof National Technological capabilities in the sector of small scale industry with particular reference to the Coir industry.

3. Project of Technology selection visit of six Nepalese entrepreneurs to small industries.

The most important of the three programmes envisaged was the "Project of Plant Level Co-operation for the Transfer of Technology to small scale industries with particular reference to the metal working and light engineering industry".

The project as originally envisaged was limited to a programme for facilitating transfer of technology between units in Sweden and small scale enterprises in Egypt, India (State of Karnataka), Kenya and Sri Lanka. Though within India the programme as originally planned was limited to the State of Karnataka subsequently in view of certain developments at New Delhi the UNIDO extended the programme to a limited number of units in Andhra Pradesh and Tamil Nadu. The intention of the Project is to identify 15 to 20 viable proposals for transfer of specific technologies in the sector of metal working and light engineering industries from units in Sweden to units in the four countries.

The formulation of the Project was followed by a visit of Mr. Wafa Kamel, Industrial Development Officer, UNIDO to Bangalore in November 1980 during which time he met important functionaries of the Government of Karnataka including the Chief Minister and appraised them of the Programme. This was followed by a joint UNIDO/SWEDISH Mission to the State from 1st April 1981 to 5th April 1981. The Mission consisted of the following Members:

1. Mr. Per G. Hanell,
   Managing Director, Consultant
   The Development Fund of the Vesterbotten County

2. Mr. Johan Cramwinkel,
   UNIDO

3. Mr. Tord Karr,
   Expolaris
   Co-ordinating Organisation in Sweden

The Mission toured extensively in the State and visited the units at Annexure I.

After visit to the above 20 units the Mission were of the view that there was not much scope for exploring any further avenues for such technology transfer programmes to the following three units:

1. M/s. Fine Crafts,
   6, Govindappa Road, Kumarapark West,
   Bangalore.20.

2. M/s. Standard Hydraulic (India)
   C-10, Industrial Estate,
   Belgaum.

3. M/s. R.C Industries,
   B-46, IE, Rajajinagar,
   Bangalore-44.

It may be noted that the Mission also visited 8 units in Andhra Pradesh and 9 units in Tamil Nadu. In fact the number of units visited by the Mission in Karnataka exceeds the combined total of units visited by them in Andhra Pradesh and Tamil Nadu, thus reflecting the priority accorded within the programme to units in Karnataka State.

The Object of the April 1981 Mission of the UNIDO was "meant to pick up on the basis of field visits and discussions on the spot, viable small scale industrial enterprises at the enterprise level requiring foreign collaboration for providing specific technological inputs for improving product quality, design or productivity in the existing small industry as well as for acquiring necessary technological capabilities for the setting up of new manufacturing operations in the participating developing countries".

The Mission was in fact a preparation for identification of small industrial enterprises in Sweden willing and capable of cooperating towards fulfilment of the programme for Plant Level Co-operation.

The Mission after its visit to units in India singled out the units visited by them in Karnataka as very "capable companies" and added by way of concluding remarks that the units evinced considerable interest in the Project.

The Mission observed that the most important problems in the companies visited by them related to upgradation in quality and it was therefore necessary to find Swedish units which could supply technology in terms of machines with higher accuracy as also improved engineering techniques. They also commented on the efficiency of the manufacturing methods adopted and concluded that there was enormous potential for absorption of technology from Sweden.

One of the important results of the Joint UNIDO/ SWEDISH Mission was a change in the content of the Programme. Whereas previously the programme was limited to metal working and light engineering industries, the April 1981 Mission visited a few wood working units, in view of their view that Sweden by virtue of its long tradition in the wood working sector would have technological skills to offer for wood working units in Karnataka.

Towards the end of the year the UNIDO indicated that "Expolaris" the Consulting Organisation appointed by them in Sweden were engaged in the task of identifying industrial enterprises in Sweden as counterpart units and felt that the Managing Director, KSSIDC should undertake a tour of Sweden to elicit views of Swedish units/enterprises which have expressed interest in co-operating with partners in India in the Transfer of Technology and also to evolve a detailed

plan of operation of Plant Level Co-operation of Transfer of Technology to units identified in the State of Karnataka. A special contract was offered for this purpose to the Managing Director, KSSIDC from 15th April 1982 to 28th April 1982. At about the same time UNIDO changed the Consultants for the Programme.

M/s. Expolaris located in Kanalgatan, 73, Skellefteå, was previously appointed as Consultants for the UNIDO in Sweden. They changed over to M/s. Scandiaconsult, Sweden, sometime in March 1982.

Accordingly M/s. Scandiaconsult co-ordinated the programme of visits. Mr. Lars Hakan Sandlund coordinated the programme for visits to units in and around Stockholm and Mr. Thomas Grahn coordinated the visits around Malmo.

The project as originally envisaged was for transfer of technology with particular reference to metal working and light engineering industries. The units were selected by KSSI in consultation with the Small Industries Service Institute, an institute established by the Development Commissioner (Small Scale Industries), New Delhi for giving technical services to small scale units. The units which were listed for the programme were as follows:

FORGING UNITS:	M/s. Vishnu Forge Pvt. Ltd., M/s. Mini Forge Pvt. Ltd.,
MACHINE TOOLS:	M/s. Tool Craft M/s. Tocol Enterprises M/s. Elmeca, Dharwad M/s. Prakash Home Industries M/s. Sonalkar Tool Works, Harihar
PRECISION INDUSTRIES:	M/s. Maini Precision Products Pvt. Ltd.,
FOUNDRIES:	M/s. RK Foundry & Engineering M/s. B.D.K. Valves Pvt. Ltd.,
MISCELLANEOUS:	M/s. Maroli Meters Pvt. Ltd., M/s. Madras Dial Gauges & Measuring Instruments M/s. Swarna Electricals M/s. Unik Enterprises M/s. Klas Engineering Pvt. Ltd., M/s. RK Engineering Enterprises

PART - II

FORGING UNITS:

Only two of the 16 units in the above list are Forging units.

M/s. Vishnu Forge Pvt. Ltd., Bangalore, employs 14 professional staff and 30 labourers. They have a second and more modern unit located at Mysore also. The unit is engaged in Die Casting, Forging, Metal working and Heat treatment. The machines in the unit include Drop Hammers and Presses of different capacity, electrical and oil-fired furnaces for forging and heat treatment and several kinds of lathes, grinders, drilling machines, metal saws etc. The company is particularly interested in advanced techniques to improve the quality of their products. They are also interested in exporting their products to Europe.

M/s. Mini Forge Pvt. Ltd., is a small scale unit in the Peenya Industrial Estate. It manufacturers Mild Steel and Stainless Steel Screws and Bolts. The production technology includes cold forging, hot forging, rolling, slotting and milling. The unit is in possession of Slotting machines, Rolling Machines, lathes, hot forging machines and testing equipments.

The Managing Director of the unit Mr. D'costa is of the view that the machinery in his possession is rather out dated and needs to be replaced. He is also of the view that even second hand machines in Europe would afford opportunities for considerable improvement in quality. He has expressed the view that if it is not possible to enter into any technology transfer programmes he would be satisfied if facilities for import of second hand machinery are afforded to him.

M/s. Scandiaconsult had organised visits to the following forging units in Sweden:

1. M/s. Bahco Record Tool Group
2. M/s. Robema AB, Eskilstuna
3. M/s. Tors Hammare AB

In addition a meeting was also organised for meeting one Technical Expert Mr. Olof Sjoberg of Ekstа Fabriks AB.

M/s. Bahco Record Tool Group is a multi-national Company. They have three major companies one each in England, Sweden and Argentina. The Company had collaborated with M/s. Taparia in Bombay, India and the collaboration was terminated five years ago. Bahcos are primarily interested in the manufacture of various types of hand tools. They manufacture adjustible wrenches, pliers, screw drivers, automative tools, bolt cutters, pneumatic tools, hydraulic tools etc.

During discussions with M/s. BAHCO they expressed their interest in collaborating for setting up another unit making Hand Tools in the medium sector. On being informed that KSSIDC have been given a licence for manufacture of Hand Tools they expressed considerable interest in the Project. They were particularly interested in the manufacture of automotive tools. They were also prepared to consider buy-back arrangements.

Among the Forge Plants visited was M/s. Robema AB at Eskilstuna. However M/s. Robema AB are moving away from Hand Tools into other categories of forgings. M/s. Robema AB were not immediately interested in any technical collaboration with units in Karnataka. They however indicated that they would reconsider the subject after a year or so. In effect possibilities of persuading any of the above units to agree to any plant level cooperation programmes appear to be remote.

Another forge unit visited was M/s. Tors Hammare AB also at Eskilstuna. M/s. Tors Hammare AB have only recently completed their expansion programme. They also indicated that they would not be interested in foreign collaboration programme for another two years. M/s. Tors Hammare AB is a very modern factory and is making a variety of items for both M/s. Valvo AB

and M/s Saab Scania AB the two principal car manufacturing companies in Sweden.

M/s. Eksta Fabriks AB was one of the small units visited. The Proprietor Mr. Olof Sjoberg is interested in collaboration and is prepared to offer his technical services. Mr. Olof Sjoberg has designed new tools like multipurpose pliers, coffee plate cutters etc. However it emerged that M/s. Eskilstuna Knive Fabriks AB a larger company manufacturing a variety of knives in the same town are taking over his company (M/s. Eksta Fabriks AB). Mr. Olof Sjoberg is now free and prepared to offer his technical services. Mr. Olof Sjoberg will be joining M/s. Eskilstuna Knive Fabriks AB after amalgamation of the companies. In view of Mr. Sjoberg's interest possibilities of entering into plant level co-operation with M/s. Eskilstuna Knive Fabriks AB could be explored.

M/s. Scandiaconsult will now have to persuade M/s. Tors Hammare AB to agree to collaborate with M/s. Vishnu Forge. In the alternate there are a number of companies specialised in drop forgings which could be listed out. This include M/s. K.A. Bergs Smide AB, M/s. AB Bofors, Steel Division and M/s. Wirsbo Bruks AB. The details of the Company are at Annexure II.

M/s. AB Bofors, Steel Division makes drop forgings, Steel castings, heat treatment surfacing etc. However this is a very large company with offices all over the world. It has an employment of over 2700 persons. Similarly M/s.Wirsbo Bruks AB is another very large company which also makes drop forgings, forged flanges etc. It has an employment of over 1500 persons. It is doubtful if either of these companies would be interested in collaborations.

However M/s. K.A. Bergs Smide AB located at Gemla is a small scale unit employing about 70 persons only. It manufactures hooks for loading, hoists and slings, forgings 0.5-15 Kg., safety coupling and links. Its products are exported and it also has an Office in Germany. It would be worth examining if this unit is prepared to collaborate with M/s. Vishnu Forge Pvt. Ltd.

It was also gathered during the tour in Sweden that there is a particular Company M/s. Interproject Service AB located at Bettna, Sweden. The Interproject Service AB is a specialised organisation active exclusively in the field of export of industrial, technical know-how. The Company is in a position to supply know-how for forge shops, hand tool manufacturing etc. The company has already set up tool industries in Poland and mechanical workshops and laboratories in Saudi Arabia.

In effect as far as forging units are concerned there appear to be good possibilities for M/s. Vishnu Forge Pvt. Ltd. As far as M/s. Mini Forge Pvt. Ltd., is concerned since the Managing Director of the unit is only interested in second hand machinery it may not be difficult to inform him the source from which he can buy such machinery. However in respect of other units it is obvious that M/s.Scandiaconsult will have to do a lot of preliminary work to persuade units now identified to evince some interest in the programme.

PART - III

MACHINE TOOLS:

There are as many as five Karnataka units identified under the machine tool category. This include:

1. M/s. Toolcraft
2. M/s. Tocol Enterprises
3. M/s. Elmeca
4. M/s. Prakash Home Industries
5. M/s. Sonalkar Tool Works

Toolcraft:

M/s. Toolcraft is a Partnership concern with Shri B.R. Shivashankar as Managing Partner. Shri Shivashankar is a former Engineer in M/s. Hindustan Machine Tools one of the largest Machine Tool manufacturers in the world. He was a delegate to the "Cutting Tools and Accessories delegation" to the European Economic Community countries sponsored by the EEC, Member of IMTMA delegation to EMO, Milan during 1979, Leader of the delegation of the Market Orientation tour for machine tools jointly sponsored by the International Trade Centre and the Swedish International Development Authority. M/s. Toolcraft is a highly sophisticated unit. The products manufactured by the unit are the two dimensional pantograph engraving machine, the co-ordinate drilling machine and the bench drilling machine. Shri Shivashankar has indicated that he is interested in transfer of technology in the manufacture of any of the items indicated below:

(i) Items of machine tools - preferably with Electronic controls - namely:

(a) NC Lathes (small/medium size)

(b) Milling and Drilling Machines with programme/NC Control

(c) Die sinking Machines with electronic copying

(d) Any other machine tool required in tool rooms

(ii) Machine tool accessories such as:

(a) Collets - Collet chucks

(b) Quick change Milling and Drilling chucks and adopters

(iii) Electronic Controls for Machine Tools:

(a) programme controllers

(b) Digital readout systems

(c) Numerical Controls.

Shri Shivashankar has identified several units in Sweden as possible partner enterprises and the same are listed in Annexure III. M/s. Scandiaconsult were not able to short list Shri Shivashankar's proposals as on the date of visit to Sweden.

Tocol Enterprises:

M/s. Tocol Enterprises is another unit manned by technicians. They manufacture machine tool accessories such as universal dividing heads, radius grinding attachment, as also special cutting tools like dovetail form tool, tangential form tool, circular form tool, flat form tool etc.

The unit is desirous of absorbing high speed technique and generally to improve the manufacturing processes.

Elmeca Works:

M/s. Elmeca Works is another small scale unit manufacturing a variety of machine tool accessories including pneumatic chucks, microboring heads, milling adaptors, collet chucks, quick change drill chucks, reduction milling sockets, etc. The unit is serving several large scale industries in the country and is also exporting its products. They are interested in transfer of technology to improve quality production.

Prakash Home Industries:

M/s. Prakash Home Industries manufacture a variety of machine tools including centre lathe, radial drilling machine, surface grinder, filing machine etc. They are also generally in need of technology for improving processes. Specially for improvement in casting and machining.

Sonalkar Tool Works:

This unit manufactures lathe chucks, live and dead centres, power chucks and hydraulic attachments. They have indicated that they need technology assistance for process upgradation in the manufacture of (i) Limit gauges and (ii) Chucks.

As far as limit gauges are concerned they are interested in (i) lapping of flat surfaces, (ii) lapping of snap gauge surface, (iii) heat-treatment and stabilizing processes in the manufacture of tool steel gauge and (iv) inspection of taper gauges.

As far as upgradation of process in the manufacture of chucks is concerned they are interested in (i) bevel gear cutting for scroll and pinion in three-jaw self centering chucks, (ii) spiral cutting spiral grinding in three-jaw chucks made as per the cushman system, (iii) guideway milling and grinding in three-jaw self centering and four-jaw independent chucks, (iv) jaw teeth cutting and grinding in three-jaw chucks, (v) manufacture of cam-pins for camlock spindle and (vi) testing process for three-jaw and four-jaw chucks.

The company have been able to identify M/s. CE Johansson, Eskilstuna, Sverige as the unit which can give them process for upgradation in the manufacture of limit gauges and M/s. Skandinaviska Chuckfabriks Aktiebologet at Tyringe as the unit which can give them process for upgradation in the manufacture of chucks.

M/s. Scandiaconsult were handicapped by the fact that they had been only recently appointed as Consultants for United Nations Industrial Development Organisation and were even more handicapped in regard to machine tools in so far as they were yet to recruit a Machine Tool Expert who could

identify appropriate partner enterprise in Sweden. However they did organise a visit to M/s. ABH Grandlund and Co. M/s. AB H Grandlund and Co., are a fairly large company and manufacture counter bores, back sportfacers, cartide tipped expanding reamers, step drills, countersinks, floating tool holders, support grindingattachment, balancing stands, universal machine vices, tapping attachments, cold pilger die grinding machines etc.

Possibilities of Plant level co-operation was discussed with Mr. Borje Gyllhamn, Managing Director of the Company. This unit seems to be ideally cut out for collaboration both with M/s. Tocol Enterprises and M/s. Sonalkar Tool Works. However Mr. Borje Gyllhamn was rather non-commital about any immediate possibilities of his company getting involved in any technical know-how agreements with units in Karnataka.

Mr. Lars Hakan Sandlund of M/s. Scandiaconsult readily agreed that Scandiaconsult did not have much time to identify sufficient number of units to be visited. However M/s. Scandiaconsult organised meetings with Mr. Lars Bergman of M/s. Chuck Centre, Klippan. Mr. Bergman represents a polich chuck manufacturing company 'Ponar'.

However the opportunity of the visit was utilised

to identify machine tool and machine tool accessories manufacturing units which could get interested in technical collaboration programmes. The companies are enlisted in Annexure IV.

Machine Tool industry is a basic industry. We have identified some units with technical sophistication. However it is apparent that M/s. Scandiaconsult will have to do a lot of selection.

It would be helpful to M/s. Scandiaconsult if industrialists like Shri B.R. Shivashankar are associated with in the process of selecting the partner enterprises in the Machine Tool category. As a matter of fact Shri Shivashankar should be in a position to act as Consultant to M/s. Scandiaconsult for identifying matching units for all the units concerned with the machine tool and machine tool accessories.

It can be seen from Annexure IV that there are a wide range of units from which a selection has to be made.

PART - IV

PRECISION INDUSTRIES:

M/s. Maini Precision Products Pvt. Ltd located in the KSSIDC Industrial Estate, Peenya I Stage is among the units identified for the programme of upgradation of technology. The unit is owned by Shri Sudarshan K Maini who apart from being Chairman of M/s. Maini Precision Products Pvt. Ltd., is also Managing Partner of M/s. Maini Industrial Consultants, Bangalore. Shri Maini is a Fellow in Industrial Production Engineering (UK) and Ex-Loubhborough Burmah Shell Scholar. He was working in the Standard Pressed Steel Co., USA and has been trained with M/s. BOSCH, West Germany. He is formerly Chairman of Institution of Production Engineers of the Bangalore Chapter. He is the author of number of technical papers and reports.

M/s. Maini Precision Products Pvt. Ltd., is engaged in the production of high precision items requiring machining and grinding. M/s. Maini Precision Products are interested in exporting in a big way. As on date their manufacturing and inspection methods are inadequate to achieve the tolerance required for exports and they are able to achieve the tolerances now achieved at high repair and scrap costs. They are interested in collaborating for upgradation of inspection procedures. M/s. Maini Precision Products Pvt. Ltd have expressed the view that M/s. SKF could give the necessary

technical assistance. M/s. SKF themselves have four companies namely; M/s. Aktiebolaget SKF, Hornsgatan 1, S-415 50 Goteborg, M/s. SKF, SKF Katrineholm, Kopmangatan 1, PO Box 89, S-641 02 Katrineholm, M/s. SKF Steel Division (AB SKF), Box 202, S-813 00 Hofors and M/s. SKF Tools AB, (Subsidiary of AE SKF, Goteborg), Kristian IV, PO Box 170, S-301 02 Halmstad.

M/s. Aktiebolaget SKF has an employment of as many as 55,468 persons and is therefore a very large company by any standards. It is extremely doubtful if M/s. SKF will be inclined to offer any services or technical collaboration to M/s. Maini Precision Products Pvt. Ltd.

During the visit information was collected on the following two units:

1. M/s. Alvesta Gjuteri AB
   Agatan 14, Box 67,
   S-342 00 Alvesta

   Est: 1923

   Cap: Kr.2,000,000
   Employment: 135
   Turnover: Kr. 35,000,000

   Manufacturers of Cast goods of various types for the automobile and engineering industries.

2. M/s. Fimek AB,
Persbergsvägen,
PO Box 64,
S-682 01 Filipstad

Est: 1917

Employment: 140
Turnover: Kr.26,000,000

Manufacturers of Rocker shafts, selector rails, king pins, spring shackle, pins, spring bushes, fimek has equipment for copy-turning, heat treatment and centreless grinding, both plunge grinding and run-through grinding.

M/s. Scandiaconsult could consult the above units if they are interested in collaboration.

PART - V

FOUNDRIES:

Only two foundry units have been identified for the programme namely M/s. BDK Valves Pvt. Ltd., and M/s. E.K. Foundry and Engineering.

BDK Valves Pvt. Ltd.

M/s. B.D.K. Valves Pvt. Ltd., are one of the BDK Group of Companies. The other Companies in the group are M/s. BDK Alloy Pvt. Ltd., M/s. BDK Synthetic Pvt. Ltd., M/s.BDK Exports Pvt. Ltd., and M/s. BDK Engineers Pvt. Ltd. The company manufactures a wide range of industrial valves for use in water treatment plants, effluent treatment plants, thermal power plants, nuclear power plants, caustic soda plants, fertilizer plants, petrochemical plants, refineries, sugar factories and in general in chemical and process industries. They manufacture 30,000 numbers of valves per annum and are in the medium sector.

The Company have specified that they need technical upgradation in the following processes:

(a) Corrosion and heat resistant glass lining.
(b) Processing of fluoroplastics - lining and moulding
(c) Processing of elastomers - lining and moulding.

M/s. Scandiconsult had organised a visit to M/s. Glimakra Armatur AB located at Glimakra a company manufacturing Valves. They also organised a meeting with Mr. Sten Jonsson of M/s. Glimakra Armatur AB. However it is noticed that M/s. Glimakra Armatur AB are manufacturing non-ferrous valves mostly for the shipping industry.

It is therefore necessary to identify alternate units. The following are some good possibilities:

1. M/s. Lennart Gullander AB,
   Hammarby Fabriksvag 23,
   PO Box 92, S-121 22 Johanneshov

   Est: 1953

   Cap: Kr. 75,000
   Employment: 18
   Turnover: Kr. 15,000,000

   Manufacturers of fittings and valves for compressed air, steam, oil and water.

2. M/s. AB Holmgrens Armaturfabrik,
   Parkgatan 24, Box 134,
   S-335 00 Gnosjo

   Est: 1943

   Cap: Kr. 450,000
   Employment: 65
   Turnover: Kr.16,000,000

   Manufacturers of Radiator Thermostats, draining valves, safety valves, ohio valves, tilting valves, water gauges, ball-cock valves, ball valves, rootfeeders

3. M/s. KAF Kontroll-Automatik Fabriks AB
Industrigatan 7, PO Box 60,
S-595 00 Mjolby

Est: 1942

Cap: Kr. 4,950,000
Employment: 230
Turnover: Kr. 140,000,000

Manufacturers of Automatic controls for refrigeration plants, valves and fittings for gas, oil, water and steam.

It is apparent that M/s. Scandiconsult have to finalise identification of partner enterprise in Sweden for M/s. BDK Valves Pvt. Ltd.

RK Foundry and Engineering:

The other Foundry unit identified in Karnataka is M/s. RK Foundry and Engineering. This is a small scale unit located in the KSSIDC Industrial Estate, Peenya I Stage. It is engaged in the manufacture of non-ferrous castings for the automobile industry. The unit is using rather out dated methods. The pit type coke fired furnace crucibles is used to melt the metal. As soon as the metal is melted in the crucibles the crucibles are removed by hand from the furnace by means of lifting tackles. There is tremendous scope for upgradation in technology of this unit. Possibilities of extending technical assistance was discussed with Mr. Sten Jonsson of M/s. Glimakra Armatur AB. M/s. Glimakra Armatur AB are once again a very large company and it is difficult to conceive any plant level co-operation between M/s. Glimakra Armatur AB and M/s. RK Foundry and Engineering.

In the circumstances Mr. Sten Jonsson of M/s.Glimakra Armatur AB was requested to agree to provide training facilities to Mr. Rakesh Kinger of M/s. RK Foundry and Engineering for a period of 30 days. Mr. Sten Jonsson responded very positively and was also agreable to pay some stipend in Swedish Kroners. Here provision of Technical Training may not come within the purview of the project for the transfer of technology. The following units could be considered as alternates:

1. M/s. AB Westin & Backlund,
   Liljeholmsvagen 8,
   P O Box 9126,
   S-102 72 Stockholm 9

   Est: 1931

   Cap: Kr. 2,000,000
   Employment: 140
   Turnover: Kr. 35,000,000

   Manufacturers of Foundry Machines,
   Hydraulic presses and pneumatic
   transporters

2. M/s. Backman Maskiner AB,
   Vasagatan 18, Box 40,
   S-682 01 Filipstad

   Est: 1974

   Cap: 500,000 Kr.
   Employment: 14
   Turnover: Kr. 10,000,000

   Manufacturers of Sandblast equipment,
   shot blast machines, Blast cabinets

PART - VI

MISCELLANEOUS:

Maroli Meters Pvt. Ltd:

M/s. Maroli Meters Pvt. Ltd., is a unit located in the KSSIDC Rajajinagar Industrial Estate. They make electro-magnetic impules counters, telephone subscribers meters, telephone exchange traffic meters, mechanical stroke counters, etc. The Hannel Mission felt that there are good possibilities for obtaining collaborations for this unit. M/s. Maroli Meters Pvt. Ltd. have indicated that they require technical assistance in the following three processes:

1. The driving pawl of telephone meter is injection moulded along with soft magnetic Iron Armature in Makrolon (Polycarbonate). The longer arm of the Driving Pawl which should be 90° with reference to the Armature deflects after 24 hours of moulding. When moulded the Arm is at 90° with the Armature. After the component cools down it is found that the 90° is reduced to 87° or 88°. How this problem can be overcome?
2. The number of wheels the telephone meters are moulded in black diakon (acrylic)moulding powder and are provided with depths for the numbers and the same are filled with white paint. After the paint dries a diameter turning is done on a lathe to remove the excess paint. This process of painting each wheel by hand and diameter turning on a lathe is slow. A better method should be possible.

3. Assembly of the telephone meters are done manually and no tools or fixtures are used. If a faster method of assembling is available the same is required.

This matter was discussed with M/s. Scandiaconsult. It was noted that Sweden has switched over completely to the electronic telephones. There were hardly any mechanical counter making units in Sweden. There appears to be better scope for technology collaboration for this unit.

Madras Dial Gauges & Measuring Instruments:

M/s. Madras Dial Gauges & Measuring Instruments is yet another highly sophisticated unit selected for the programme. They manufacture profile Projectors for production inspection, gauge and quality control, tool makers microscope etc. Components made in the unit are both mechanical and optical. As far as mechanical components are concerned turning, shaping, milling, plaining etc, of the component is undertaken and a high degree of tolerance of finish is maintained. On the optical side high quality of lapping, finishing, and polishing are maintained. The unit has identified the following areas/processes in which they require assistance for technical upgradation:

(i) Optical plastics and moulded lenses including Fresnel Lenses and Aspherical Lenses

(ii) Production of lenses in quantity
(iii) Production of prisms and flats in quantity
(iv) Production of lens mounts in quantity
(v) Production of glass fibres and glass fibre technology.

The following two units in Sweden are good possibilities for collaboration arrangements for this unit:

1. M/s. Victor Hasselblad Akitebolag, Goteborg.

2. M/s. AB Bofors Plast,
Smedjegatan 12,
Pack S-522 00 Tidaholm

Est: 1935

Cap: 20,000,000 Kr
Employment: 950
Turnover: Kr. 225,000,000

Manufacturers of BONOPLEX cast and extruded acrylic sheets, telephone, enclosures, BONOCELL rigid freon-blown polyurethane foam in slabs and sheets and as moulded products for insulation purposes, products of glass fibre reinforced such as collapsible and fixed chairs etc.

Swarna Electricals:

M/s. Swarna Electricals is the only unit manufacturing electrical equipment and identified for the programme. They manufacture industrial and commercial heaters, long dippers, geysers, hot plates and washing machines. The products are supplied to M/s. Bajaj, M/s. Johnson who in

turn market the products in their own Brand name. They are also marketing certain products under their own brand name "SWARNA". M/s. Swarna Electricals are interested in the following two areas in which they want technical upgradation:

(i) Manufacture of more sophisticated heating elements.

(ii) Manufacture of thermostat of various types.

They have identified M/s. Aktiebolaget Kanthan, Hallstahammar, Sweden for the first process and M/s AB Birka Regulator, Rosenlundgatan, Stockholm for the second process.

M/s. Scandiaconsult had identified M/s Backer Electro Varme AB, Sosdala, Sweden as possible counterpart enterprise for M/s. Swarna Electricals and organised a meeting in the factory premises of M/s. Backer Electro Varme AB with the Managing Director Mr. Jan E Hedin. The subject of upgradation of technology in heating element was discussed at length with Mr. Jan E Hedin and other Heads of the factory. It emerged from the discussions that M/s. Backer Electro Varme AB are indeed very interested in forging collaboration programmes and desired further discussions with M/s. Swarna Electricals.

The following alternate units were also been identified as alternate matching units for M/s. Swarna Electricals,

1. M/s.AB Birka Regulator,
   Rosenlundsgatan 50,
   S-116 53 Stockholm

   Est: 1921
   Employment: 25

   Manufacturers of Thermostats for temperature control.

2. M/s. AB Regin,
   N. Agatan 10,
   S-SE-416 64, Goteborg

   Manufacturers of Controllers, measuring instruments and hardware accessories for air-conditioning systems and industrial processes.

3. M/s. AGA Aktiebolag,
   S-181 81 Lidingo

   Employment: 16,000
   Turnover: 3,650,000,000

   Manufacturers of Thermostat Valves, fittings, gas fired boilers, boilers, water heaters, heat exchangers, oil burners etc.

Unik Enterprises:

The Project did not originally envisage coverage of wood working units. However the Hannel Mission were of the view that it would be advisable to include atleast one or two wood working units in Karnataka within the programme in view of the large number of wood working units in Sweden.

The KSSIDC recommended M/s. Unik Enterprises in its new Industrial Estate at Peenya II Stage and the same was accepted as appropriate unit by Hannel Mission. M/s. Unik Enterprises are presently engaged in the manufacture of flush doors, block boards and wooden furniture. The company are interested in improving their technology for making flush doors.

M/s. Scandiconsult had identified M/s. AB Svenska Door Astorp owned by Swedish match company as partner enterprise. M/s. AB Svenska Door Astorp is a large multi-national swedish company with a turnover of over 200 million kroners. The unit has as many as 800 employees. They are in possession of new technology which includes new types of sawing machines and have also acquired patent right to use "Dufalite" in door making. At the conclusion of the visit to Sweden during discussions M/s. Scandiconsult agreed that M/s. AB Svenska Door Astorp is too large a company and they could think of a smaller company. They suggested that M/s. Kahrs Maskiner AB located in Nybro, Sweden could be considered as alternate unit. This is apparently a small company with only 50 employees. This company was actually specialised in supply of turn-key offers to wood working factories. They have a large staff of Engineers and Technicians. They also have a continuing programme of development in all aspects of applied technology. The company

is able to supply complete industrial plant for the manufacture of prefabricated houses, furniture, building elements, including doors, windows, flooring, built-in-furniture, partition walls, cable drums, workmen's cabins etc. The company is in a position to render services including feasibility study, process design, product design etc. This company seems to be ideally cut out for offering technical collaboration to M/s. Unik Enterprises.

In the alternate M/s. Centre International/AB Centre located at Stockholm could be considered. The company is in a position to supply complete plants and transfer of know-how in the matter of manufacturing units for furniture, door, window frames and related products. The company is also willing to invest in a limited way in foreign manufacturing companies. The company has supplied production management materials and designs to two manufacturing plants in Africa (viz; International Furniture Co. Ltd., in Freetown and Forest Industries Corporation in Kenema in Sierra Leone) .

The above two companies appear to be more suitable than M/s. AB Svenska Door, Astorp. However it is to be noted that M/s. AB Svenska Door, Astorp being a part of Swedish Match company places it on a different footing as far as India is concerned in so far as the Swedish Match company have already established themselves in a big way in

India, their company in India being known as WELCO. The company are also involved in various operations and rural development in the country. It is obvious from the above that M/s. Unik Enterprises have bright chances of securing technical collaborations from units in Sweden.

Klas Engineering Pvt. Ltd:

M/s. Klas Engineering Pvt. Ltd., stand on a very different footing. It is involved in manufacture of impact extruded parts including aluminium bottles for pesticides, aluminium housing for capacitors, industrial components for electrical, electronic, automobile and general engineering industries made from aluminium and steel.

The process consists of shearing, rerolling of flats, blanking and shearing of slugs and extrusion of slugs. M/s. Klas Engineering Pvt. Ltd., had indicated us that they are interested in the following areas of technical development:

(i) Manufacture of beer cans - involves extrusion of thin walled cans; material aluminium

(ii) Manufacture of "tear off" aluminium lids to go with above cans;

(iii) Design and manufacture of tools for the cold impact extrusion of alloys, steel components including stainless steel components (some times cold extrusion is also referred as cold forge or cold-flo components);

(iv) The latest technology for the economic recycling of Aluminium scrap (at levels of 400 tonnes per annum) for reuse in impact extrusion

It emerged from discussions that M/s, PLM AB Malmoe is the only Swedish Company which can offer technology to M/s. Klas Engineering Pvt. Ltd. M/s. PLM AB Malmoe is also a multinational company with 17 factories in various parts of the world. They have six factories in Denmark, two in Netherlands and one in Germany. Apart from metal containers it also manufactures plastic containers, fibre bags, etc. It employs as many as 8600 persons in Sweden itself. It also emerged during discussions that M/s. PLM AB Malmoe were under licence from an American company manufacturing beer cans and it may therefore not be possible for M/s. PLM AB to part with technology information to any Indian firm.

It was noted that M/s. Klas Engineering Pvt. Ltd were also interested in design and manufacture of tools for the cold impact extrusion of alloy steel components and technology for the economic recycling of aluminium scrap.

It was felt that following units could be considered as partner enterprises:

1. M/s. Smalandsstenars Mek Verkstad Smalandsstenar.

2. M/s. Granges Aluminium AB
Malmskillnadsgatan 40 IV
P.O. Box 7024
S-103 86 Stockholm

Cap: Kr. 25,000,000
Employment: 4600
Turnover: 1,500,000,000 Kr.

Manufacturers of primary aluminium, aluminium casting alloys, shaped and surface-treated building sheets, aluminium foils etc.

RK Engineering Enterprises:

M/s. RK Engineering Enterprises located in Rajajinagar manufacture Torque wrenches which involves surfacing, milling, brazing, gear cutting, plating, turning and assembly and calibaration. They also manufacture torque multipliers, torque screw drivers, sockets, rachets and other accessories. Torque wrenches manufactured by M/s. RK Engineering Enterprises are a little heavy and considerable machining is involved. A large number of components also need to be machined. M/s. RK Engineering Enterprises are particularly interested in developing designs for a pre set tripping type torque wrench which can reduce the machining time and increase production. The unit is manned by highly qualified engineer entrepreneurs.

It is felt that the following units could be considered as partner enterprises for M/s. RK Engineering Enterprises:

1. M/s. F.E. Lindstrom AB,
   Nygatan 17,
   P.O. Box 351,
   S-631 05 Eskilstuna

   Est: 1856 - Member of BAHCO since 1974

   Cap: Kr. 1,350,000
   Employment 170
   Turnover: 16,000,000

   Manufacturers of Pliers, Nippers, Pincers

2. M/s. AB Bahco Verktyg,
   S-199 82 Enkoping

   Employment 950
   Turnover: Kr.182,000,000

   Manufacturers of BAHCO adjustable wrenches, pipe wrenches, automotive tools, screwdrivers, pliers and nippers, bolt cutters, carpenter's tools, pneumatic tools and hydraulic tools

P A R T - VII

PROBLEMS AND A REVISED PLAN OF ACTION

The Project for Plant Level Co-operation for Transfer of Technology to Small Scale Industries is behind Schedule largely because of the change in the Co-ordinating Agency appointed by the UNIDO which by itself was absolutely inevitable and in the best interests of this programme. By this time (August 82) the reports of the Consultants appointed by the UNIDO should have reached the UNIDO and representatives of the counterpart enterprises should have been on their way to Sweden in September for negotiating terms of Co-operation for transfer of specific industrial technologies.

In terms of the project report five distinct stages have been envisaged - the first relating to identification of viable small scale industrial operations at the enterprise level requiring foreign collaboration. The second stage envisages identification of small scale industrial enterprises in Sweden willing to co-operate in the Plant Level Co-operation proposals. The third stage involves preparation of an Evaluation Report to include appropriate information on the nature, range and capacity of the operation and indicating the infrastructure, management and financial limitations as also the proposed form for foreign co-operation. The final

stage contemplates meetings to be organised between concerned partners from units in Karnataka and units in Sweden for negotiating a mutually agreed form of co-operation. The final stage plans for necessary assistance and guidance is to be provided for the participating enterprises on proper adaptation of technologies offered by Swedish enterprises.

The programme was to be implemented between March 1980 to April 82. However as on date the process of identification of counterpart enterprises in Sweden is yet to be completed. It is obvious that the entire Time Schedule of the Programme requires to be revised.

The next step, a very crucial one at that, would be to contact the Swedish units and ascertain their response to the proposed collaboration programmes and also to prepare detailed reports including appropriate information on the nature and range of operations and indicating the infrastructure, management and financial problems as also the proposed form of collaborations. In effect the stage has just been completed and the project has reached the critical stage of eliciting positive response from the Swedish partners.

The Government of Sweden are no doubt very anxious that Swedish enterprises should participate in a big way in the industrial development of India. In 1972 the Governments

of India and Sweden entered into an agreement to establish a Joint Commission as an official forum for investigating and identifying areas in which economic, industrial, technical and scientific co-operation programmes could be formulated. The Joint Commission meets regularly. During February this year a Swedish Industrial Delegation accompanied Mr. Thorbjorn Falldin, Prime Minister of Sweden on his tour to India. The Delegation consisted of representatives of Swedish Trade Council (Mr. Arne Westerberg, Mr. Carl-Eric Sjostrom and Mr. Jan-Ake Akeson), Alfa-Laval (Mr. Lennart Berglind), ASES (Mr. Ake-von Sydow), ASEA-ATOM (Mr. Lars Gunnar Halle), BEIJERINVEST (Mr. Gunnar Bostrom), Boliden (Mr. Torsten Jensfelt), Electrolux (Mr. Simon Liliedahl), Morgardshammar (Mr. Rune Andersson), Saab-Scania (Mr. Gudmund Rapp), Skandinaviska Enskilda Banken (Mr. Tage Moberg), SKF (Mr. Bengt Kihlberg), Flakt (Mr. Lennart G. Malmort), Svenska Handelsbanken (Mr. Tim Gabrielson), Swedyards (Mr. Henry Sandblom) and Volvo (Mr. Anders Ryding).

However it is a fact that Swedish collaboration in India have been rather limited. A statement indicating the Swedish Collaborator, the nature of collaboration, items manufactured in the collaboration agreement is at Annexure-V.

It can be seen that the latter half of 1970s has not been very productive of collaborations.

Thus far collaboration agreements between Swedish and Indian units have been limited to the medium and large sector. The big question is if the industrial units in Sweden will evince interest in such collaboration agreements/ licencing agreements with small scale units in Karnataka. The next six months will be a critical phase of the programme. M/s. Scandiaconsult the Swedish Co-ordinating Agency will have to sound the Swedish units and elicit response. Most of the Swedish units are naturally concerned primarily with the business aspects. The ability of M/s. Scandiaconsult to get positive response will depend on their ability to putforth commercially attractive propositions to the prospective Swedish units.

It is obvious that M/s. Scandiaconsult would require time atleast till the end of December 1982 to ascertain the responses of Swedish units.

Once positive responses are evoked the next step would be to organise visits and meetings between concerned partners from Sweden and those in the participating developing countries. It is preferable that these visits are spread over to February-March 83. M/s. Scandiaconsult will not be able to organise meetings for all the selected units simultaneously. It would be preferable that representatives of each of the units is invited to Sweden depending on the

convenience of the Swedish units so that Scandiaconsult will be able to organise meetings and visits for each of the representatives of the units from Karnataka.

Subsequently the Development and Transfer of Technology Section of the UNIDO and specialised Consultancy Organisations in Sweden are to provide necessary assistance and guidance on the adoptation of technologies available with Swedish Enterprises and negotiated in the context of this programme "particularly as to the redesigning, scaling down and modification of such technologies bearing in mind aspects of better utilisation of indigenous raw materials, technological absorption capacities and other local conditions" prevailing in Karnataka State.

This exercise which the Development and Transfer of Technology Section of UNIDO is expected to carry out with the help of specialised consultancy organisations will again be a very time consuming process. According to the Project Report the entire process of adoptation of technology will also involve consultations with specialised agencies which have to provide specialised short term consultancy services for this purpose. It is time therefore that specialised institutions which are to provide specialised short term consultancy services are identified at this juncture

It is necessary to emphasize a distinctive feature of this programme. In the normal course proposals for transfer of technology implies a transfer by way of a "process package". However in this case the transfer of technology involved is more appropriately referred to as a 'piece meal' transfer of technology. This implies a process of disaggregation of the technology package as available, adoptation of the technologies and arrangements for the transfer of such appropriate technologies. The project has so far reached the stage of identifying the potential partner enterprises. The next step is to identify the process and thereafter to go on to the stages of adoptation of the processes to the conditions obtaining in Karnataka State.

It has been rightly said that "the process of negotiation of a contract on transfer of technology is a slow, difficult and complicated operation, requiring effort and dedication. There are no magic recipes to substitute for direct experience of the intricacies of statements, re-statements, questions, answers, advances and withdrawals which form part of the whole process. A negotiation, whatever may be its objective, is an artistic activity in which each

participant must not only know the techniques but must also live intensively through all the stages, like a painter at work".*

The above refers to normal proposals for transfer of technology which involve transfer of technology relating to process package and mostly in the medium and large scale sector. However in the present context there are also the distinctive aspects of adoptation of technology and the fact that the units on the recipient side are small scale units.

Keeping in view of the above distinctive features in the process of transfer of technology to small scale units as also the loss of time in so far as there was a change in the Consultants appointed by the United Nations Industrial Development Organisation there can be no gainsaying the importance of rescheduling the project.

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* "Hand book on the acquisition of Technology by developing countries - United Nations - P-13"

The time schedule as originally envisaged in the Project Report and as now emerging will be as follows:

Project work plan	Period as originally envisaged	Period as now feasible
Assessment of project proposals identified during mission in India	June/July 80	November 82/ February 83
Individual and group visits of representatives of counterpart enterprises for negotiating terms of co-operation for the transfer of specific industrial technology as identified under the context of the project.	September 81	February/ May 83
Preparation of terms of reference for consultants to carry out necessary studies for adopting specific technologies to requirement of SSI units in Karnataka.	September/ October 81	September/ October 83
Selection and recruitment of specialised consultants for short term consultancy services	October 81	October/ November 83
Finalisation of collaboration agreements	March/ April 82	March/ April 84

In short while the programme is already behind schedule by about two years there is yet a long way to go. It may be mentioned here that while it is indeed desirable that the various collaboration/licencing agreements are

finalised simultaneously, this need not necessarily be an all important goal. There should be sufficient flexibility in the programme for the matching processes of different units to mature during appropriate periods. In effect it may be necessary to disaggregate the programme and accord a separate time status to each of the matching exercises and thus allow licencing agreements to be signed earlier in cases where they mature to that stage ahead of the others.

As indicated above the immediate task is to evoke positive response from the Swedish units now identified. This is the very first time that efforts are being made to carve out collaborations between units in Sweden and SSI units in India. Inspite of recent efforts by the two national Governments the general impression gathered by me is that Swedish Industrial units do not generally react very enthusiastically to proposals for collaborations with Indian firms. There is a lack of appreciation of the wide range of business opportunities available in India for Swedish participation and a lack of knowledge of the positive aspects of Indian political and economic scene.

While the Swedish Co-ordinating Agency can no doubt contact the various units and make an effort at persuading them it is felt necessary that the Swedish International

Development Agency and the Swedish Trade Council should also be involved at this stage. A meeting of prospective partnership enterprises under the tripartite aegis of the Swedish International Development Agency, the Swedish Trade Council and Scandiaconsult could pave the way to ensure more positive responses from the swedish units than would otherwise appear possible. This meeting could be followed up by Plant Level negotiations under the UNIDO umbrella and with supportive services from M/s. Scandiaconsult and other specialised consultants.

Apart from the time parameter the financial parameter will also need a second look at this juncture. The programme envisages an expenditure of $ 2,50,000. The fact of change in the co-ordinating agency by UNIDO has probably thrown the financial parameter out of gear. Wood working and electrical industries have also been brought into the programme which will make it necessary to appoint consultants in these areas also. It is felt that UNIDO could review the financial position as now emerging and make suitable adjustments.

The project envisages appointment of Short Term Consultants to further the process of adoptation of Technology. It is however not clear from the Report as to whether

the consultants will be Swedish, Indian or of some other nationality.

It is now well accepted that consultancy services in India have developed to an extremely competent level.* One report in the prestigeous American Magazine "Scientific America" refers to Bangalore as "bank of tomorrow's technology" and the "Scientific Capital of India" (vide its August '82 issue).

Considering the emphasis of this project on "adoptation" of technology and the competence of consultancy firms based in Bangalore possibilities of enrolling Consultancy Firms in Bangalore for the assignment could be explored. Needless to add that it will be easier to contain the project costs within the original estimates if Indian Consultancy Organisations are engaged rather than otherwise. Of the three categories for which Consultants are to be appointed (Engineering, Electrical and Wood working), probably one could be Swedish and the other two, Indian and Bangalore based.

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* Sri Ashok Parthasarathy "India's efforts to build an autonomous capacity in Science and Technology for Development" - Development Dialogue, No.1 1979 PP 58-59

PART - VIII

SUPPORTIVE SERVICES

It may be noted that there are number of service organisations in Sweden which could be very helpful in the programme for transfer of technology.

As indicated earlier the Swedish Government have been very enthusiastic about active support to projects involving technology collaborations. The Swedish Government have established Swedfund - an independent foundation with an authorised capital of Swedish Kronor 100 million and is empowered to borrow three times its paid up capital against government guarantees. Swedfund helps as contact broker between interested parties in developing countries and Swedish business community. Apart from helping finance feasibility studies Swedfund also contributes by way of equity and loans to joint ventures between partners in developing countries and Swedish enterprises. Swedfund pays special attention to Projects involving transfer of technology.

There are large number of Consulting Engineers, and the same are listed out at Annexure-VI. Similarly there are a number of International financial Advisers and Managerial Consultants vide Annexure-VII.

There are as many as seven patent brokers and licensors vide Annexure-VIII. These lists are indicative and not exhaustive.

It is also necessary to mention that the Swedish Trade Council is particularly interested in technical collaboration programmes. The Swedish Trade Council has been established to assist companies, organisations and authorities in foreign countries to establish contact with appropriate Swedish suppliers. The Swedish Trade Council has Trade Commissioners in 30 countries. The Council could be particularly helpful in ironing out licencing agreements.

ANNEXURE-I

LIST OF UNITS VISITED BY HANNEL'S MISSION

1. M/s. Klas Engineering Pvt. Ltd.,
   31, First Block East,
   Jayanagar,
   Bangalore-560 011.

2. M/s. Tocol Enterprises,
   B-5, Jai Bharath Industrial Estate,
   Yeshwanthapur,
   Bangalore-560 022.

3. M/s. Tool Craft,
   A-5, HMT Industrial Estate,
   Bangalore-560 031.

4. M/s. Vishnu Forge Pvt. Ltd.,
   Subroto Mukherji Road,
   Jalahalli West,
   Bangalore-560 015.

5. M/s. Swarna Electricals,
   14, Subbarama Chetty Road,
   Bangalore-560 004.

6. M/s. Madras Dial Guages & Measuring
   Instruments Co.,
   54/2, Mahadevapura, Whitefield,
   Bangalore-560 048.

7. M/s. Maini Precision Products Pvt. Ltd.,
   B-59, Industrial Estate,
   Bangalore- 560 058.

8. M/s. Mini Forge Pvt. Ltd.,
   A-9, Peenya Industrial Estate,
   Bangalore-560 058.

9. M/s. Fine Crafts,
   6, Govinda Rao Road,
   Kumarapark West,
   Bangalore-560 020.

10. M/s. Sonalkar Tool Works Pvt. Ltd.,
    Industrial Estate,
    Harihar-577 602.

11. M/s. BDK Valves Limited,
N-4, Industrial Estate,
Gokul Road,
Hubli-580 030.

12. M/s. Elmeca Works,
Behind Railway Station,
Dharwar-580 007.

13. M/s. Prakash Home Industries,
Udyambagh,
Belgaum-590 008.

14. M/s. Standard Hydraulic (India),
C-10, Industrial Estate,
Belgaum-590 008.

15. M/s. Maroli Meters Pvt. Ltd.,
B-112, Industrial Estate,
Rajajinagar,
Bangalore-560 044.

16. M/s. R.C. Industries,
B-46, Industrial Estate,
Rajajinagar,
Bangalore-560 044.

17. M/s. RK Engineering Enterprises,
B-86, Industrial Estate,
Rajajinagar,
Bangalore-560 044.

18. M/s. RK Foundry & Engineering Works,
SB-164, Industrial Estate,
Peenya I Stage,
Bangalore-560 058.

19. M/s. Unik Enterprises,
A-45, Industrial Estate,
Peenya II Stage,
Bangalore-560 058.

20. M/s. Jalihal's Knitting Works,
Shahapur,
Belgaum-590 003.

ANNEXURE - II

COMPANIES SPECIALISED IN DROP FORGINGS

1. M/s. K.A. Bergs Smide AB
PO Box 98, S-360 32 Gemla

Established: 1868

Capital : 1,000,000 Kronors

Turnover : 20,000,000 Kronors

Manufacturers of Hooks for loading, hoists and slings, Forgings 0.5-15 Kg., Safety coupling links

2. M/s. AB Bofors,
Steel Division,
Box 700, S-690 20, Bofors

Established: 1873

Employment : 2700

Manufacturers of Wear parts for the construction, mining and cement industries, Rolls for cold and hot mills, Drop forgings, Press and Hammer forgings, steel castings, Heat treatment services, metallurgical know-how in the special steel field.

3. M/s. Wirsbo Bruks AB,
S-730 61 Virsbo

Established: 1620

Employment : 1500

Turnover : 600,000,000 Kronors

Manufacturers of Electric welded pipes, soft steel tubes, tubular and wrought iron fittings, forged flanges crosslinked polyethylene, pipes, drop forgings, copper tubes.

ANNEXURE-III

LIST OF MATCHING UNITS SELECTED BY SHRI. SHIVASHANKAR

NAME OF THE FIRM	ITEMS IDENTIFIED
1. AB Bofors UVA, 16131, Bromma, Johannesfredsvagen 15/17	Internal Grinding Machine
2. Diamantprodukter AB, 12653, Hagresten, Jakobsdalsvagen	Ultrosonic system for finishing and polishing
3. DoALL Company AB, Box 18, S-14301 Varby 1	Copy Milling Machine
4. Jugner Instrument AB, 17125 Solna, Box 1295	Sharpening Machine
5. SAJO AB, Box 403, S-33101 Varnamo	Copying Milling Machine
6. Storebro Bruks AB, S-59083 Storebro. Sverige	NC Lathes
7. AB Torshallamaskiner, PO Box 33, S-64400 Toshalla	NC Lathe Copying Milling Mc
8. Wedevag International AB S-71102 Vedevag	Twist drill grinding machine
9. SPv AB Svenska Precisionvercktyg, Planiavagen 32 Fack, S-131 02 Nacka	Accessories for Drilling
10. Eminent Tool AB, Box 404 S-631 06 Eskilstuna	Quick change chucks and quick lock tooling system
11. Oberg Machine Company Box 1 S-631 Eskilstuna	High frequency grinding spindles

12.	Systems 3R International AB Sorterargatan 1 Vallingby	Accessories for EDM
13.	Arbogs - Systems AB Abroga Mekaniska Verkstad	Automation Systems for machine tools
14.	ASEA AB Electronics Division, 72183 Vasteras	Programming system for machine tools
15.	Facit AB Dataproduketr, 10545 Stockholm	Programming system for machine tools
16.	Johansson CE AB 613105 Eskilstuna	Electronic measuring instruments
17.	AB ATEW BOX 125, S-642 00 Flen	Electronic systems for Indl. application
18.	SAIT Electronik AB Box 32 006 S-126 Stockholm	N.C Systems for machine tools
19.	SAAB SCANIA AB S-581 88 Linkping	N.C Systems for machine tools.

ANNEXURE - IV

LIST OF UNITS IDENTIFIED IN THE MACHINE TOOLS CATEGORY

I. Tool Craft:

1. M/s. Luna AB
Goteborgsvagen 16
S-441 80 Alingsas

Est: 1917
Cap: Kr. 10,000,000
Employment: 425
Turnover: Kr. 392,000,000

Manufacturers of Sheet Metal working machines, Numerically controlled lathes etc.

2. M/s. SMT PULLMAX
Marieholmsgatan 10
Fack S-401 10 Goteborg

Est: 1969
Cap: Kr. 40,000,000
Employment; 1,100
Turnover: Kr.300,000,000

Manufacturers of machine tools, metalfabricating machines, machinery for ship-building and heavy plate bending and forming.

3. M/s. Storebro Bruks Aktiebolag,
S-590 82 Storebro

Est:1728
Cap: Kr. 2,000,000
Employment: 525
Turnover: Kr. 75,000,000

Manufacturers of High Speed lathes, numerically controlled lathes, milling machines, grinding machines etc.

4. M/s. AB Torshallamaskiner,
S-644 00 Torshalla

Cap: Kr. 200,000
Employment: 100
Turnover: Kr. 30,000,000

Manufacturers of High speed lathes numerically controlled lathes, N/C milling and drilling machines

5. M/s AB Arboga Maskiner
Norra Agatan 3 S-732 00 Arboga

Est: 1932
Cap: Kr. 1,000,000
Employment: 111
Turnover: Kr. 30,000,000

Manufacturers of special purpose drilling machines etc.

6. M/s. Arneco Parts AB,
Kringelvagen P.O Box 34
S-281 01 Hassleholm

Employment: 600
Turnover: Kr. 100,000,000

Manufacturer of special purpose machinery such as tube bending, transfer and automatic drilling machines, moulds, press and die tools

7. M/s. Solberga Mekaniska Verkstads AB
Solberga, S-571 00 Nassjo

Est: 1900
Capital : Kr. 475,000
Employment: 40
Turnover: 7,500,000

Manufacturer of metal drilling machines, multiple spindle drilling machines, drilling heads, special machines for drilling and tapping operations, numerically controlled drilling machines & wood turning tables.

8. M/s. Varnamo Maskin AB,
PO Box 2204, S-331 02 Varnamo

Est: 1916
Cap: Kr. 867,200
Employment: 140
Turnover: Kr. 20,000,000

Manufacturers of milling machines

9. M/s. Elof Hansson,
S-413 27 Goteborg

Est: 1897
Employment: 500
Turnover: 2,075,000,000

Manufacturers of numerically controlled milling machines.

10. M/s. AB Sajo,
S-331 01 Varnamo

Est: 1916
Cap: Kr. 2,978,000
Employment: 375
Turnover: 75,000,000

Manufacturers of numerically controlled milling machines.

II. M/s. Tocol Enterprises:

1. M/s. AB JE Bergstrom
S. Bangatan 15 S-710 40 Frovi

Est: 1944
Cap: Kr. 116,000
Employment 22
Turnover: Kr. 3,100,000

Manufacturers of quick-change tool holders, indexing tables.

2. M/s. Demanders Verktygsfabrik AB
Smedjegatan 3 PO Box 21
S-570 80 Virserum

Est: 1933
Cap: Kr. 50,000
Employment: 50
Turnover: Kr. 6,000,000

Manufacturers of milling tables, level and rotary milling tables, machine vices, drill vices, surface grinder.

3. M/s. Palmstiernas Mekaniska Verkstad AB,
Dobelnsgatan 34, S-113 52 Stockholm

Est: 1938
Employment: 25

Manufacturers of lathe centres, pneumatic positioners

4. M/s. Varnamo Maskin AB,
PO Box 2204, S-331 02 Varnamo

Est: 1916
Cap: Kr. 867,200
Employment: 140
Turnover: Kr.20,000,000

Manufacturers of milling machines

III. M/s. Elmeca:

1. M/s. Elof Hansson,
   Forsta Langgatan 19-21,
   S-413 27 Goteborg

   Est: 1897
   Employment: 500
   Turnover: Kr. 2,075,000,000

   Manufacturers of QUICK CHANGE CHUCKS

IV. M/s. Prakash Home Industries:

1. M/s. G&L Beijer AB,
   Norra Vallgatan 70
   PO Box 325 S-201 23 Malmo

   Est: 1866
   Cap: Kr. 10,212,000
   Employment: 363 (Group)
   Turnover Kr. 497,000,000

   Exporters of machinery and tools
   High speed lathes

2. M/s. Elof Hansson,
   Forsta Langgatan 19-21
   S-413 27 Goteborg

3. M/s. Ingeniorsfirman Lundwall & Co. AB
   Frofastegatan 31 S-421 31 Vastra Frolunda

   Est: 1942
   Cap: Kr. 100,000
   Employment: 30
   Turnover: Kr. 30,000,000

   Manufacturers: metal and wood working
   machines, machine tools, tools.

4. M/s. Luna AB,
   Goteborgsvagen 16
   S-441 80 Alingsas

5. M/s. O.Chr. Olsen & Co. AB
   S.Larmgatan 6,
   S-411 16 Goteborg

   Est: 1909

   Manufacturers of metal drilling machines

6. M/s. Storebro Bruks Aktiebolag,
   S-590 82 Storebro

7. M/s. Swedish Tool AB,
   Hantverkarvagen 7
   S-183 66 Taby (Stockholm)

   Est: 1953
   Cap: Kr 400,000
   Turnover: Kr.16,000,000

   Manufacturers of machine tools, sheet metal working machines, industrial equipment.

8. M/s. AB Torshallamaskiner
   Eskilstunavagen 16
   PO Box 33 S-644 00
   Torshall

   Manufacturers of High speed lathes automatic case lathes, N/C lathes, N/C Milling and Drilling machines

V. M/s. Sonalkan Tool Works:

1. M/s. Elof Hansson,
   Forsta Langgatan 19-21,
   S-413 27 Goteborg

   Est: 1897
   Employment: 500
   Turnover: 2,075,000,000

   Manufacturer of lathe chucks

2. M/s. Ingeniorsfirman Lundwall & Co. AB,
   Frofastegatan 31 S-421 31,
   Vastra Frolunda

3. M/s. Erik Lundh AB,
   Stockholm

   Manufacturers of Lathe chucks

4. M/s. O.Chr. Olsen & Co. AB,
   S. Larmgatan 6
   S-411 16 Goteborg

   Manufacturers of Metal drilling machines.

ANNEXURE-V

STATEMENT INDICATING SWEDISH COLLABORATIONS IN INDIA

Sl. No.	Name of the unit	Name of the Swedish Collaborator	Nature of Collaboration	Items manufactured
1	2	3	4	5
1.	ASEA Limited	ASEA AB	Technical know-how agreement	Electronic control, Proection relays and Auxiliary relays.
2.	Associated Bearing Co., Ltd.,	Aktiebolaget SKF	Technical and financial with AB SKF	Ball and taper roller bearings and pendulum weighting arms PK 225.
3.	Atlas Copco (India) Limited	Atlas Copco MCT AB	Technical	Aqua rigs and mechanised drilling equipment
4.	Bharat Heavy Plate & Vessels Limited	Kamyr AB	Technical	Continuous Sulphate cooking plants

1	2	3	4	5
5.	Bharat Heavy Electricals Limited	ASEA AB	-	Exclusive right to manufacture oil minimum circuit breakers in the range 60-420 KV.
6.	Bharat Heavy Electricals Limited	AB Svenska Flaktfabriken	Licence agreement	Electrostatic precipitators
7.	Blanden Cole Division of Chemaux Limited	AB Roserblads Patenter	Know-how and payment of 5% royalty on ex-works price	Black liquor evaporators for kraft pulp mills
8.	Carter-Wallace Limited	Pharmacia AB	Technical know-how for manufacture of Sensival and Salazopyrin	Sensival Salazopyrin
9.	Cosme Farma Laboratories	Astra Pharmaceuticals AE	Technical know-how (Iron Sorbitol Injections)	Jectofer
10.	Electromobiles (India) Limited	Ortenheim Innomarketing AB	Technical	Electrically driven 2-wheeler and 3-wheeler, indoor as well as outdoor vehicles

1	2	3	4	5
11.	Elof Hansson (India) Private Limited	Elof Hansson	-	Paper machinery, spares, equipment, felts and wires for paper industry, laboratory instruments, wood pulp
12.	Ericsson India Limited	Telefonaktie-bolaget LM Ericsson	Agency and technical agreement of various products	Defence electronic equipment, Cable terminal boxes, Signalling transformer.
13.	Facit Asia Limited	Facit AB	Technical and financial	Standard typewriters
14.	IDL Chemicals Ltd.,	Nitro Nobel AB	Financial and technical	Explosives & accessories
15.	Indian Drugs and Pharmaceuticals Limited	AB Bofors	Technical	Methyl ethyl pyridine Nicotine acid Niacinamide
16.	Jessop & Co., Ltd.,	AB Hagglund & Soner	Technical know-how	Single & Twin electro-hydraulic deck cranes
17.	Kanthal India Ltd.,	Bulten-Kanthal AB	Equity participation	High resistance electrical wires & strips & precision investment castings

1	2	3	4	5
18.	KMW-Johnson Limited	AB Karlstads Mekaniska Werkstad and A.Johnson and Company HAB	Equity participation	Machinery and equipment for pulp & paper industry, Water turbine equipment, stainless steel, ships propellers
19.	Modi Arc Electrodes Company	ESAB AB	Technical know-how	Stick welding electrodes
20.	Rollatainers Limited	ESSELTEPAC AB	Technical know-how	Special lined CEKA cartons, CEKA Packaging machinery
21.	Sandvik Asia Limited	Sandvik Aktiebolag	Technical	Tungsten carbide products, integral rock drill steels, Tools-tungsten carbide tipped, Sandvik Coromant tools, Hydrogen gas
22.	SF India Limited	AB Svenska Flaktfabriken	Manufacturing & technical assitance	Air pollution control equipment, industrial fans, Industrial drying, Industrial ventilation and air conditioning systems,

1	2	3	4	5
23.	Siporex India Limited	Internationella Siporex AB	Technical and financial	Prefabricated light-weight cellular building components such as slabs, blocks, lintels.
24.	Skefko India Bearing Co., Ltd.,	The company does not have any technical collaboration. The company was a wholly owned subsidiary of Aktiebolaget SKF, Sweden.	-	-
25.	Snap-Tap Machine Accessories (India) Pvt. Ltd.,	Bohannan & Schmidt Tool Co.,	Manufacturing as per drawings	Snap-Tap thread cutting
26.	The Standard Batteries Ltd.,	AB ESB-Tudor	Technical know-how	Marine duty special cells
27.	Steel & Allied Products Ltd.,	Sandvik AB	Technical know-how	Hacksaw Blades and wood working saws
28.	Asia Navigation Aids Pvt. Ltd.,	AGA Navigation Aids Limited	Association	Navigational aids equipment

1	2	3	4	5
29.	Stone Platt Electrical (India) Limited	SAB Industri AB	Licence Agreement	Brake Regulator, Load brake regulator
30.	Tak Machinery Limited	SMT-Pullmax AB	Technical know-how	Guillotine shears and press brakes
31.	Tega India Limited	Skega AB	Technical know-how	Specialised wear resistant rubber components and specialised moulded wear resistant products
32.	Universal Cables Limited	ASEA Kabel AB	Technical know-how	Cross-linked polyethylene power cables
33.	Vulcan-Laval Limited	Swedish Match Company and Alfa-Laval AB	Technical	Manufacture of leather tanning and finishing machinery, foundry machinery and hydraulic presses
34.	Wimco Limited	Swedish Match Company	Holding equity capital of the face value of Rs. 33,375,800	-

LIST OF CONSULTING ENGINEERS: ANNEXURE-VI

1. AVB (Armerad Betong Vagforbattringar AB) Stockholm.
2. AIB, Stockholm.
3. Almquist & Partners, International Management Services AB, Stockholm.
4. Paul Anderson Industrier AB, Vasteras
5. AB ATEW, Flen.
6. BPA Byggproduktion AB, Stockholm
7. BSK BS Konsult AB, Stockholm.
8. Celpap Engineering, Norrkoping.
9. CEPRO AB, Consultants for Economical Production, Stockholm.
10. Coordinator Arkitekter AB, Stockholm.
11. Ekstroms Varmetekniska AB, Skarholmen
12. AB Energikonsult, Stockholm.
13. Hagconsult AB, Stockholm
14. Gotaverken Arendal AB, Goteborg
15. IMACO, International Management and Consulting AB, Taby
16. Internationella Siporex AB, Malmo
17. AB Jacobson & Widmark, Lidingo
18. Johnson Construction Company AB, Solna
19. Tekn.dr Arne JOHNSON Ingenjorsbyra ab, Stockholm
20. K-Konsult, Stockholm.

21. Kahrs Maskiner AB, Nybro.

22. Kjessler & Mannerstrale AB (KM), Stockholm.

23. Ake Larson Byggare AB, Stockholm.

24. LE Mangusson Arikitekt AB, Malmo

25. John Mattson Byggnads AB, Stockholm.

26. Mekaniska Provningsanstalten Tom.

27. Nordensson AB, Stockholm.

28. Mercator International Group AB, Stockholm.

29. Necco, AB, Stockholm.

30. Nitro Consult AB, Stockholm.

31. Jakko Poyry Ingenjorsbyra AB, Lidingo.

32. SCAAN Consultants, Swedish Civilengineers and Architects Corporation AB, Stockholm.

33. Scandiaconsult International AB, Stockholm

34. SENTAB, Danderyd.

35. S TI[illegible], Maskin AB, Vallentuna.

36. AB Sveriges Tekniska Kontrollinstitut, Sollentuna.

37. SWECO AB, Stockholm.

38. AB Teleplan, Solna.

39. TGB Tung Geoteknisk Borrning AB, Grabo.

40. Transelectric AB, Stockholm.

41. Tyrens Foretagsgrupp AB, Stockholm.

42. AB Uniconsult, Stockholm.

43. VBB AB, Stockholm (Member of the SWECO Group).

44. Viak AB, Vallingby.

45. Wilkstrom International AB, Stockholm.

46. Woodconsult Ltd., AB, Goteborg.

47. WP-SYSTEM AB, Stockholm.

ANNEXURE-VII

LIST OF FINANCIAL ADVISERS AND MANAGERIAL CONSULTANTS

FINANCIAL ADVISORS:

1. Aktiv Foretagsledning AB, Malmo
2. Almquist & Partners, International Management Services, AB, Stockholm
3. AR-bolaget, Stockholm
4. Brokonsult AB, Taby
5. CEPRO AB, Consultants for Economical Product on, Stockholm
6. The Consultants for **Trade and Industry** (CTI), Stockholm
7. Ekonomisk Foretagsledning (EF) AB, Stockholm
8. International Financial Advisers (IFA), Malmo
9. AB Jacobson & Widmark, Lidingo
10. AB Saljkonsult Borje Lindberg, Stockholm
11. Scandiaconsult International AB, Stockholm
12. SWECO AB, Stockholm
13. Swedish Telecoms International AB (Swedtel), Farsta
14. VBB AB, Stockholm
15. Viak AB, Valling'y

MANAGEMENT CONSULTANTS:

1. Aktiv Foretagsledning AB, Malmo
2. Almquist & Partners, Stockholm

3. AR-Bolaget, Stockholm
4. Bjorklund & Sandholm AB, Djursholm
5. Bohlin & Stromberg AB, Solna
6. CEPRO AB, Stockholm
7. The Consultants for Trade & Industry, Stockholm
8. Ekonomisk Foretagsledning (EF) AB, Stockholm
9. Hifab International AB, Stockholm
10. AB Saljkonsult Borje Lindberg, Stockholm
11. Scandiaconsult International AB, Stockholm
12. SWECO AB, Stockholm
13. Swedish Telecoms International AB (Swedtel), Farsta
14. Tyrens Foretagsgrupp AB, Stockholm
15. AB Uniconsult, Stockholm
16. VBB, AB, Stockholm

ANNEXURE-VIII

LIST OF PATENT BROKERS AND LICENSORS

PATENT BROKERS:

1. The Consultants for Trade and Industry (CTI), Stockholm.
2. Marubeni Scandinavia AB, Stockholm.
3. Mercator International Group AB, Stockholm.
4. PLM, Malmo.
5. AB Saljkonsult Borje Lindberg, Stockholm.
6. Scanpile AB, Halmstad.

LICENSORS:

1. A-Betong/Sabema, Vzxjo
2. International Coating Products AB, Taby
3. Internationella Siporex AB, Malmo
4. Kahrs Maskiner AB, Nybro
5. LKAB International AB, Stockholm
6. AB Milkfood, Kagerod,
7. Molnlycke AB, Goteborg
8. Nord Steelex AB, Stockholm
9. PLM, Malmo
10. Scanpile AB, Halmstad
11. AB Strangbetong, Stockholm.
12. Svenkst Stal Mining Division, Grangesberg
13. AB TRYCKROR, Malmo
14. Vyrmetoder AB, Taby

PATENT, KNOW-HOW AND LICENSING BROKERS:

1. Ekonomisk Foretagsledning (EF) AB, Stockholm
2. NEWTECH AB, Stockholm
3. AB Saljkonsult Borje Lindberg, Stockholm.