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**The Execution of Services Related to High-Level Advisory
Assistance on Converting a Former Military Enterprise into a
Wheelchair Manufacturing Facility.**

Final Report

**Project SI/USR/92/801
Contract 93/055**

ARCTIS contact person: Mr.Guennadi Belik. Vice-President

St.Petersburg, Russia

Table of Contents

	Page
Introduction	1
The activity of ARCTIS. UNIDO Subcontract No 93/055/VK	
1. Selection of a Russian partner for the project	2
2. Assistance to UNIDO experts	2
3. Human resources	4
4. Basics of the Kirovski Zavod	5
5. Economic Situation in St.Petersburg	6
Annex 1. A letter of Deputy Mayor of St.Petersburg Mr.V.Putin to Prime-Minister of Sweden Mr.Bildt (English translation)	
Annex 2. Study Tour Nomination Forms	
Annex 3. Study Tour Final Report	

St.Petersburg. Russia

Introduction

UNIDO Project SI/USR/92/801

In 1991 according to the Conversion Through Enterprise Development Program (CTED) developed by UNIDO, a company ARCTIS was set up in cooperation with the St.Petersburg city authorities. One of the objectives of the company is attracting foreign investments to the conversion sector of the military-industrial complex of St.Petersburg.

In the stream of this activity in of 1992 UNIDO initiated the project of providing high-level advisory assistance to one of the St.Petersburg enterprises in settling-up a wheelchair manufacturing.

In the framework of implementation of this project two UNIDO experts were sent to St.Petersburg: Mr. Tord Larsson, an international consultant in wheelchair manufacturing, and Mr. Heinz Semerad, an international consultant in industrial restructuring and business creation. They performed the evaluation of industrial and human potential of the Kirovski Zavod, which was proposed by ARCTIS as a company for project implementation. Their work ended with the pre-feasibility study, in which the positive conclusion regarding existing favourable conditions for the project implementation at this plant was made. The experts also formulated recommendations for restructuring of the Kirovski Zavod and steps necessary for successful project implementation. ARCTIS have provided the necessary consulting and organizational assistance to the experts.

Conclusion.

The fulfillment of the UNIDO project SI/USR/92/801 task has shown that the concept of CTED Program as applied to the conversion sector of the military-industrial complex in St.Petersburg is correct and justified. The idea of the development of small and medium-sized businesses at former military-industrial enterprises finds support and approval by both industrial managers and the city authorities. The fact confirming this is the consent of the city authorities and the top management of the Kirovski Zavod to set up the Industrial Park for small and medium-sized businesses with foreign partners within the territory of the Kirovski Zavod. Due to the efforts of the UNIDO experts and the project backstopping officer Prof. Mikhail Boutoussov and ARCTIS the main objectives of the first stage of the project have been reached: the information of UN experts concerning the great demand of high-quality and relatively inexpensive wheelchairs in the Russian market has been confirmed. This is why setting-up of one more wheelchair manufacturing facility in Russia is needed. It was found that technological and human potential of the Kirovski Zavod enables to organize this type of manufacturing. A new factory will use only Russian raw materials and components, which is a very important cost-reducing factor. Considering the fact that the conversion sector of the local military-industrial complex possesses large surpluses of titanium it is possible to make a conclusion that in the future some wheelchairs could be made of titanium. That would increase the potential of export of these wheelchairs to developed Western countries, although mostly they will be exported to developing countries.

Preliminary calculations of experts have shown high cost-effectiveness of planned manufacturing, which makes the project attractive for private investors. The Kirovski Zavod is very interested in further cooperation in this project with both UNIDO and one of the Western companies which has the modern technology of wheelchair manufacturing and is able to invest sufficiently in the project (minimum USD 4 mln). The Swedish company ERACARE could become such partner. This company meets all requirements and has expressed readiness to participate in the project. Although, to ARCTIS opinion, this company would need the UNIDO support, while searching financing for the second stage of the project (preparation of the business-plan, provision of the investment loan). ARCTIS itself is ready to participate actively in the next stages of the project, provided this involvement is compensated adequately.

This report contains the information regarding the UNIDO sub-contract performed by ARCTIS. It also contains some additional data concerning the economic situation in the conversion sector of the military-industrial complex and the Kirovski Zavod.

The activity of ARCTIS. UNIDO Subcontract No 93/055/VK. Project SI/USR/92/801.

1. Selection of a Russian partner for the project.

According to the contract the ARCTIS role was to identify an enterprise within the military-industrial complex of St.Petersburg, which, in the framework of conversion of defense production, would be interested in setting-up the wheelchair manufacturing and which would have appropriate production facilities.

According to the recommendations made by the Committee for the Economic Development of the Mayor's Office of St.Petersburg five machine-building enterprises were studied: ARSENAL, Bolshevik, Metalliticheski Zavod, NITRANSMASH, Kirovski Zavod.

A plant that has met the strict criteria (optimal size of required investments, available infrastructure, experience in large-scale manufacturing of wheeled techniques, highly qualified personnel) is the Kirovski Zavod Joint-Stock Company. This enterprise used to be one of the world's most famous manufacturers of tanks before 1989. Currently the total conversion of the defense-orientated manufacturing is being performed. The project of wheelchair manufacturing completely fits into the concept of plant's conversion and therefore the top management of the company expressed the will to implement this project.

The decision of opting out for the Kirovski Zavod was made for the following reasons: this is one of the most well-known and respectable enterprises in Russia; successful implementation of the project would gain good publicity in the country and demonstrate efficiency of efforts of UNIDO as regards to assistance in conversion process in Russia; Kirovski enjoys the support of the Russian Government and city authorities of St.Petersburg, which would help draw the attention of Western investors to the participation in the project.

2. Assistance to UNIDO experts.

ARCTIS assisted UNIDO experts (Mr.T.Larsson and Mr. H.Semerad) who, while being in St.Petersburg were gathering and analysing information necessary for the project implementation. To assist the experts in a proper way ARCTIS has assigned two highly experienced Russian consultants (Mr.Lourier and Mr.Berezovski) who are familiar with both Kirovski Zavod and wheelchair manufacturing very well. Due to their efforts the actual evaluation of the situation was made rather fast.

The experts were acquainted with the technological and production potential of the plant, they were also shown the production areas on which the wheelchair manufacturing will be based.

In order to give the experts the possibility to familiarize themselves with the Russian market of wheelchairs and potential competitors, ARCTIS organized visits to two wheelchair factories: DAB International (St.Petersburg) and ATO STAWROWO (Vladimir Region).

Discussions with the management of those enterprises have assured that the decision taken by UNIDO regarding the organization of another wheelchair plant in Russia is correct. Calculations have shown that even though the first two factories start producing full volume of wheelchairs (50,000 a year) the Russian market would be far from saturation. Besides, provided the type of a wheelchair and technology are chosen correctly, the new plant would acquire advantageous position in the Russian market.

ARCTIS have also sent its experts (Lourier and Shamilov) to Kharkov, Ukraine and Riga, Latvia to study the experience in bicycle manufacturing which we believe would be useful for wheelchair manufacturing.

Consultants from ARCTIS have also visited the Central R&D Institute of Structural Materials Prometey, Central R&D Institute of Materials, Kransniy Treugolnik (all St.Petersburg), Electropribor in Pskov. This has let us be sure of possibility of using only Russian raw materials and components for manufacturing of wheelchairs. All information gathered is submitted to UNIDO experts H.Semerad and T.Larsson and will be used for the feasibility study at the next stage of the project.

Meetings with Mr.P.Semenenko, Director General of the Kirovski Zavod and Mr. Krikunov, Technical Director have been organized. The two gentlemen confirmed the readiness of the plant to participate in the implementation of the project of UNIDO. As the plant authorities believe, setting-up of wheelchair manufacturing would speed-up conversion process, increase efficiency of utilization of available potentials. Simultaneously, the interest in cooperation with one of the Western partners-wheelchair manufacturer has been shown. That would increase the competitiveness of the product as well as bring some Western management technologies. As a result of negotiations between the Kirovski Zavod and UNIDO experts a Letter of Intent was signed (see annex 1), in which the Kirovski Zavod takes the responsibility for providing necessary industrial areas, while the consulting group of UNIDO will select sponsors and partners for planned joint ventures. Taking into account actual production capacities of the Kirovski Zavod, in order to create more flexible and efficient infrastructure, the UNIDO experts recommended to reject the idea of setting-up a big enterprise, but to direct efforts towards establishing several smaller joint ventures associated by one technological chain (e.g. production of steel pipes, production of plastic items, assembly, wheelchair sales etc.). The authorities of the plant have agreed with this concept.

Understanding the importance of the support by the local city authorities, ARCTIS have organized meetings between key people of the Office of the Mayor (D.Sergeyev, Vice Mayor, Mr. Sobolev, Head, Department of Conversion of Military Enterprises, Mr.Naryshkin, Head, Department of Foreign Economic Activity, Prof.Kolbin, City Program of Free Economic Sub-Zones Principal). The negotiations ended with the expression of readiness of the local authorities to support the participants of the project in every possible way. Specifically, the Office of the Mayor will entitle the future joint venture to enjoy some tax reductions.

In April, 1993, the Director General of the Swedish Nordic Technology Transfer Center, Mr. Hans Langenskiöld, visited St. Petersburg along with Mr. Tord Larsson. They negotiated with Mr. Sergeyev and Mr. Krikunov, which resulted in agreements regarding the following:

- the Swedish ERACARE company will become a Western partner in a wheelchair joint venture and bring in all necessary technologies along with assistance in setting-up production on a modern level;

- The Industrial Park for small and medium-sized enterprises based on the Kirovski Plant will be organized as a joint venture with Swedish shareholders;

- Nordic Technology Transfer is ready to assist in Swedish investors search and provide support of the Swedish Government;

- The Office of the Mayor will study opportunities of giving the Industrial Park the status of the Free Enterprise Zone, which increases the interest of Swedish investors;

- The Kirovski Zavod expressed its will to bear 50% of expenses associated with putting up of a business plan, provided the Swedish side finds necessary amounts to compensate the work of experts from ARCTIS;

- Establishing of the Industrial Park will be done under the auspices of UNIDO.

Further to these agreements ARCTIS have got in contact with the Consulate General of Sweden in St.Petersburg and acquired support for the Industrial Park project. As it was coordinated with the Consulate General of Sweden, the executing Mayor Mr.Putin has sent a letter (Annex 2) to the Prime Minister of Sweden Mr.Bildt. This letter contains the request of support of Swedish companies willing to participate in the Industrial Park project.

During the visit to Sweden, Mayor Sobchak discussed possibilities of participation of Swedish entrepreneurs and banks in investment projects in St.Petersburg with Prime Minister Bildt, specifically, in wheelchair manufacturing and Industrial Park. The reaction of the Swedish side has been positive. Nevertheless, active involvement of UNIDO concerning the attraction of Swedish investors to the project or search of alternative sources of financing will be needed. At the final stage of work of UNIDO experts ARCTIS assisted them in prefeasibility study work. This document was submitted to UNIDO as specified in the respective contract.

3.Human resources.

The Kirovski Zavod employs many highly-skilled workers, which is particularly stipulated by the existence of own efficient training center. High level of salaries in the military-industrial complex has enabled to hire the most talented engineers and managers. It used to provide high technological level of manufacturing and production of military items of rather high quality.

ARCTIS had to select the core managerial team (General Manager and Production Manager). According to the opinion of UNIDO experts candidates had to fit into the following criteria:

Candidates should be:

- English speaking
- good team player and leader
- understanding manufacturing process and the need of the end user
- understanding the product concept
- market orientated
- willing to work in a horizontal organization
- understanding economical production and marketing
- quality and service orientated

The selection of candidates was performed in cooperation with the administration of the Kirovski Zavod with the use of modern personnel recruitment technology. Six candidates have been interviewed. Out of them Mr.Alexander Philippov and Mr. Valeriy Berezovski were chosen for positions of General Manager and Production Manager respectively. For detailed information about them please see the enclosed Study Tour Nomination Form.

Mr.Philippov and Mr.Berezovski visited Sweden from Sept.24 to Oct.8 on a training tour which was aimed at getting familiar with the Swedish experience in small and medium-size enterprises, visiting companies and organizations involved in wheelchair manufacturing and rehabilitation of disabled, getting in closer contact with ERACARE. Please find enclosed the report of the trainees. The results of the training tour were reported to the administration of the Kirovski Zavod and approved.

ARCTIS should express a special gratitude to Mr.Tord Larsson for excellently organized training program.

4. Basics of the Kirovski Zavod

Established in 1801, Kirovski Zavod is one of the oldest and most well-known plants in Russia. Before 1989 is used to be one of the major manufacturers of tanks and other military machinery. Afterwards, as defense conversion started, the plant faced some substantial difficulties, including social tension caused by possibilities of massive dismissals or professional re-orientation of employees.

According to estimations of Russian experts, the plant has passed the peak of a crisis in 1992 and currently the situation is improving. The military production has been completely ceased, while the production of civilian goods is being increased. Due to the lack of enough of own money for financing and at the same time the will to increase the weight of production for export, the administration is actively working on establishing contacts with Western companies and organizing joint ventures. Besides high technological and manufacturing potential, the plant possesses well developed infrastructure including port facilities and a railroad, which makes the company a very prospective partner for Westerners.

4.1 Major fields of activity.

The Kirovski Zavod JSC consists of 5 major plants:

- tractor
- steelrolling
- metallurgy-purveying
- special machine building
- power supplies machinery

and 57 independent self-paying departments. The majority of them are market-orientated working along the sequence of marketing, product development, purchase of raw materials, manufacturing, sales and service.

Currently 23,000 are employed at the Kirovski Zavod. Total area is 200 hectares in St. Petersburg and 1000 hectares (primarily test fields) in Gorelovo (close suburb of St. Petersburg). The sales volume in 1992 was 9.152.348 thousand roubles.

4.2 Privatization

The Kirovski Zavod Joint-Stock Company was registered on 5 November 1992 with the authorized capital of 1.086.534 thous. roubles. The number of stockholders is approx. 60thous. Shares are allotted as follows:

- 25% transferred to the employees for free
- 10% - the same but for 70% of the regular price
- 5% is the call option of the administration
- 12.4% is part earned by employees while working in a self-paying mode since Jan. 1.90
- 29% is being sold through the vaucher auction
- The rest have been sold through the investment auction on Sept. 20.93.

4.3 Main programs of new products development:

- k-20 minitractor
- feed-picking machines (together with Land-Technik, Germany)
- oil and gas exploration equipment. (together with Höglund, Sweden)
- modular power stations, gas pumping machines (Together with Dresser Inc. and Kanis Energie)
- manufacturing of cars and buses. An agreement with ALTRO, Austria on test-assembly of 10 cars has been signed. 5 cars already assembled.

- off-road cars. approximate cost: 15mln roubles. There is a contract for 200 to 300 armoured cars for collectors annually
- an agreement concerning set-up of a joint venture with Caterpillar was signed Jun.2.93
- an agreement with Otocumpu, Finland: rolled metal supplies
- an agreement with AEG etc: power equipment supplies
- a contract with Bombardier, Canada: joint manufacturing of trailers according to Canadian specifications.

5.Economic situation in St.Petersburg.

5.1 Industry

The number of employed in industry has dropped by 72 thousand people for the first half of the year. The total industrial production drop is 21%. Most noticeable decrease is in light and construction materials industry. The production of military items has also decreased along with the production of tractors, excavators, big electric machinery. At the same time dropping of production of consumer goods has slowed down. The volume of investments has decreased by 10%.

5.2 City infrastructure.

4,594 apartments have been built for the first six months. Dropped 4%. Average square meter is 54. Currently the city has 1,621 thousand telephone lines. This is quite better than in Russia at average. At the same time the city provides 13 thous new lines a year while 50 to 60 thous are demanded. 1.5mln sq.m of roads have been repaired. The city public transportation have carried 1.758 billion passengers. The Moskovsko-Petrogradskaya metro line is planned to be equipped with Matra traffic control system. A new thermal power station is being erected near St.Petersburg together with Siemens, Ivointernational, Polar.

5.3 Defense conversion.

Although this process is developing faster than in 1992 some substantial difficulties are encountered. Having received financing from the government last year, some enterprises have missed an opportunity to become market-orientated, spending the money for salaries and acquisition of items barely related to business development. Now, having no financing, they are facing strong difficulties and are scared by the perspective of bankruptcy. Meanwhile some enterprises like Arsenal, Signal and some others have managed to organize spin-off manufacturing of various items (including high-tech) that efficiently absorbs about two-thirds of their production capacities. Compared to the last year, managers of former military-industrial companies and institutes have acquired some knowledge of the market economy, which has helped them survive and start getting better. Another general and positive trend is that top managers of enterprises on one hand have acquainted with many Western businesses and are willing to cooperate actively, and on the other hand they have started re-evaluating their own potential so that they no longer give up their know-how as easily as in the recent past, though try to utilize what they have most efficiently, not concentrating on low-tech products, which give fast money but forever reduces the technological capabilities.

5.4 Privatization.

Privatisation of big enterprises. 317 enterprises are subjected to privatisation. 200 are to be transformed to joint-stock companies. 107 JSCs are already registered. Before July 151 companies, transformed to JSC have gone through voucher auctions. Privatization of small enterprises (stores, barber's etc.). Total number of small enterprises-4650.52% privatized which is substantially lower than in Moscow, where the percentage is 80. Generally 5064 state-owned enterprises exist in the city. 4480 of them have applied for the privatization. 95 applications of strategic and really military enterprises are rejected. 3052-already privatized, which is 66%.

Annex 1.

Dear Mr. Bildt,

Further to your visit to St.Petersburg and also to the visit of the Minister for European Affairs Mr. Ulf Dinkenspiel, I would like to inform you about the plans of establishing the Industrial Development Park in St.Petersburg and about the interest of the City authorities in cooperation with Sweden in this project.

The Russian side is ready to provide all necessary industrial areas and to cooperate with Swedish companies in setting-up the joint manufacturing of wheelchairs, which is placed within the territory of the Park.

The Office of the Mayor of St. Petersburg is ready to assist companies of the Park in all necessary ways to provide the success of the project.

We count on the support of Sweden in the business of establishing the Industrial Park in St.Petersburg, which would be an appreciable sign of the interest of your country in the problem of forming the Free Enterprise Zone in the Baltic Sea Region, to which you have shown so lively interest.

Simultaneously we intend to apply to UNIDO with proposal to support this project, because it seems to us to be very important to perform our joint activity under the umbrella of UN.

Using the occasion, I would like to express my respect and gratitude to you.

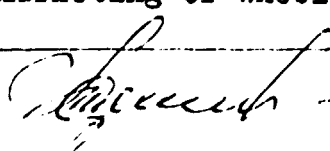

Sincerely yours,

Vladimir Putin
Executing Mayor of St.Petersburg

STUDY TOUR NOMINATION FORM

This form should be submitted through the Resident Representative of the UNDP to UNIDO

PLEASE PRINT OR TYPE

The Government of <u>the Russian Federation</u>		hereby nominates the candidate mentioned below for a study tour in the field of:	
(please fill in here desired field of study) <u>Wheel chair manufacturing</u>			
1. Candidate's Family name (surname) <u>FILIPPOV</u>		Other names <u>ALEXANDR</u>	
2. Sex <input checked="" type="checkbox"/> M <input type="checkbox"/> F			
3. Date of birth <u>26.08.1956</u>		4. Nationality <u>Russian</u>	
		5. (To be completed by UNIDO) Contract SA Substant SA Backstop Project No. <u>S1 UCR/97 301 32</u>	
6. Nom. Date DD MM YY			
7. Mailing address <u>198329, St. Petersburg, Partizana Germana street, 9-2-111</u>			
8. Education (highest degree(s) only)			
Name(s) of institution(s)		Place(s)	
<u>North-Western Polytechnical Institute</u>		<u>St. Petersburg</u>	
Years		Major field(s) of study	
<u>1975 - 1981</u>		<u>Mechanics</u>	
Degrees		Degrees	
<u>Diploma</u>		<u>University Lev.</u>	
9. Present position <u>Shop superintendant</u>			
Employer <u>KIROVSKY ZAVOD Joint-stock Company</u>			
10. Languages (Note: Foreign language certificate may be required)			
A. Mother tongue		B. Other languages	
<u>Russian</u>		<u>English</u>	
READ		WRITE	
Easily Not easily		Easily Not easily	
SPEAK		UNDERSTAND	
Fluently Not fluently		Easily Not easily	
11. Special qualification(s) experience with regard to desired field of study <u>Intensive course in management and marketing</u>			
12. Detailed subjects of interest within desired field of study (use extra sheet if so required) <u>Management under conditions of Western enterprise. Manufacturing, sales, marketing and advertizing of wheel chairs.</u>			
13. Countries and institutions firms to be visited (use extra sheet if so required) <u>ERACARE (SWEDEN)</u>			Proposed date(s) or duration <u>Two weeks</u>
* If you have already received information from institutions/firms that your visit is acceptable, please mark them with an "X" and attach copies of any related correspondence.			
14. Objectives expected benefit(s) of study tour <u>Obtaining Western experience in manufacturing, sales and marketing of wheel chairs.</u>			
Candidate's signature: 		Certifying Government official's signature: 	
CTA's signature (if applicable)		Title	
		Date	
(To be completed by UNIDO) Comments proposals (use extra sheet if so required)			B. Training Branch
A. Substantive Branch Section			Estim. max. cost
RECOMMENDED <input type="checkbox"/>			\$
NOT RECOMMENDED <input type="checkbox"/>			Plac. req. date
			DD MM YY
			___/___/___
Substantive officer Initials			



STUDY TOUR NOMINATION FORM

This form should be submitted through the Resident Representative of the UNDP to UNIDO

PLEASE PRINT OR TYPE

The Government of the Russian Federation hereby nominates the candidate mentioned below for a study tour in the field of _____
(please fill in here desired field of study)

1. Candidate's family name (surname) BERESOVSKI Other names VALERI Sex M

3. Date of birth 19.01.1973 4. Nationality Russian (To be completed by UNIDO) City/city SA Substant SA Backstop! Project No. 51 USR/92 801 32 Bull. DD MM YY

5. Mailing address 196070, St. Petersburg, Moscovski prospect, 161-58

6. Education (highest degree(s) only)
 Names of institutions St. Petersburg Institute of Civil Engineering Place(s) St. Petersburg Year(s) 1970 Major field(s) of study Civil Engineering Degree(s) Diploma, University Lev.

7. Present position Translation bureau manager Employer TRANSMASHPROEKT 1919-1988 COMPANY

8. Languages (Note: Foreign language certificate may be required)
 A. Mother tongue Russian
 B. Other languages English

	READ		WRITE		SPEAK		UNDERSTAND	
	Easily	Not easily	Easily	Not easily	Fluently	Not fluently	Easily	Not easily
A. Mother tongue								
B. Other languages	-		-					

9. Special qualifications/experience with regard to desired field of study Designing of enterprises involved in activity similar to field of study

10. Detailed subjects of interest within desired field of study (use extra sheet if so required)
Manufacturing, sales, marketing and advertizing of wheel chairs. Main principles of management under conditions of Western enterprise.

11. Countries and institutions/firms to be visited (use extra sheet if so required)* ERLANGEN (GERMANY) etc Proposed date(s) or duration Two weeks

* If you have already received confirmation from institutions/firms that your visit is acceptable, please mark them with an "X" and attach copies of any related correspondence.

12. Objectives/expected benefit(s) of study tour Obtaining Western experience in manufacturing, sales and marketing of wheel chairs.

Candidate's signature [Signature] (Certifying Government official's signature)
 CFV's signature (if applicable) _____ Title _____ Date _____

(To be completed by UNIDO) Comments/proposals (use extra sheet if so required)
 A. Substantive Branch/Section
 RECOMMENDED
 NOT RECOMMENDED

B. Training Branch
 Estim. max. cost \$ _____
 Place req. date DD MM YY _____
 Substantive officer Initials _____

Annex 3.

Project SI/USR/92/801
Study Tour Final Report

Prepared by the trainees:

Alexander Filippov
and
Valeri Berezovski

R E P O R T

**The study tour of Mr A. Filippov and Mr V. Berezovski,
representatives of the Kirovsky zavod joint-stock company to
Sweden. September 24- October 8, 1993.**

The study and information tour was supervised by Mr T. Larsson.

Objectives of training:

1. First-hand acquaintance with small and medium-sized enterprises involved in wheelchairs manufacturing. The role of small businesses in the present Western society.
2. Studying of Swedish experience in manufacturing, sales, marketing, investing, basic principles of management, selection of employees.
3. Technical requirements and specifications for wheelchairs and other aids.
4. Rehabilitation centers and the role they play in solving problems of disabled people.
5. Seeking of Swedish partners to finance the current project.

Objectives of the project:

To set up the joint venture producing wheelchairs at the Kirovsky zavod within the framework of conversion.

To consider the current project as a pilot one for further establishment of Industrial Park consisting of small and medium-size companies supported by UNIDO and private firms of Sweden.

In the course of training we have visited 18 companies and institutions participating both in the research of modern aids and manufacturing of components for wheelchairs. These firms are listed in Annex 1.

In fact all of the companies are small and medium-size enterprises employing from 4 to 180 people.

The companies are located within standard buildings. Basically, these are one-storied light-weight structures lined with up-to date finishing materials. The buildings have efficient interior design both for production and for office rooms. The sandwich structures being the most typical construction ensure the reliable heat insulation of enclosure. The companies form industrial parks which manufacture a great deal of products and offer all kinds of services.

The duration of turn-key development for such buildings range from 3 to 6 months depending on the general dimensions.

In spite of the small staff and probably owing to this factor the companies have significant capital turnovers. For instance, the annual output of TOBELA AB, Trelleborg (manufacturing the parts of powder painted tubes) comes to USD1.5 million. PRESTANDO AB, Trelleborg company (stamping parts including wheelchair components) employing 25 people has the output of about USD 4.5 million annually.

The high labor productivity as well as the top quality are guaranteed owing to highly developed process automatization, i.e. wide application of machinery with numerically-programmed control and creation of computer-aided flexible production systems on its basis.

The utilization of the flexible production systems allows to automate not only machining but also blanking, forging-and-pressing, casting, welding-and-assembling, monitoring operations.

The auxiliary operations can be automated to a considerable extent by those systems used at small and medium-size companies. In particular, the delivery of necessary blanks to a workplace, technological machining attachments, cutting and measuring tools, their replacement and adjustment as well as the automatic correction and changing of control programs can be mentioned.

At the majority of firms the technological preparation of manufacturing including the control programs, process planning, machines utilization are computer-aided. At the PRESTANDO AB the 3-sectional press is installed for sheet stamping. The entire process is completely automatic from feeding a blank to the working zone until piling finished parts. The automatic control of feeding material, checking of mechanical parameters while stamping, condition of stamps checking, etc are performed.

The computers are applied to control the automated complexes of equipment for stamping out of coiled material. Robots are used to feed blanks into the working zone. The industrial robots are widely utilized as a main process equipment to execute such operations as assembling, welding, painting by means of special tools and ancillary attachments.

At the Bicycle plant, Skeppshult robots are used for automatic tyre-putting on the wheel-rim, bicycle frame welding, burrs scraping.

Comparing the visited small companies with similar shops of Kirovsky Zavod we have come to the following conclusions:

utilization of such flexible systems allows the Swedish firms to obtain the reduction in: a) number of machines 8-fold; b) production area 4-fold; c) time of re-adjustment 6-fold; d) time of parts machining 4-fold; e) attending personnel 4 times.

Automation at small and medium firms secures the fast and frequent re-adjustment of small-scope lots of parts and organization of spare parts manufacturing. In Russia this level of production organization is thought to be unprofitable for small subdivisions.

Thus, the Swedish realities disprove that opinion.

The high quality of production is ensured by system of International Standard Organization (ISO-9000) introduced at Swedish enterprises. This system is commonly adopted in Sweden while concluding contracts among partners since the quality of Supplier is taken for granted. Therefore, keeping standards, regulations and requirements is of great importance to maintain the firms authority and to ensure the worldwide competitiveness of its products. The gist of the system is that the special certificate is to be given by International Experts after their exploration and approval of technological routes, equipment, attachments, each operation and transfers for the part or article produced.

The experts can several times a year inspect the enterprise on the non-scheduled basis. Every worker is responsible for the operation he is in charge of. The concrete person admitted the process deviation can be easily found by special process chart, so this system guarantees the quality control during the operation and after its completion without any quality inspector.

The wide use of the last achievements in the field of information science has made the information exchange more convenient, document handling, operations with banks, which in turn helps to decrease the technical staff.

These are personal computers, fax-machines allowing to communicate not only throughout the company but also with other cities and all over the world. The PC presence in Sweden is 2 million pieces per 8.5 million of total population. The managers have copiers, radiotelephones, automatic answering machines, various recorders.

So, the firms consisting of 25 people have about 4 people in managerial staff, the firms that have 50 people in payroll normally employ 5 people of administrative personnel.

We were also shown the company SAMHALL, Trelleborg, which is a plant using primarily labor of disabled. In order to employ more disabled people some of the production processes are not automated, people work part-time, the working routine is lenient. Nevertheless the total number of employees equals 180 people, and the managerial staff comes to 20 persons.

The most wide-spread marketing strategy of the visited firms is, so to say, production for sales that is the comprehensive preliminary market research demands.

Firms try to develop new modifications and products on the basis of traditional items. For instance, side by side with such articles as beds, tables, arm-chairs, perambulators that had already been approved by the market we saw the newly designed bedside-tables, racks for stores of a very modern design, folding sofas and chairs for summer houses and so on. The development of a new items comprises basically three stages:

1. Advancing the idea of a new item.
2. Manufacturing of a prototype, laboratory and field tests.
3. Full-scale production and preparation of the market.

Normally, the firms sell products directly to a customer. Immediate sales provides the personal contact of salesman with each individual consumer, direct spreading of advertising materials, demonstration of goods in use.

To carry out the direct sales there are two methods to follow:

1. to offer items that are multipurpose or attractive for some group of potential customers
2. to satisfy the specific requirements of each individual customer.

A good example of this approach is the small lamp-manufacturing company INVENTOR, Malmö that designs and makes non-standard lighting fixtures out of standard components by individual Buyer's order for various purposes.

Most of the firms use exhibition centers. We had an opportunity to visit HADAR in Malmö where various companies exhibit their aids for disabled people. These centers help the customer to see goods in action, to receive all the information of specific features and maintenance, to study advertising booklets and also to contact the representatives of companies immediately. Thus, the centers conduct commercial and advertising activity, negotiations, assist in creating advertisements, signing contracts. One can watch video commercials.

They also arrange conferences, seminars, press-conferences and deal with television and radio reporters to provide for the publicity.

There are restaurants and cafes in the center.

Firms manufacturing the aids for disabled people create centers for training, consultations, technical service. For example, the wheelchair can be specially modified and equipped in compliance with doctor's recommendations and considering specific disability and anthropometric data.

Before the manufacturing starts all the aids for disabled are subject to serious laboratory tests and research at the Institute for the Disabled People (Handikappinstitutet), Stockholm. The activity of the Institute is based on the latest innovations in ergonomics and design. The research work of this Institute as well as advanced development of aids by Sertec, (within Lund University) and some others help people in the situations that seem desperate. The enthusiastic and devoted researchers and scientists succeed in returning a disabled person to ability to work. For instance, the computers are adapted for the disabled people by means of specially designed units. The orthopedic workshop makes the individual prosthetic appliances so that the disabled can enjoy their favorite sports.

The vital role in this field is played by rehabilitation centers. They provide patients with professional consultations, treatment, sports facilities so that they might restore their bodies' functions. It is very important that the disabled people work as instructors and coaches because it helps them to overcome the psychological barriers, makes for efficient training and rehabilitation.

We would like to mention the most useful for the project development meetings. We had a pleasure of meeting with Swedish and English businessmen Mr Derek Lancaster Gaye, Mr Hanz Langenskiold, Mr Ingvar Javer, Mr Tord Larsson where the participants came to the decision about the support of the project of setting-up a joint venture in Russia and about its financing. Director of Nordic Technology Transfer Mr Langenskiold expressed his willingness to allot about 1 million USD to credit the first stage in realization of sales policy.

Another important discussion was at the ERACARE AB, Goteborg, where three modifications of wheelchairs were selected for start-up manufacturing in St. Petersburg. The first one is for hospitals, the second one is for daily use, and the third type of wheelchairs is supposed for general use. All three types will be adapted to Russian conditions.

While summarizing the results we dwelt on the stages and concrete dates of fulfilling the UNIDO project. These are speeding-up the feasibility study, manufacturing of prototypes and having them tested by the middle of 1994, beginning of the full-scale wheelchairs production in the end of 1994.

Unfortunately, we did not have a chance to see the enterprises involved in full-scale wheelchairs manufacturing which is the disadvantage of the tour. Otherwise, we would have been able to study the organization of full-scale production (areas, equipment, principles of sales policy, financing and other) in details, for subsequent adaptation of this experience at the joint venture in Russia.

The positive effect of training is the more profound knowledge of market relationships. We got to know that the majority of Western companies are small and medium-sized (nowadays the percentage of enterprises employing 1000 and more people comes to 24 in Sweden, the same for Germany is even as small as 14 %). These firms work with very flat and efficient organization which allows to react swiftly to all the whims and vagaries of market. The importance of market research, management and advertising for promotion of goods is understood as the vital necessity.

However, we have to take into consideration the difference between the current economic situations in Russia and in Sweden. The market relationships in the West exist on the basis of specialization and high level of cooperation.

There are developed information sources such as catalogues, booklets, leaflets, special information brochures on various fields and so on.

The degree of the specialization on the basis of small and medium-sized enterprises is scarce in Russia. Big companies are still dominating there. They have significant overhead expenses which result in high production cost.

Besides, the logistics is unsatisfactory for various reasons. That is why we find it more expedient to produce most of the parts and units for wheelchairs right at the joint venture site.

Generally, all purposes of the study tour have been attained.

Proposals to the administration of The Kirovsky zavod Joint-Stock Company.

1. To intensify dividing of large plant structure into smaller ones providing their economic self-dependence.

2. To establish the joint ventures on the basis of newly created structures with the involvement of investments of Western companies, Kirovsky plant and individuals. To orientate these joint ventures towards the production that can compete with Western analogies.

3. To set up the industrial parks capable of offering all kinds of service on the basis of the mentioned small and medium-sized. In this respect the proposal of the Swedish side to establish the Industrial Park for small and medium-sized enterprises is of evident interest.

4. To create the "Advertising" joint-stock company that will be able to deal with Western markets to promote various merchandise manufactured both in St. Petersburg and in Russia.

The Rehns Advertising Agency, Malmo employed only 12 people can exemplify.

5. To make more active efforts in establishing joint venture for wheelchair production meaning Swedish "ERACARE AB" firm as a major partner.

Annex 1

List of private companies and organizations visited during the training program.

1. IDEON, Lund, (assistance in creation of small and medium-sized businesses).
2. Sertec, Lund (designs aids for disabled).
3. Swedish Television.
4. Tobela AB, Trelleborg (articles made of tubes with use of powder painting).
5. SAMHALL, Trelleborg (the plant using primarily labor of disabled)
6. Siodersliattsgymnasiet, Trelleborg (High school with some disabled students).
7. PRESTANDO AB, Trelleborg (stamping of parts including those for wheelchairs)
8. HADAR, Malmio (exhibits of aids for disabled people).
9. Rehns Advertising Agency, Malmio.
10. Proform AB, Ballingsliov (blow molding specialists).

11. Rune ASK Plast AB (major supplier of plastic parts for wheelchairs and other customers in Sweden).
12. Skeppshult AB (bicycle plant in Skeppshult).
13. Helpmedelcentral, Goteborg (rehabilitation center).
14. ERACARE AB, Goteborg (design of wheelchairs and machinery for their production, manufacturing by customer-specific orders)
15. Handikappinstitutet, Stockholm (Institute for the Disabled People).
16. SMEEP AB, Skeppskult (manufacturing of parts by casting)
17. Inventor, Malmö (lamp manufacturing by customer-specific orders).