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HIGH-LEVEL ADVISORY ASSISTANCE ON CONVERTING A FORMER
MILITARY ENTERPRISE INTO A WHEELCHAIR MANUFACTURING FACILITY

SI/USR/92/801

THE RUSSIAN FEDERATION

Technical report: Findings and recommendations *

Prepared for the Government of The Russian Federation
by the United Nations Industrial Development Organization,
acting as executing agency for the United Nations Development Programme

Based on the work of T. Larsson and H. Semerad

Backstopping officer: M. Boutoussov
Institutional Infrastructure Branch

United Nations Industrial Development Organization
Vienna

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This document has not been edited.

V.93-86593

ABSTRACT

UNIDO Project SI/USR/92/801

The purpose of the mission was to investigate the possibility to facilitate the conversion of part of a military enterprise in St. Petersburg into a manufacturer of wheelchairs and associated products for Russia and eventually for interested developing countries.

The assignment includes an assessment of existing technical facilities and existing infrastructure and the preparation of a plan for restructuring part of the military enterprise.

This report describes the findings of the two high-level experts, the main activities during their visits to St. Petersburg and recommendations to quickly proceed with the manufacture of the wheelchairs within the programme "Conversion through enterprise development (CTED)" and to establish a business infrastructure which reduces the inherent risk associated with creation of new businesses in St. Petersburg.

KIROVSKY Zavod was selected as a possible partner for the manufacturing project, as they have the technical and mechanical skills for such a production and are willing to provide the necessary buildings and land.

Our recommendation is to improve the standard of the wheelchairs for the Russian market and this should be done by modifying approved lines of wheelchairs. It will be done in several phases:

- Phase One** To produce prototypes for testing
- Phase Two** Completion of the production plant for wheelchairs
- Phase Three** Tube production and injection moulding

These businesses and additional associated businesses should be created based on the concept of small and medium sized independent business to become part of a future industrial park.

Special attention has been taken to facilitate an integrated selling, customer application and technical service.

Contacts have been made with potential investors and manufacturing partners.

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INTRODUCTION

It is estimated that 20 million disabled people are in need of wheelchairs, while less than one percent of this demand is being met. At present, the costs of wheelchairs in developing countries are well beyond the purchase capability of many end users.

In St. Petersburg several ex-defence institutions have adequate equipment, premises and personnel in order to be converted into manufacturer of wheelchairs and associated equipment.

UNIDO has strong working contacts with City authorities in St. Petersburg and ex-defence industries there and it was therefore decided to investigate the possibility to establish a center for design and production of wheelchairs in St. Petersburg.

The Institutional Infrastructure Branch have commissioned to high-level experts to prepare a prefeasibility study with the help of the local Agency of Research Commercialisation and Technical Innovation Support (ARCTIS). The two experts, Mr. Tord Larsson, an international consultant in wheelchair manufacturing and Mr. Heinz Semerad, an international consultant in industrial restructuring and business creation have started this assignment in March 1993 and completed the report end of May 1993. The debriefing took place on June 3rd 1993.

The report describes the industrial capacity and human resource situation of the plant selected for the conversion through enterprise development.

The immediate objective was to identify the premises for the creation of a center for design and production, to prepare the ground for an independent, commercially viable and internationally competitive enterprise and to prepare recommendation for a speedy implementation of the recommendation.

All objectives were reached.

RECOMMENDATIONS

A. Recommendations

We find it practical to proceed in several phases as suggested below:

1. Manufacturing of prototypes in Russia and testing at TÜV
(To be proceeded with modification of the product range.)
2. Completion of the production plant for wheelchairs consisting of
 - a. tube work
 - b. powder painting
 - c. textile work
 - d. assembly and packing
 - e. warehouse and distribution
 - f. set-up of marketing and sales organization
3. Tube production and injection moulding - this can be in our own regime or with other partners - depending on financing.
4. Development of the Industrial Park

B. Organization, Role of City authorities and UNIDO (see also Annex 1)

The consultants recommend four fields of activities each with individual responsibilities but linked together with one mission and objectives guided by contractual arrangements.

The FUND for the development of new businesses responsible for finance and budgets. The KIROVSKY PLANT and foreign funds as investors for the INDUSTRIAL PARK. The MANAGEMENT TEAM for the promotion of new businesses and hands on support. The WHEELCHAIR BUSINESS as the pilot project and core business for new business developments.

The FUND is responsible for attracting financial assistance from overseas sources particularly from institutions which operate in the areas of health protection and the development of small and medium sized business as a mean to improve the industrial development. The FUND sets the

objectives for the MANAGEMENT TEAM, approves the budgets and controls the performance. The FUND has no executive function. The FUND should cooperate with UNIDO and the City council of St. Petersburg.

The KIROVSKY Zavod is responsible for the development of the INDUSTRIAL PARK and should aim at a return of investment for the assets put into the Joint Venture needed to convert and erect the buildings required for the new business in KIROVSKY Zavod.

A very small MANAGEMENT TEAM consisting of experienced managers with conversion and business creation experience and expertise in the areas of health protection. This team is to be supported by ARCTIS.

The first business to be established in the INDUSTRIAL PARK is a number of small businesses related to the manufacture of wheelchairs and associated segments of the health protection market. The WHEELCHAIR BUSINESS should serve as a pilot project for subsequent small business developments in the framework of conversion through the development of small and medium sized businesses supported by UNIDO ERACARE of Sweden has agreed to be a Joint Venture partner in the wheelchair manufacture business.

The consultants recommend two main contractual arrangements. The first between the FUND and the MANAGEMENT TEAM to be called the "management contract". The second between the FUND and the INDUSTRIAL PARK regulating the provision of space for the new businesses and the development of the business and communication infrastructure to be called the "property contract".

C. Joint Venture Consideration

The letter of intent allows for the establishment of a Joint Venture between the KIROVSKY Zavod and a foreign investor. Approximately US \$ 4 million. will be required to fund the wheelchair business.

CONCLUSION

The assignment has shown that conversion through the development of small and medium sized companies is possible and advisable. The Top Management of the KIROVSKY Zavod understands the need to enter new markets and that the potential wheelchair business is one alternative to continue the process of restructuring their enterprise.

The assignment has also shown that the capabilities in KIROVSKY Zavod are available in order to commence with the manufacturer of the prototypes without undue delay. One major condition for reducing the risk for non Russian investors, is a speedy spin off process of the necessary properties, business services and communications.

According to our experience the organization recommended by the consultants to commence with the manufacturing of wheelchairs is vital for the success of the projects, as it involves all partners including UNIDO in a well defined manner

SITUATION ANALYSIS

A. The Economic Environment

The economic situation in the beginning of 1993 seemed to have much fewer negative features compared to 1992. Although the inflation rate is still very high, the economy of St. Petersburg has improved.

The slow-down in production has been turned around. This is because the former military-industrial enterprises which are the majority of St. Petersburg industries have started direct contacts with customers and suppliers. They have also increased manufacturing of consumer goods. However we should admit that this increase is merely a successful attempt that does not let those enterprises die. This attempt neither fills the market with consumer goods nor does it lead enterprises to a prosperous future all this has been achieved at the same time as the investment activity rate is still low.

The privatization process is still slower than in Moscow. Property ownership for foreign individuals and legal entities are more or less settled. This leads to the dramatic increase of the real-estate operations and to the general increase of the foreign activities in St. Petersburg. According to the real-estate experts it still is virgin-land for investors.

The private sector of the local economy is growing steadily. New manufacturing privately owned companies are appearing in the market providing a good competition for the state owned companies.

There are two major transportation infrastructure projects which would make St. Petersburg one of the important transport links in Russia. These are the construction of the High Speed St. Petersburg-Moscow Railway and the three new port complexes within the St. Petersburg areas. These projects naturally attracts Western investors and potential customers.

The Western business community of St. Petersburg is growing. So are trading companies and manufacturers like OTIS. Within the past six months the business community has doubled.

St. Petersburg is being considered as the future financial center of Russia. The local administration make its best to attract major Western banks to St. Petersburg (Credit Lyonnais, Dresdner Bank, Deutsche Bank, Chase Manhattan Bank).

One of the fastest growing businesses is telecommunication. As the telecommunication improves the city will become a real business community it.

Currently St. Petersburg is the third most attractive city for foreign investors after Moscow and Kaliningrad.

B. Industrial Capacity

KIROVSKY Zavod has been selected as a possible partner for the manufacturing project in the St. Petersburg area.

The company has the technical and mechanical skills required for such a production, however production of welded steel tubes and injection moulding of plastic parts and the production of necessary fabric parts are not part of the current production range.

KIROVSKY Zavod has expressed interest in the project and also accepted the plan which was jointly developed and summarized in the "LETTER OF INTENT" which became the result of our first discussions. (Annex 2)

As expressed under "Recommendation", we suggested that the action plan will include several phases, where as the first is the production and assembly of wheelchairs (and associated products) based on the purchase of tubes and plastic parts from other sources. Production of welded tubes and production of plastic parts will come in the following phases.

C. Review of Indigenous Design

Currently we know of only two manufactures of wheelchairs in Russia and a third will start up later this year:

ASSOCIATION INTECHNICA ST. PETERSBURG

is a private company in St. Petersburg, making a heavy type of wheelchair as the major product but who has also developed a couple of alternatives which is being sold locally. The annual production is limited to some hundred wheelchairs.

ATO STAWROWO, STAWROWO, WLADIMIRSKAJA

The company has purchased know how from MEYRA, Germany, who is one of the major manufacturers in the world. The three models they have to offer are the heavy type which does not have any greater acceptance in the West and also not likely in Russia.

This company has a capacity of at least 50.000 wheelchairs per year.

DAB INTERNATIONAL (Bolsjovik), ST. PETERSBURG

This company has started a Joint Venture with an American company, Everst & Jennings, which is one major producer of wheelchairs in USA. Machinery is being installed at this time and they expect to be in production sometime later this year.

This plant will have a capacity of at least 50.000 wheelchairs of which half will be exported to USA.

Production will start with one of the models and new models will be added later on.

We do not know what model they will start making.

Summary

The models we have seen on the Russian market are not attractive, they are very heavy and bulky. There is no reason why the Russian and third world customer should not have a light, convenient and well performing wheelchair.

Product range:

Enclosed is a suggested product line for the Russian market.

These products are all approved of by the Swedish Institute for testing of handicap equipment, however, we would like to somewhat modify them to make them more suitable for the new markets.

D. "KIROVSKY Zavod", the plant, 47, Stachek pr., St.Petersburg 198097

The KIROVSKY Zavod is one of the oldest industrial enterprises of Russia, it was established early 1800 and has been the leader in military production during the years. It is today a big engineering and metallurgical complex making products for various branches of the national economy such as tractors, high power turbines. Before conversion took place they manufactured armoured tanks and was one of the biggest military plants in the country. The plant can also produce rolled ferrous metals and hot die forgings. The KIROVSKY Zavod offers lube oil pumps for sea-going and river ships.

Since 1966 they concentrated on manufacturing tractors, in 1984 they have manufactured 20 000 tractors for agricultural use and 5000 tractors for industrial use. At its peak it had some 60 000 people working at the company but today the number of employed is reduced to 24 000. A third of the total staff of 24000 employees consist of engineers.

Privatisation has started together with conversion. Since 1992 the KIROVSKY Zavod is a joint stock company of the open type; 36.6% belong to the state and 63.4% to the collective, the employees. By the end of 1993 the employees will have bought 100% of the shares.

There are two sites; 186 ha in St. Petersburg and 1200 ha 20 km outside of St. Petersburg. The plant in St. Petersburg has direct access to the rail system, it has its own port facilities. It is close to METRO and is located in a residential area with good access to labour. Due to the location "clean" industry is required.

The general standard of the plant is not up to common western standard, as no attention has been paid to the exterior of the plants, the buildings are in typical, heavy style which is common in the east. There is a great waste of energy, high buildings and limited insulation. Transportation within the plant is of course possible, however roads within the plants are not satisfactory.

They have designed a small tractor for the agricultural market and are actively seeking Joint Venture partners in the west. Initial discussions have taken place with Westinghouse USA and German companies. They have signed a contract for gas suction stations and are preparing for power stations based on gas fuels for small towns along gas lines.

The board of directors consist of four persons representing the employees, the city authorities and the KIROVSKY Zavod council and the management. The managing director has two votes. The managing directors manages the executive board which in turn manages up to 33 departments or business units. The executive board is consulted by McKinsey and various training seminars are now being held.

E. Role of ARCTIS

ARCTIS Ltd., specialising in the consulting support for foreign companies which have a desire to start business in the conversion sector of the military-industrial complex in St. Petersburg, according to the UNIDO Contract # 93/055 has performed the following work:

In cooperation with the local authorities ARCTIS has identified an enterprise of the military-industrial complex - The KIROVSKY Zavod, which, considering its capacities, is qualified for the wheelchair manufacturing.

With the assistance of experts of BGG Ltd. (St. Petersburg) advice on law and financial issues associated with establishing and functioning of a Joint Venture in St. Petersburg has been worked out. The information gathered this way would be useful for further work with potential Western investors of this project.

It is recommended to create a UNIDO Trust Fund with the objective to support new businesses within the concept and to transfer this experience to other conversion enterprises of the military-industrial complex of St. Petersburg.

ARCTIS arranged two qualified experts: Mr. E. Lourier and Mr. V. Berezovski, who have previous experience in setting up manufacturing units and great knowledge of KIROVSKY Zavod's potential.

ARCTIS and the top managers of KIROVSKY Zavod have selected a management team for the wheelchair enterprise, e.g. Mr. V. Kretov has great management experience in consumer goods manufacturing and commercial activity in Russia. For another position Mr. V. Berezovski is being considered. Currently he works for the Transmashproect Institute as a Department Manager. He has a very good knowledge of English.

II. BUSINESS INFRASTRUCTURE

ARCTIS has identified KIROVSKY Zavod as a potential candidate for manufacture of wheelchairs and associated products. The task of the UNIDO experts was to ensure that all parties concerned agree on the objective of the advisory assistance in order to allow them to participate in the major activities of the mission.

For this purpose the consultants drew up a document which was distributed to all parties concerned and which in particular has helped KIROVSKY Zavod to understand their potential contribution to this project.

The consultant had free access to all buildings and departments of the plant and it became apparent that the buildings proposed would not satisfy the requirements for manufacture of wheelchairs. It became necessary to develop a new strategy for the creation of the space for the manufacture of wheelchairs.

In order to meet the success criteria not only space for the wheelchair manufacture but also for service businesses had to be considered. The idea for a total concept of creating new space for a variety of new businesses and the provision of management support for all new businesses in the environment of KIROVSKY Zavod was developed.

After consultation with the City authorities it was agreed to develop an organisational form which would ensure the corporation of the most important decision makers in the region and which would minimize the amount of risk factors associated with creation of new businesses.

This organisation form was accepted by KIROVSKY Zavod and a Letter of Intent was signed. (Annex 2)

Mr. Semenko suggested a particular site which was accepted by the consultants as it meets all the requirements of an Industrial park namely accessible directly from the street visible from the street. It will have its own infrastructure and communication center, floor space about 10 000 m² and expandable and allows for a combination of office, storage, production and display area.

III. MANUFACTURING OF WHEELCHAIRS AND ASSOCIATED PRODUCTS

Wheelchairs and other types of aids for disabled people are normally based on tubes of - steel, aluminium or titanium, that are bent, cut to size and welded or in other ways assembled into a product. These parts will make the frame of the wheelchair, walking aid, etc.

The parts are normally powder painted or chrome plated.

Additionally major parts of the wheelchair are the wheels, the big wheels, normally the rear wheels and the smaller front wheels. The big wheels can be made like a bicycle wheel out of steel or of a plastic. The tyre can be a pneumatic type (most common) or a solid made of rubber, PU or EVA. The choice of wheel is dependant on what is made locally, however, there are certain advantages with a plastic wheel, particularly when used on rough and uneven surfaces. A plastic wheel can take the abuse better, it flexes rather than require the strength in the spoke construction. A spoked (laced) wheel is difficult to adjust when it is out of line.

The smaller front wheel is most often of a plastic wheel with a PU, rubber, EVA or other type of softer surface.

Also other parts of a wheelchair made out of plastic, such as foot rests, armrests etc.

Finally, additional parts are made out of fabric such as backrests and seats and this requires a textile department.

The basic production would thus require:

- tube work and welding
- powder painting
- plastic production
- textile department
- assembly packing
- warehousing and distribution

Tubes can be purchased or made, initially they will be purchased, plastic parts can be made or purchased, initially they will be purchased. Other parts of the production will be made in house in the first phase.

KIROVSKY Zavod has expressed the desire to make everything in house and we feel this is the right approach, however, in order to be able to get into production quickly, it might be wise to start up with the purchasing of plastic and steel tubes.

Space requirement:

Following is a rough estimate of space requirement for the different types of production:

tube production	1000m ²
tube work and welding	600m ²
powder painting	500m ²
plastic production (inj. moulding)	600m ²
textile department	100m ²
assembly packing	500m ²
warehousing and distribution	2000m ²
Total:	6300m²

In addition office space will be required (max. 200m²).

Machinery:

Most of the equipment required for the production of wheelchairs are available in Russia. Whatever can be purchased in Russia should be purchased in Russia. For tube manufacturing, injection moulding and powder painting, parts of the equipment would have to be imported to Russia.

IV. BASICS FOR FUTURE BUSINESS PLAN

A. Local turnover and international marketing

The consultants recommend a phased and integrated approach in order to minimize the risks for the potential investor. Once the go ahead is given and initial funds for investments have been secured a period of six months has been planned before the first wheelchairs can be assembled and sold in the region of St. Petersburg. This period will be used to assemble the first prototypes and commence with the approval procedures.

The business plan allows for a slow build up before the monthly production output of wheelchairs can be reached. Initial rough estimates indicate that the production cost per wheelchair (at high volume production) can be limited to 25-35 US \$. The net selling price should not exceed 100 US \$.

The selling price must allow for discounts, transport insurance and royalties. It is suggested to adopt the principle of assembly, distribution and service centers not only in Russia but in the export markets.

The wheelchair market is extremely customer orientated and well educated professionals are selecting the various aids for handicapped people as each disability is very different. The wheelchairs are relatively simple to make and the know how is in how to use the wheelchair and select the right application.

Very quickly attention must be directed towards the export market. It is estimated that 20 million disabled people in developing countries are in need of wheelchairs, while less than one percent of this demand is being met. Many countries have local production, but the wheelchairs are often rustic, heavy models using outmoded designs. It is estimated that total third world wheelchair production is less than 50 000 units per year.

The Joint Venture to be formed for the manufacturing of wheelchairs should therefore target itself to provide technical assistance to local distribution, promotion and servicing centers in the third world.

B. Human resources

The business plan should allow for a team of about 12 indirect personnel including 8 field salesman and 1 plant supervisor. For the production of 5000 wheelchairs a month 70 - 100 skilled workers would be required.

The technical director should have been closely related to KIROVSKY Zavod, the marketing director should be selected from the outside.

It is understood that training assistance will be provided by respective Swedish organisations and this training can commence without delay.

For all key personal such as production manager, marketing manager etc. a basic understanding of the English language is a requirement. If the choice is between two people with about equal qualifications, English knowledge shall have the greatest importance. It is not feasible to work with interpreter at all time - it will slow down the communication and be a hinder for the transfer of know how.

The Production Manager shall be:

- English speaking
- a good leader (a team player)
- understand the manufacturing process
- understand (or be taught) the product concept
- willing to work in a "flat" organization
- understand economical production
- be quality orientated
- etc.

The Marketing Manager:

- English speaking
- a good leader (a team player)
- understand the need of the end user
- be market orientated
- understand economical marketing
- be service orientated
- etc.

C. Marketing and Sales Organization

The marketing and sales of the production will have a domestic and an export side. Exporting will require a capacity like Mr. Derek Lancaster-Gaye, who has made the marketing survey which is referred to in the project description. We are assuming that his and our efforts will be coordinated and we have in this paper dealt mostly with the domestic Russian market.

What we are about to market is a product line that requires application know how to prescribe. Different types of clients in different environments require different types of wheelchairs.

We will need to educate the sales people in the proper selection of aid. We are envisioning that we will be need a number of distribution centers, perhaps three to start with. One in Moscow, one in St. Petersburg and in another major city in Russia.

Each distribution center shall have personal for inside sale as well as outside sale and service and distribution personal.

Primarily the sales people shall have good knowledge of the products and the need of patients/clients with different disabilities.

As product information is not available in Russia, such materials would have to be assembled and translated into Russian.

The education of the sales people will have to take place in Sweden.

A detailed marketing and education program will have to be worked out.

The role of ERACARE

ERACARE is willing to become a partner in the Russian project and to participate with design, know how and money.

It will also take the overall responsibilities for the project and assist in finding and educating a Russian who eventually should take over this responsibility.

For key positions and whenever outside assistance is needed, a Russian shall be assisting and learning in order to take over ASAP.

D. Terms of reference for the feasibility study

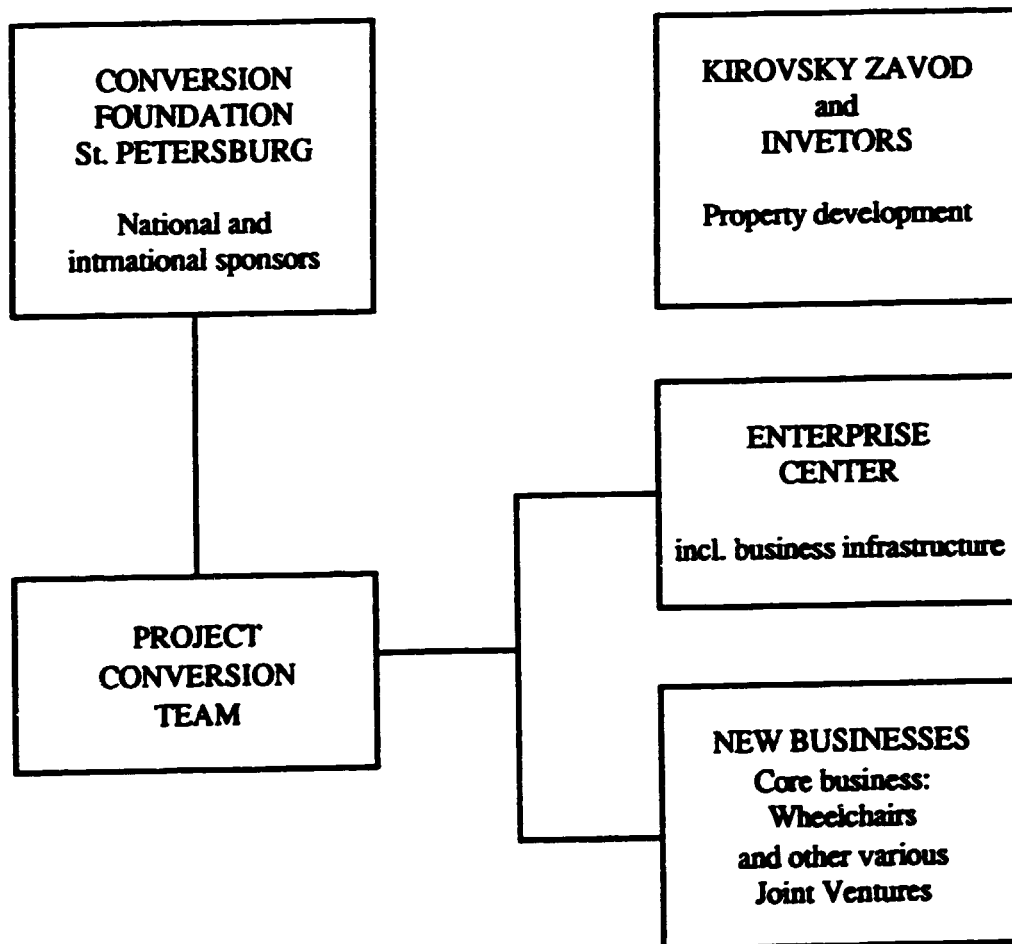
In order to reduce the risk a detailed feasibility study should be commissioned. This should include the following topics:

- Detailed production cost analysis
- Import duty for materials not available in Russia
- Export tax regulations
- Marketing analysis including: training
 - distribution
 - establishing of price level
 - buying patterns
- Required investment such as building and communication
- Joint Venture contractual agreements and considerations

The purpose of this exercise is to establish an economically sound base for a profitable industrial park.

CONVERSION THROUGH ENTERPRISE DEVELOPMENT

Pilot Model: Manufacture of wheelchairs



LETTER OF INTENT

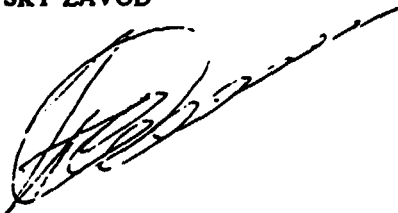
As a result of interesting and creative discussions and specially considering the technical and human resources of the Joint Stock Company "KIROVSKY ZAVOD", the plant management and the appointed UNIDO consultants have reached the following conclusions and understanding:

1. The "KIROVSKY ZAVOD" has agreed to the mission set up by the UNIDO as per enclosed brief interpretation, enclosure 1.1.
2. Based on the principle to develop small and medium sized enterprises the consultant consider it feasible to find sponsors for financing the project team and to identify joint venture partners for the different business opportunities arising from the WHEELCHAIR PROJECT, the pilot project.
3. The partners of the joint venture will provide the necessary technical information and documentation for the manufacturing and marketing of wheelchairs in Russia and for the export market.
4. The "KIROVSKY ZAVOD" will - in coordination with the joint venture partners - provide the building and necessary service and required infrastructure acceptable to the overall framework as per enclosure 1.2.
5. The "KIROVSKY ZAVOD" shall provided all the information necessary for establishment of joint ventures.

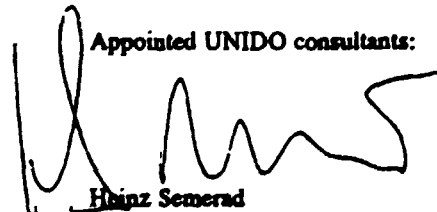
St Petersburg, March 26, 1993

Representatives of

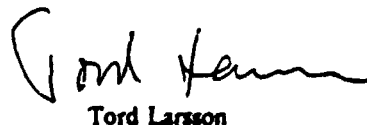
Joint Stock Company
"KIROVSKY ZAVOD"



Appointed UNIDO consultants:



Heinz Semerad



Tord Larsson

ПРОТОКОЛ

о намерениях между консультативной группой АИДО и А.О. "Аировский завод" о совместной работе по организации производства инвалидных колясок.

В результате интересных и творческих обсуждений и всестороннего изучения технологических возможностей производства и людских ресурсов А.О. "Аировский завод", руководство завода и консультанты АИДО пришли к следующим выводам и заключениям:

1. "Аировский завод" выражает свое согласие на организацию производства инвалидных колясок соответствии с концепцией экспертов АИДО, кратко изложенной в приложении 1.

2. Спирась на принципы развития малых и средних предприятий консультанты полагают возможным найти спонсоров для финансовой поддержки исполнителей проекта и подобрать партнеров ряда совместных предприятий для различных видов бизнеса возникающего в связи с программой (проектом) ИНВАЛИДНЫЕ КОЛЯСКИ как основного и ведущего проекта.


3. Партнеры, входящие в совместные предприятия обеспечат необходимую техническую документацию и информацию для производства и сбыта инвалидных колясок в России и за рубежом.

4. Аировский завод обеспечит по согласованию с партнерами-инвесторами производственные площади, обслуживание (сервис), а также необходимую инфраструктуру для организации совместного производства во всех аспектах проекта.

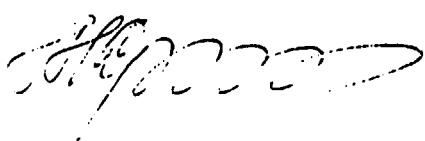
5. "Аировский завод" обеспечит всю информацию, требуемую для создания совместного предприятия.

Санкт-Петербург 20 марта 1992г.

А.О. "Аировский завод"



консультанты АИДО
Хайнц Семерад
Торд Лассон

U N I D O

UNITED NATIONS INDUSTRIAL
DEVELOPMENT ORGANIZATION

JOB DESCRIPTION

SI/URS/92/801/11-52/J12101

Post title CONSULTANT IN INDUSTRIAL RESTRUCTURING AND
BUSINESS CREATION

Duration 1.5 months

Date required As soon as possible, but in coordination with
consultant 11-51

Duty station St. Petersburg, Russia

Purpose of project Production Facility for Manufacturing of
Wheelchairs is to be established in
S.Petersburg on the basis of a defence
industrial enterprise by means of the spin-off
restructuring activities. This new company
should become a supplier of low-price, high-
quality wheelchairs for disabled persons in
Russia and in those developing countries with
an urgent need in their supply (Afghanistan,
Angola, Kampuchea, Iran etc.). The current
(pre-feasibility) phase of the project aims at
identifying the infrastructure, technological,
managerial and human resources required for
the conversion of the ex-military enterprise
and in preparation of draft terms of reference
for the feasibility study for future
restructuring and investments.

Duties The expert will work in close co-operation
with the national implementing agency ARCTIS,
consultant 11-51 and authorities of the
industrial enterprise to be restructured.

He will be expected :

1. To determine the infrastructure of the
enterprise to be converted into a
manufacturing facility for wheelchairs.

2. To elaborate, jointly with the consultant
11-51, the list of technological,
infrastructural, managerial and personnel
requirements to be met in order to establish a

wheelchair manufacturing facility.

3. To prepare, with consultant 11-51, the basis of the business plan of industrial restructuring and human resource development, the draft investment scheme and the terms of reference for the feasibility study.

4. To assist ARCTIS in setting up basic requirements for qualifications of the two person Core Managerial Team and in selection of the appropriate specialists for these two positions.

5. To consult on the basic managerial steps in setting up an international company capable to manufacture wheelchairs of required quality, to get these steps approved by the Plant and City authorities.

6. To advise the national counterparts on the further strategy of their activities leading to the second (pre-investment) phase of the project.

6. To prepare, jointly with consultant 11-51, a detailed technical report, setting out the recommendations and proposals in the form compatible with the terms of reference for the pre-investment, or feasibility study phase of project. To convey this report to UNIDO after discussing it preliminarily with National Implementing Agency, City and Plant authorities.

Qualification

At least ten years of practical experience as leading consultant in industrial restructuring/job creation/ formation of companies.

Language

English, working experience in Russian is an asset.

Background information

At present, the costs of wheelchairs for disabled persons in developing countries are well beyond the purchase ability of many recipients. About 95% of these essential items are currently imported from Western countries. It is also normal that wheelchairs, meeting Western standards and requirements, are distributed through a network of importers and retail outlets. In many cases such

wheelchairs are:

- unsuitable to local conditions (roads, pavements, level of service),
- approximately twice as expensive than the same equipment in the West.

Bearing in mind the limited operational life of a wheelchair (about 5 years) the need of spare parts and repair (R & M) becomes critical. Analysis in developing countries shows that spare parts are mostly in short supply, or not available.

The following are estimated figures of wheelchair requirements in selected African and other countries, according to the report of the UN consultant Derek Lancaster-Gaye:

Uganda.....	72,000
Kenya.....	77,000
Zimbabwe.....	32,000
Zaire.....	115,000
Tanzania.....	85,000
Iran.....	275,000
Pakistan.....	450,000
Afghanistan.....	56,000
Bangladesh.....	448,000
Turkey.....	235,000

International total:1,845,000

This enormous need supplementing unpublished market figures of the former Soviet Union (estimated figures are between 300,000 and 500,000), form a huge market potential which can be, at least partially, covered by the CTED Programms.

As preliminary negotiations have shown, Western manufacturers are ready to participate in the technology transfer process and in training of management and technicians. Recent contacts with some specialized companies confirmed this interest.

The Programme for the Promotion of the UN Decade of Disabled Persons supports this initiative to be executed by UNIDO (see Annex 2- copy of the Memo of Mr. Hans Hocgh, Special Representative of the Secretary General for the Promotion of the UN Decade of Disabled Persons, dated 19 May 1992).

The Project activities should be considered within the context of the UNIDO Programme in St. Petersburg "Conversion through Enterprise Development".

The Programme "Conversion through enterprise development (CTED)" was initiated by UNIDO in St. Petersburg in 1991 upon request of the City Mayor, Mr. A. Sobtchak. It aims to create optimal conditions for potential business partners from West and East involved in the conversion of local military industries. It is proposed that the process of conversion should result in establishing, a set of commercially viable, internationally competitive spin-off companies of different types (technology business incubators, commercial technology transfer and consulting agencies, joint ventures, international R + D firms etc., in ex-defense industrial complexes).

The intention of the Programme is to minimize the amount of risk factors associated with creation of new businesses in industry and in the R&D sector, and to ensure a proper protection of investments by all parties involved in the establishing of new ventures.

In order to choose, which industrial enterprises should be incorporated in this Programme, the following criteria have been identified for application:

- relevance of domestic and international markets;
- industrial , technological and R&D potentials existing in St. Petersburg with the capability and readiness to produce new civilian products in a competitive market environment;
- existing infrastructure and technical skills to support a conversion programme at the international level.

The following main areas were identified for the pilot programme activities:

- new materials and technologies for their production;
- communication technique and equipment;
- instrumentation and equipment for industrial safety, environmental monitoring, for the health protection and medicine;
- laser devices for different applications.

The conversion or total restructuring of the military industrial and R&D sectors, including re-training of personnel, is a long-term and expensive exercise and requires international expertise and foreign investment for its successful completion. It can be cost-effective and profitable but only if the conversion strategy includes a thorough market analysis, detailed plan of action and programme of business investments.

The CTED Programme can be an interesting framework for foreign investors for two reasons:

(i) by providing to the foreign investor a partnership opportunity in St. Petersburg based on an already existing industrial and R&D activities and corresponding infrastructure (personnel, equipment, materials, technologies) and a detailed feasibility study.

(ii) by providing to the foreign investor the already established counterpart agency ARCTIS (Agency for Research Commercialization and Technical Innovation Support) the Programme will help to carry out the entire process by assistance in execution the feasibility study, in finding the business partners, in establishing the company etc.

For this project, ARCTIS identified an ex-military enterprise which is a large machinery plant ready for conversion. The City authorities and chief executives of the Plant are ready to provide about 5,000 square meters of space contingent upon the appropriate investments. This space will be enough to make it possible to establish a separate enterprise capable to manufacture about 50,000 wheelchairs annually- for Russia and developing countries indicated as below (see page 4). If this project will be successful, the plant is ready to provide an additional facility of about 17,000 large thus enabling to reach a production target of 200,000 wheelchairs annually. Raw materials and parts are available from domestic suppliers. Also, Russian specialists elaborated their own design of a wheelchair which, if it is found appropriate by international experts, can be laid into the basis of manufacturing process. Therefore, more detailed assessment of the situation is urgently needed, which can be provided only as a result of work of two experienced consultants.

U N I D O

UNITED NATIONS INDUSTRIAL
DEVELOPMENT ORGANIZATION
JOB DESCRIPTION

SI/USR/92/801/11-51/J12101

Post title	CONSULTANT IN DESIGN AND MANUFACTURING OF WHEELCHAIRS
Duration	1.2 months
Date required	As soon as possible, but in coordination with consultant 11-52
Duty station	St. Petersburg, Russia
Purpose of project	Production Facility for Manufacturing of Wheelchairs is to be established in S.Petersburg on the basis of a defence industrial enterprise by means of the spin-off restructuring activities. This new company should become a supplier of low-price, high-quality wheelchairs for disabled persons in Russia and in those developing countries with an urgent need in their supply (Afghanistan, Angola, Kampuchea, Iran etc.). The current (pre-feasibility) phase of the project aims at identifying the infrastructure, technological, managerial and human resources required for the conversion of the ex-military enterprise and in preparation of draft terms of reference for the feasibility study for future restructuring and investments.
Duties	<p>The expert will work in close co-operation with the national implementing agency ARCTIS, consultant 11-52 and authorities of the ex-military Plant to be restructured.</p> <p><i>He will be expected to:</i></p> <ol style="list-style-type: none"> 1. To assess the industrial capacities of the enterprise to be restructured into the company manufacturing the wheelchairs. 2. To review the indigenous design and several foreign designs of wheelchairs from the viewpoint of their applicability to the project objective and advise on the optimal design achievable within the time and funds to be requested for main phase of the project.

3. To prepare the set of requirements for the industrial restructuring and upgrading of the enterprise (equipment, personnel, engineering installations, technologies, etc) and for technology transfer policies thereof, in order to establish, on the basis of ex-military enterprise a company as a relevant international producer of wheelchairs.

4. To elaborate basic technical data for the restructuring process and to assist consultant 11-52 in elaboration of the draft terms of reference for feasibility study.

5. To advise upon the foreign company(ies) interested in cooperation in establishing the wheelchair manufacturing facilities in S. Petersburg, and to assist in establishing working contacts and preliminary negotiations with them.

6. To assist project in identification of potential partner company and investor(s) interested in the participation in further phases of the project.

7. To assist ARCTIS in organizing a study tour of the National Team to potential partner company.

8. To prepare, jointly with consultant 11-52, a detailed technical report immediately after his mission, setting out his recommendations and proposals in the form required for drafting terms of reference for feasibility study. To discuss this report preliminary with UNIDO and National Implementing Agency.

Qualification

At least ten years in management/engineering within the company manufacturing wheelchairs for disabled persons.

Language

English, but certain experience in Russian is an asset

Background information

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countries. It is also normal that wheelchairs, meeting Western standards and requirements, are distributed through a network of importers and retail outlets. In many cases such wheelchairs are:

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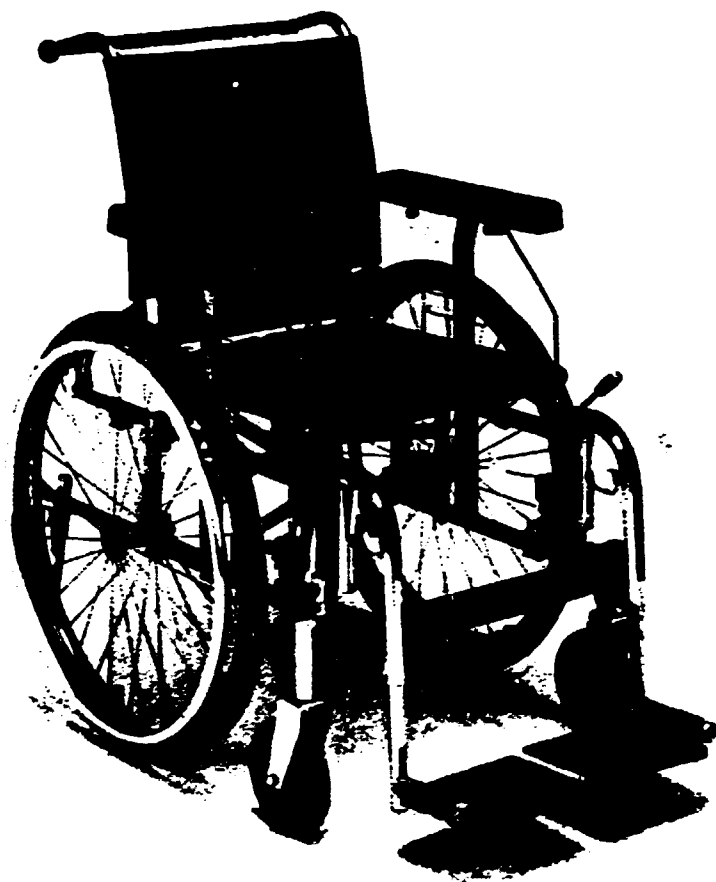
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