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WEC STAFF

TRIP REPORT

TO

BULGARIA

SLOVAK REPUBLIC

CZECH REPUBLIC

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MAY 1993

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I. ITINERARY

- May 2 Arrival in Sofia, Bulgaria
Mr. Kliment Dilianov, Ministry of Environment
- May 3 Mr. B. Kostov, USAID
Svilosa, Svistov
- May 4 Luv, Gabrovo
Fintex, Gabrovo
Runo, Gabrovo
- May 5 & 6 Neftochim, Burgas
- May 7 USAID
- May 10 Petrochema, Dubova, Slovak Republic
- May 11 Czech Environment Management Center, Prague, Czech Republic
Czech Ministry of Environment
Czech Ministry of Industry and Trade
- May 12 Spolek, Usiti Nad Labem, Czech Republic
Chemopetrol, Litvinov, Czech Republic
- May 13 VCHZ Synthesia, Semtin, Czech Republic
WEC Waste Minimization Team, Bratislava, Slovak Republic
- May 14 Association of Industrial Environment Managers, Bratislava, Slovak Republic
Ministry of Economy

II. EXECUTIVE SUMMARY AND OBSERVATIONS

WEC Staff, Thomas J. McGrath, spent two weeks visiting industrial sites in Bulgaria, Slovak Republic and Czech Republic. He also met with officials from USAID Missions and from the Ministries of Environment and Industry in each country.

The purpose of the trip was to finalize arrangements for future waste minimization demonstration projects and environmental assessments not previously identified.

Agreement was reached on the following:

<u>Country</u>	<u>Waste Minimization Demonstration Projects</u>	<u>Environmental Assessments</u>
Bulgaria	Svistov Neftochem	Luv Fintex-Runo
Czech Republic	Spolek	Chemopetrol VCHZ Synthesia
Slovak Republic		Furniture Manufacturer

In addition, preliminary plans were made in the Czech and Slovak Republic to work with Pollution Prevention Centers to begin implementing the 1993 FY funded program for waste minimization impact in an industrial sector. Potential centers in Bulgaria are under consideration.

It was a successful trip because of the very high interest in the waste minimization demonstration projects objective of changing workers and managers attitude about preventing pollution through low cost techniques.

The waste minimization impact program which involves publicity, study tours to the U.S., a waste minimization workshop, local pollution prevention centers and consultants, all culminating in local companies and consultants performing their own waste minimization projects was enthusiastically received by all.

It now appears that the first waste minimization demonstration project has exceeded expectations. Chemopetrol has reported a 72% reduction in fugitive volatile organic compounds. We are not reporting on the economic savings which appear high, at this time, pending a visit by the WEC consultant to check

and verify all of Chemopetrol's calculations.

The senior management of Chemopetrol is very excited about the results and they have communicated their positive reaction to other companies. They also strongly requested a second project and WEC agreed to do an environmental assessment.

At this early stage of the waste minimization demonstration projects, we appear to be on target in reaching our goals and assisting USAID in achieving the bureau's sub-goal of Economic Restructuring.

III. MEETINGS

Monday, May 3

Met with Mr. B. Kostov, USAID/Sofia. Discussed the purpose of my visit. Also reviewed the program for FY 93 funding contained in the WEC workplan sent by USAID/Washington to Mr. Jerry Zarr.

I will meet with Messrs. Kostov and Babylon on Friday to report on my meetings.

Travel to Svistov with Mr. Kliment Dilianov, Chief, International Relations and Mr. Dimitar Vergiev, Expert, Hazardous Wastes, Department of Urban Ecology and Waste Management, Ministry of Environment.

Svilosa Company, Svistov

Mr. Anton Gugov, Director, Regional Inspectorate and Ms. Sosha Slavtchev, Expert, Regional Inspectorate Velicho Turnova, accompanied us for the rest of our visit in Svistov and Gabrovo.

Meeting was held with:

Mr. Boyan Iliev, General Director

Mr. Michail Koltchev, Deputy General Director, Production Division

Various other department heads and

Mr. Romil Ivanov Georgiev, Vice-Mayor Municipality - Svistov.

Mr. McGrath, WEC staff, explained the Waste Minimization Demonstration Project (WMDP) in detail. He emphasized that the objective of WMDP is to change the thinking of enterprise managers to strive to stop pollution at its source.

Mr. Iliev advised that the management of Svilosa was reviewing its difficult environmental problems and developing programs to correct them when the WEC information about its WMDP was received. He said that after reading the material, they stopped what they were considering because the approach advocated by WEC appeared to be a better way to proceed.

After hearing the WEC presentation and the strong endorsement of the program from the Ministry of Environment, Mr. Iliev said that Svilosa is anxious to

participate. Also, he said that WEC had already begun to achieve its objective of getting Svilosa to adopt a new way of operating its business by placing environmental concerns as a high priority in all its decisions because it had changed its thinking on how to correct its environmental problems.

He welcomes the WEC team and looks forward to establishing a Waste Minimization Committee; a Coordinating Committee comprised of other enterprises in the region and of working with a local consulting firm so it can learn waste minimization techniques as demonstrated by the WEC WMDP.

Information about the factory, its process and environmental problems will be sent to WEC. Mr. Iliev identified the emissions of SO₂ during the drying process of the cellulose as their most severe problem and suggested that WEC consider that process for the WMDP.

Tuesday, May 4

The representative from The Regional Inspectorate and Ms. Nova Ratchevie, Gabrovo Municipal Inspectorate, joined representatives from the Ministry of Environment and Mr. McGrath in Gabrovo to visit factories where WEC environmental reviews may be performed.

LUV

This tannery is the largest tannery in Bulgaria. It is almost 100 years old but has modern equipment (10 Years). Two years ago a centralized computer system of German manufacture was installed to control the chemical input into the drums containing the skins. The company has annual sales of \$10,000,000; is operating at full capacity, exports to Western Europe and has good prospects for the future. However, Mr. Atanas Ditschovski, General Director, said they have a major problem with wastewater.

LUV needs a new wastewater treatment plant but doesn't have the money. They treat their wastewater mechanically and chemically. It needs biological treatment which it gets, sometimes, from the municipality's wastewater treatment plant after the municipality receives the discharged wastewater from LUV. It appears that most of the waste water is discharged into the Yantra River not fully treated.

Mr. Ditschovski welcomed a WEC expert to perform an environmental review of LUV's operations and agreed to have a local consultant accompany the WEC expert in order to learn how a review should be performed.

It was agreed that the review should be performed in September.

FINTEX AND RUNO-G

Meeting with Mr. Gantcho Projnov, Manager and Mrs. Scorheva, Economist, from Fintex and Ms. Tsonka Boevska-Stefanova, President, Runo-G. Fintex and Runo-G were part of an industrial combine in Gabrovo which has been discontinued and the companies which were part of the combine are now autonomous.

Fintex processes washed and "scoured" wool supplied by Runo-G. It is a 102 year old company which has operations in nine locations within Gabrovo. It has 1,660 employees and manufactures six million meters of fabrics from three million tons worsted and three million tons woolen yarn. 70% of their product is exported to Canada, the U.S. and Italy. 40% of Fintex's equipment, which is Italian made, is 20 years old.

Fintex and Runo-G share a common wastewater treatment plant and they are not sure which company is more of a polluter, but they both agree that they contribute to the pollution of the Yantra River.

Mr. Projnov said that a Bulgarian specialist surveyed the Fintex operation and he will supply that information to WEC.

Ms. Boevska-Stefanova and Mr. Projnov were requested by WEC to supply it with as much information as possible in order for WEC to provide it to the expert or experts needed to review the two companies. They were also requested by WEC to allow a local consultant to accompany the WEC expert so the consultant could gain experience about conducting environmental reviews and they agreed.

Both companies recommended that the reviews be done in September.

GABROVO WATER SUPPLY

Gabrovo has a serious water shortage. Companies consume 70% of the water supply. The water supply to non-industrial use is shut off from Noon to six o'clock in the evening and from midnight to six in the morning.

The dam is not high enough to hold all the water needed and the municipality is studying how it could be built higher so that sufficient water could be stored.

Wednesday and Thursday, May 5 - 6

NEFTOCHIM

Traveled to Burgas located on the Black Sea. Met with Mr. Evtim Tzintzarski, Deputy General Manager, Mr. Mapeb, Director, Environmental Department, Mrs. Zlatka Sartoneva, Interpreter, Foreign Economic Relations and ten department heads (no business cards). Also in attendance were representatives from the local Inspectorate including Mr. Simeon Simeonov, Director of the Regional Inspectorate for the Surrounding Environment.

Neftochim is an enormous complex situated on over 12 square miles of property. Included in the complex are:

- (1) The Drouzhba Petrochemical Sea Port;
- (2) Oil Processing Plants;
- (3) Catalytic Reforming Facilities;
- (4A) Unit for the Isomerization of Normal Pentane;
- (4B) Three Hydrodesulphurization Units;
- (5) A Central Gas Fractionation Unit;
- (6) A Gas Absorption Gas Fractionation Unit;
- (7) A Sodium Sulphide Manufacturing Unit;
- (8) Fuel Oil Vacuum Distillation Equipment;
- (9) Bitumen Manufacturing Unit;
- (10) Vacuum Distillation of Fuel Oil with Thermal Cracking Unit;
- (11) Catalytic Cracking Unit;
- (12) Production of Normal Paraffins;
- (13) Production of Sulphuric Acid Alkylation;
- (14) Production of Aromatic Hydrocarbons;
- (15) Production of Olefins;

- (16) Production of Ethylene Oxide and Ethylene Glycols;
- (17) Ethylene Diamine Production Plant;
- (18) Acetaldehyde Plant;
- (19) Production of Octanol-Butanol;
- (20) Production of Phenol and Acetone;
- (21) Synthetic Rubbers and Latexes Plant;
- (22) Pyrolytic Hydrocarbon Resin Plant;
- (23) Bulana Polyacrylonitrile Fibre Plant;
- (24) Low Density Polyethylene Plant;
- (25) High Density Polyethylene Plant;
- (26) Polystyrene Plant;
- (27) Buplen Polypropylene Plant;
- (28) The Groudovo Plastics Processing Plant;
- (29) The Hemus Factory - Bourgas which manufactures carbon paper, typewriter ribbons, ballpoint pens, felt pens and markers, adhesive tapes, stencils and copying paper;
- (30) The Flexoplast plant which produces polymer emulsion formulations based on dimethyl-terephthalate resins, polymers, filters, dye-stuffs and organic solvents;
- (31) A "Bakelite" phenolic resin plant - Panayot Volov;
- (32) Other products i.e. detergents, paraffin candles, bronze silicone polish, cleaning and polishing towels, ski-wax and phenol-formaldehyde resins. They maintain their own Fire Department and have an emergency evacuation plan with the City of Bourgas. They have a large wastewater treatment plant that needs to be upgraded.

Neftochim has several research institutes; its own hospital, provides apartments

for its 10,000 workers and provides recreational facilities and owns a sports facility. It's a big operation.

The two days of discussions were very fruitful. In response to WEC staff's questions as to when Neftochim would like to have the waste minimization project started, Mr. Tzintzarski said, "Yesterday". We agreed that a most likely time to begin the WMDP would be July.

Friday, May 7

The meeting with Dr. Bossevsky, Minister of the Environment, had to be cancelled because he was called to Parliament to discuss the budget.

Met with Messrs. Babylon and Kostov, USAID, and reported on the weeks' activities. Also, explained the proposed program for FY 93 funding. They will inform Mr. Zarr next week when he returns.

Monday, May 10

A waste minimization team comprised of Mr. Edward Andrechek, Radian Corporation, Mr. Samuel Weiss, P.E., Volunteer Specialist, Mrs. Olga Hauskrechtova, WEC representative in Slovakia, Ms. Dorothy Chuckro and Mr. Thomas J. McGrath, WEC, met with Mr. Josef Surab, Technical Manager, Petrochema, and his staff on a reconnaissance mission to initiate a waste minimization demonstration project (WMDP).

Mr. McGrath presented a detailed explanation of the WMDP and the follow-up plan for 1994 waste minimization impact program.

Mr. Surab gave his strong endorsement by saying that many foreign organizations had made proposals which were to study their environmental situation and make expensive recommendations.

He said he is very pleased with the WEC proposal, which is concrete, and he suggested that it consider their white oil production.

The details of the visit are contained in Ms. Chuckro's report.

Mr. McGrath had to return to Bratislava in order to make an early morning flight to Prague the next day.

Tuesday, May 11 - Prague

Met with Ludmila Hofmanova, WEC Coordinator, and Radomir Matyas,

President of the Czech Environmental Management Center (CEMC). Reviewed the three-day agenda and discussed the Waste Minimization Impact Program (WMIP).

Mr. Matyas said that WMIP looked like a strong program and requested CEMC participation. Mr. McGrath said that WEC would welcome CEMC participation and it was agreed that Mr. McGrath would return in September to interview Czech public relations firms and develop the publicity program for the WMIP.

Ministry of Environment

Meetings were held with Mr. Peter Horacek, Chief, Ecological Policy Department, Mr. Benes, Chief of the Waste Management Department, who had visited WEC in New York, and Mr. Novotny, Chief of the Air Pollution Department. All expressed strong support for WMIP.

Ministry of Industry and Trade

Meetings were held with Mr. Jiri Bilek, Chief Director, Section of Privatization and Property Administration. Ivana Svadlenkova, Department of Privatization; Antonin Vokrouhlik, Section of Privatization and Mr. Vaclav Lisy, Vice Director, Department of Basic Chemical Industry and Pharmaceuticals. All enthusiastically endorsed the WMIP.

Wednesday, May 12, 1993 - Spolek, a.s. Usti Nad Labem

Met with Mr. Vit Hrock, Managing Director and Mr. Peter Fric, Head of the Environmental Department.

Spolek is the oldest chemical plant in the former Austrian-Hungarian Empire and is located in the center of the town of Usti. It has 4,000 employees. It produces chemicals for the textile industry i.e. organic dyes and plastic resins and has been visited by a WEC sponsored expert who developed information for the Czech Environmental Action Plan.

Mr. Hrock was pleased to have Spolek considered for a Waste Minimization Demonstration Project (WMDP). It was agreed that a September date for a reconnaissance visit appeared to be an appropriate time. He recommends that the Hydrogen Fluoride Process be considered for the WMDP.

Chemopetrol

Met with Mr. Dusan Nepejchal, Managing Director, Vladimir Skacha, Director of Strategic Development and Jaroslav Cir, Head of Department of

Environmental Protection. Mr. Cir reported that the Waste Minimization Demonstration Project is very successful. Volatile Organic Compounds, primarily Benzene, have been reduced by over 70%. However, the calculation of the economic benefit appeared low and Mr. McGrath suggested that they are not including the savings from the reduced usage of oil that results from the Benzene savings. Mr. McGrath inquired when Chemopetrol estimates when the project would be completed. Estimated time of completion is late summer. He suggested that the representative from Malcolm Pirnie, Inc. return to discuss the results of the program to date. This was accepted. Subsequent to the visit, Mr. Stouch, Malcolm Pirnie, Inc., was contacted by WEC and he will contact Chemopetrol to arrange for a visit.

Mr. McGrath advised that WEC would like to plan for a formal presentation of the results and transfer of ownership of the monitoring equipment. He further suggested that this be done in Prague at a press conference and the Chemopetrol representatives agreed.

The purpose of today's visit was in response to Chemopetrol's request that it be considered for another WEC project. CEMC strongly recommended that WEC discuss this possibility with Chemopetrol.

It was agreed that WEC would provide a pro bono specialist who would assess their ARGO Division, which includes the following:

- synthesis of NH_3 , expedition of NH_3
- production of oxygen from the air
- gasification of petroleum remainders for production of hydrogen a synthetic gas
- synthesis of urea
- treatment of sootwaters and production of soot
- production of catalyzers
- production of fluid and solid CO_2

Reception for Jim Scherer

Mrs. Hofmanova and Messrs. Matyas and McGrath attended a farewell reception for Jim Scherer at the home of Ms. Lee Roussel, U.S. AID Representative. During the reception, Mr. McGrath discussed the WEC

program with several people including members of Ms. Roussel's staff who will brief her about the progress of the program and its future plans.

Thursday, May 13, 1993

Visited VCHZ Synthesia in Semtin, a suburb of Pardubice, to discuss an environmental review. Met with Messrs. Jaroslav Valousek, General Director, Jiri Kumstat, Director, Environmental Protection, and Jaroslav Beran, Head of Department for Water Protection and Wastes.

The company was founded in 1922 for the production of explosives. It now produces a broad range of organic and inorganic chemicals, plastics, dye stuffs and intermediates.

Mr. Valousek specifically requested WEC assistance in providing a specialist who could assist them in their preparation for an environmental audit. The company has applied for a PHARE loan and, as a prerequisite, it must have a complete environmental audit performed. It has narrowed its selection to two Czech firms. The audit for the PHARE loan will take four months and will begin in September. The scope of work of the WEC project is to have a pro bono specialist take them through a mock environmental audit. WEC agreed to supply an expert as soon as possible.

Petrochema

Returned to Bratislava and was briefed by Edward Andrechek, Radian Corporation, and Dorothy Chuckro, WEC, about the WMDP.

They reported that the company personnel is very technically competent and has initiated several programs to take corrective action to reduce waste generation.

Mr. Andrechek said that he is investigating two possible projects which could assist the company to reduce its SO₂ emissions and bring it into compliance with the national regulations. However, he has not calculated the economic benefits of the reduction and due to the low penalties currently being charged, the economic savings may not be too dramatic.

Mr. McGrath advised that the Slovak government recommended that Petrochema be considered for a WMDP because it is located between two national parks. Whatever can be done using low cost technology to reduce pollution will have a significant benefit because of the reduced exposure of pollution to workers, residents and the visitors to the two national parks. It would appear that the reduction of SO₂ would be a good project. It was agreed

that we would discuss our findings with the Slovak Ministry of Economy tomorrow and seek their comments about the project. Details of the findings will be in Mr. Andrechek's report.

Friday, May 14, 1993

Association of Industrial Environmental Managers. Mrs. Hauskrechtova, WEC Coordinator, Ms. Dorothy Chuckro, Mr. Sandy Hale, Senior Environmental Advisor, and Mr. Tom McGrath met with Mr. Peter Prizemin.

Mr. Prizemin and others are investigating the possibility of organizing an association which would be an umbrella organization to the two largest Slovak employers associations, the Industry Confederation and the Association of Entrepreneurs which are sponsoring Mr. Prizemin's activities. These associations do not presently have environmental issues on their agenda. Some of their members are receptive to an umbrella organization that would have environmental concerns as its main activity. Mr. Prizemin is seeking WEC assistance in accomplishing this objective.

Mr. McGrath suggested that the umbrella organization be, first, registered and that, its governing committee meet with him, Mr. Hale, and Mrs. Hauskrechtova in September to discuss how the new association could work with WEC in implementing its waste minimization impact program which will start this fall. Mr. Prizemin agreed and a date for the meeting will be set.

Ministry of Economy

Met with Mr. Holler, Director of Technical and Economic Department and Ms. Daniela Milova from the same department.

Mr. Andrechek reported on the WEC Waste Minimization Demonstration Project at Dubova. The details will be contained in his report. Mr. Holler was pleased with the findings and endorsed the processes under consideration by WEC.

Regarding the second environmental assessment, the Ministry recommended that WEC consider a wood furniture manufacturer and it will send information to WEC about this company.

In closing, Mr. Holler complimented the WEC programs as ones "that move".

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V. ATTACHMENTS

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Spolek, a.s., Ústí nad Labem

(Basic information about The United Chemical and Metallurgical Works at Ústí nad Labem, prepared by CEMC, Prague, for Mr. T. McGrath, ~~WEL~~, in May 1993)

The state owned company S. OLEK, a.s., has its three basic production divisions located at the main works in the centre of the town Ústí nad Labem, North Bohemia; the fourth production division (not mentioned further) is at the works at Velvěty, near Ústí.

With 4000 employees, SPOLEK, a.s., produces almost 1000 different products, which probably represents the highest diversification among Czech chemical companies. In 1993, the production was 3 bill. Czech Crowns, and the profit 600 mill. Czech Crowns.

The privatization is foreseen in the course of the second wave of privatization of Czech industry in 1993.

The Inorganic Division operates a chlor-alkali plant (NaOH and KOH, both with mercury cells) with annexed production of epichlorhydrine, tetrachlormethane and perchlorethylene. This division also produces sulphuric acid with related sulphates and sulphites, hydrofluoric acid with related inorganic salts and CFCs, potassium permanganate and single crystals.

The main environmental problems are caused by the chlor-alkali plant (chlorine, mercury) and the related organic compounds, including the hexa-wastes. The gypsum from the hydrofluoric acid production has recently found a commercial use.

The Division "Resins" produces epoxy resins, polyesters, alkyd resins and ionexes.

The main environmental problem is caused by non-returnable drums inside the work, and further problems are caused by considerable amounts of resins, pitch and spent adsorbents and filter aids.

The Division "Dyes" produces intermediates and a variety of dyes: azo dyes, reactive dyes based on metal complexes, versatine dyes and a number of dyes used in textile and food industry.

The main environmental problem is represented by waste sodium sulphite bearing organic impurities, further by tars and a variety of coloured sludges.

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SPOLEK a.s. belongs to the group of companies paying much attention to environmental problems and spending most of its investment money to minimize the impact of the production on the environment.

At Ústí nad Labem, the most important precautions are:

- Air pollution prevention in all operations, already keeping the pollution within legal limits
- New landfills for industrial and for hazardous wastes, in operation since 1992
- Incinerator of hazardous wastes, to be put into operation in 1993
- Biological and chemical waste water treatment, to be put into operation in 1994 and 1997, respectively

Two ecological audits have been finished recently:

- (1) by the Direction Régionale de l'Industrie, de la Recherche et de l'Environnement, Marseille, with the support of the French Ministère de l'Environnement (1991)
- (2) as a part of the privatization project ((1992)

Prague, May 11, 1993

Ing. Vojtěch Vaněček, CSc.

Ing. Radomír M a t y á š, CSc.
President of CEMC

The background for project implementation - cooperation with WEC (Draft proposal)

Environmental audit - VCHZ Synthesia

With respect to the need of coping with ecological obligations (according to the Governmental Bill No. 123), the requirements of authorities as well as their own needs made the company to intend to order a complete ecological audit.

A tender for Czech enterprises specialized in these activities was launched by the company.

After the bidding EUROSTAV Co., Prague and AQUATEST Co., Prague were selected.

Due to limited financial resources the company had at the same asked for financing of ecological audit from PHARE Foundation with expectation that both above mentioned corporations will take part in audit making out.

The framework structure of the audit should be as follows:

- Assessment of environmental damage caused by past activities
- Assessment of the concord between the environmental control and the legislation
- Estimate of possible costs for environmental problems solution.

In this respect the company expects an important assistance from the part of a foreign consulting company especially as far as the preparation of their staff for cooperation with external auditor in all stages of the audit is concerned. They also expect an

assistance in drawing up the task and assessment of the readiness of the company to fulfill it.

The following assessments and recommendations within the ecological audit are concerned:

- The size of physical inspection of the site, discussion with the enterprise management, discussion with representatives of various authorities.
- Retrieval of documentation.
- Elaboration of analytical background materials and pollution level data of various components of environment.
- Identification of activities which are not in accordance with

legislation.

- Cooperation with the management and managers of the company.
- Assessment of the environmental control and management.

The assistance of the WEC could be implemented for example in the way of few days seminar for management of the company and some CEMC representatives.

Minimalization of wastes

The designed waste treatment plant will not clean specific organic substances especially chlorobenzene, dichlorobenenes, trichlorobenzenes, nitrobenzene etc.

These waste from the manufacture of intermediates and dyestuffs wil have to be minimized in quantity in the respective plants.

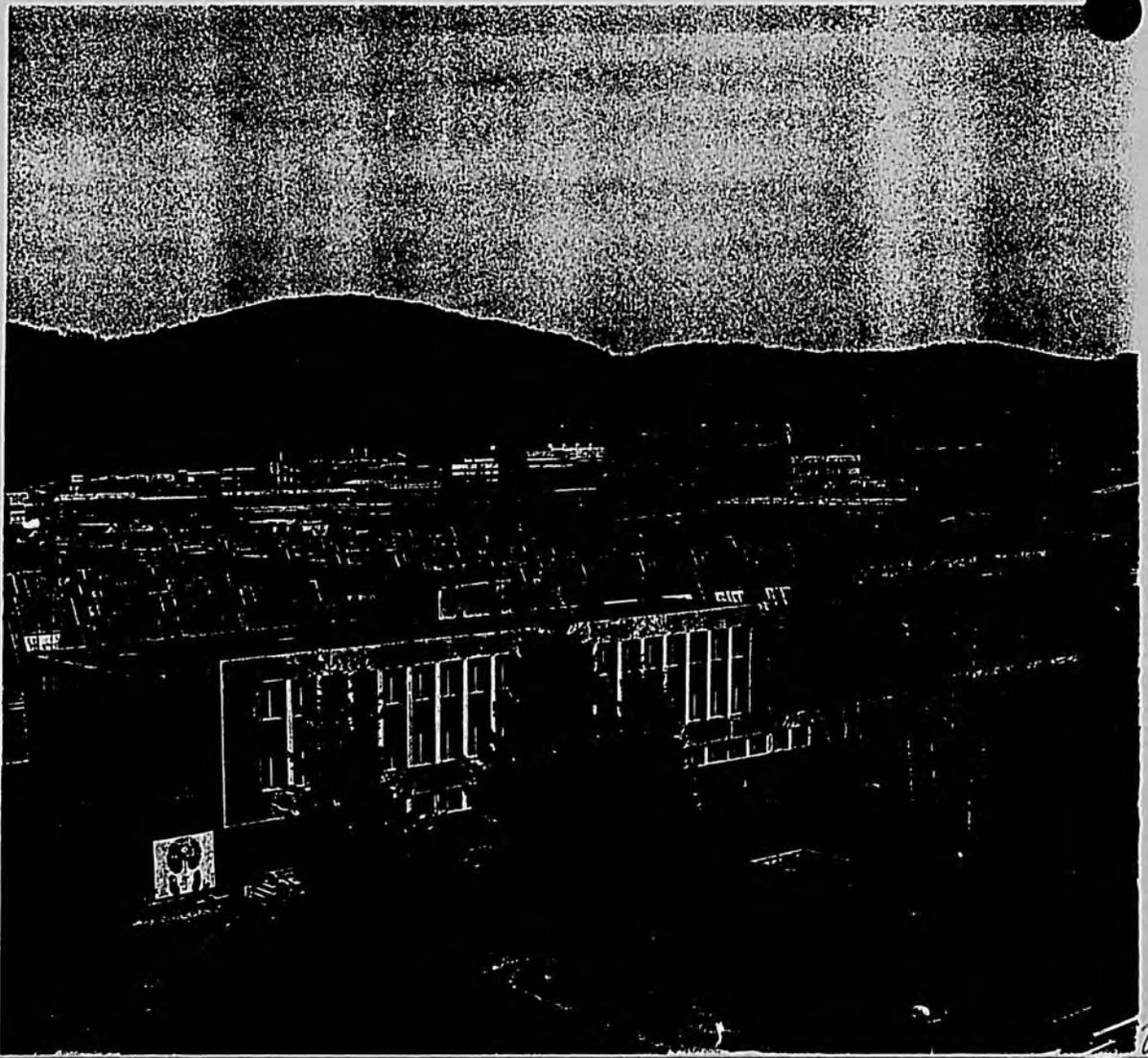
Objective ot the project:

- qualitative and quantitative assessment of the sources
- definition of the improtant sources
- investigation of the single process steps
- elaboration of a complex proposal concerning waste minimalization
- elaboration of a proposal for clean-up residual impurities in the wastes.

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"FINTEX"

LTD – GABROVO



As a part of the industrial development of Gabrovo the wool textile industry has had and will have an important place in the economics of the town. Furthermore at certain comparatively long periods it formed the industrial aspect of Gabrovo, gave the lead and served as an example for the industrial development of the country. The Gabrovo wool textile mills have characterized the factory production in Bulgaria for a long time. The famous Hungarian traveller Felix Kanitc who visited Gabrovo in June

1871 when the Bulgarian people were under the Turkish yoke, wrote: "Gabrovo is well-known not only for his beautiful surroundings but for the conscientiousness, intelligence and economic activity of its citizens as well. One could call Gabrovo an enormous workshop". In Kanitc's opinion Gabrovo was an important trade centre but first of all an industrial centre: "Everybody in this town is busy with some craft and when they don't produce something else, they at least weave fabrics."

STRUCTURE

"FINTEX" – LTD – GABROVO was created on September 3rd 1991. Its basic activities include wool and wool type yarns and fabrics manufacture and trade in this country and abroad, engineering, marketing and information service. However as a successor of the former spinning and weaving

workshops traditions in wool textile manufacture it has 110 years history. This determines its structure (it is built on eleven working sites) each factory having relatively closed cycle. The structure includes: **MANAGEMENT** – ensures general supply and sales, production dispatch, quality control, economic service,

technical development and equipment maintenance. **DYEING WORKSHOP** – worsted tops dyeing, yarn dyeing and fabrics dyeing. **WORSTED SPINNING WORKSHOPS** – 6 factories. **WOOLEN SPINNING WORKSHOPS** – 4 factories. **COMBINED** – weaving workshop and finishing.

RAW MATERIALS

The basic raw materials used in the manufacture are as follows:
Wool tops from Australian and Argentine wool 19.5–24.5 mc.
Wool tops from home wools 23.5–24.5 mc, 25–29 mc and 31–39 mc.
Synthetic fibre tops – PES fibres

3.3 dtex – "Yambolen" – Bulgaria, 3.3 dtex – "ICI" – England, 2.2 dtex – Italy etc.
PAN fibres – 3.3 dtex – high-volume and normal – "Bulana" – Bulgaria "Polan" – Yugoslavia etc.
Effective fibres tops from Italy,

Belgium etc.
Wools 23–25 mc, 25–29 mc, 29–34 mc – Bulgarian, noil etc.
Wools 21–25 mc – Australian – 20–23 mc – "Haydemann" – England
PES fibres 17 dtex – 3.3 dtex – "Yambolen" – Bulgaria



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