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CONVERSION OF MILITARY INDUSTRIES IN THE CZECH AND SLOVAK FEDERAL REPUBLIC WITH THE EMPHASIS ON METAL TRANSFORMING INDUSTRIES

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C O N T E N T S:

EXPLANATORY NOTES

The following abbreviations are used in this report:

CMEA	Council of Mutual Economic Assistance
CSFR	Czech and Slovak Federal Republic
CSK (KCS)	Czechoslovak Crowns
EC	European Communities
GNP	Gross domestic product
UNIDO	United Nations Industrial Development Organization
WTO	Warsaw Treaty Organization

Substitutional projects (programs) = projects on civilian production which substitutes for arms production in armaments plants under defense conversion.

Czechoslovakia is a Federal State made up of the Czech Republic and the smaller Slovak Republic. Basic economic data on the CSFR and the two republics are shown in Annex 1. On January 1, 1993, Czechoslovakia will split into two independent states - the Czech Republic and the Slovak Republic.

I N T R O D U C T I O N

Until 1989, Czechoslovakia was one of the most important producers of arms among the members of Warsaw Treaty Organization (WTO), military pact of socialist countries. During the existence of the Pact, huge production capacities and military facilities had been built in this country. Czechoslovakia supplied its allies with heavy arms like tanks, heavy artillery, armoured vehicles and ammunition. In the framework of strategy of the Warsaw Pact strategy, the CSFR exported a large portion of its arms production output to the developing countries with communist orientation and to countries which fit in with the military strategy of the Soviet Union.

However, after its peak in 1987, the military production in the CSFR started to decline. This favorable trend was positively influenced by diminishing international tension and mainly by the policy of detente in Europe. Toward the end of the 80's, the process of dissolution of the Soviet empire and the collapse of communist regimes East-Central Europe culminated. The Velvet Revolution in Czechoslovakia in November 1989 gave rise to the democratic political system in the country. By 1990, the military and economic integration of the communist block - the WTO and the CMEA had been abolished. Czechoslovakia introduced its new non-aggressive military doctrine and started a real and large-scale conversion of its military industry.

The basic aim of this report is to present the experience of Czechoslovakia in defense conversion, so that it may serve as a worthwhile case of conversion of military industries and thus, be model for other countries facing the same task. The report provides key information and important data about the military production of the CSFR, offers a basic analysis of major problems and discusses the state conversion policy with a special emphasis upon the desirable role of the state participation in this process.

While Part I deals with the defense conversion from the point of view of the CSFR, the course of conversion and associated problems in the Czech Republic and Slovak Republic are treated separately, in parts II and III respectively. The basic reason for such an arrangement is that there is a principle difference between the character of military industry in the Czech and Slovak Republics and therefore, also in conversion policies and problems in the two republics. Naturally, the second reason for such arrangement is the imminent split of Czechoslovakia into two independent states, the Czech Republic and the Slovak Republic scheduled for January 1, 1993.

The report puts forward some basic recommendations, which might be used profitably by states already launching upon or planning to start a military conversion. The report also provides an opportunity to learn not only from the successes, but also from the mistakes and drawbacks of the defense conversion policy being pursued by the CSFR.

This report was prepared in close co-operation with the following federal and national Czechoslovak governmental bodies: Federal Ministry of Foreign Affairs, Federal Ministry of Economy, Federal Ministry of Defense, Ministry of Industry of the Czech Republic and Ministry of Economy of the Slovak Republic, as well as in collaboration with several important arms producers undergoing conversion in both republics.

I. MILITARY INDUSTRY CONVERSION POLICY IN THE CSFR

1. The Military Industry in the CSFR

The tradition of the developed military industry in the Czech lands dates back to the end of the 19th and beginning of the 20th century. Six important firms with arms production capacity existed here before 1918. Advanced technologies of the Czech producers at the beginning of 20th century enabled such deliveries as heavy artillery for the Austro-Hungarian navy. These guns were produced in Škoda Plzeň and were comparable with the production of Krupp company. Most of the arms production was concentrated in 3 engineering concerns: Škoda Plzeň, Czechoslovak Armoury Brno, Česko-Moravská Kolben - Daněk (ČKD).

The following arms were produced in these companies: in ŠKODA Plzeň - artillery arms including ammunition, later on there were also tanks; in ČSZ Brno - infantry arms including ammunition and in ČKD Prague - tanks and armoured vehicles.

After World War I many Czech producers were developing progressive production of aeroplane fighters, transport planes and even medium-size bombers. Their successor was Czech automobile factory, Avia and current the Czech holding company, Aero. Renowned and demanded were Czech cannons and howitzers as well as light tanks. Extensive and highly developed Czech automobile industry, namely the Skoda, Tatra and Praga companies, served as natural suppliers of technology to the army. Quite famous were also military companies such as Česká Zbrojovka, Zbrojovka Brno, Sellier & Bellot and Zbrojovka in Považská Bystrica, producers of infantry arms and ammunition. Connected with that was the chemical and pyrotechnical production of gunpowder and explosives. The most well known were chemical works in Pardubice and Dynamit Nobel in Bratislava.

In the 30's new enterprises with arms production capacity emerged in Moravia, in towns like Vsetín, Uherský Brod, Slavičín, Bojkovice, and also in Slovakia - in like towns Dubnica and Považská Bystrica. In 1937 the volume of army production reached its pre-war zenith. On the eve of World War II Czechoslovakia developed and produced heavy coastal artillery and weapon systems. Many of these systems were preserved practically intact even though the Germans had used them for training in combat on the Maginot lines.

According to the official Czechoslovak statistical data export of arms and ammunition represented 21% of the total world export in 1934, 24,1% in 1925 and 15,4% in 1936 of these articles. Items were exported primarily to Yugoslavia, Rumania, Poland, Turkey, Iran, Afghanistan and later also to China, the USSR and some countries in Latin America.

During World War II, the capacities of Czech and Slovak military industries were fully utilized by the German army. After World War II the arms production continued and was upgraded, first for the needs of the Czechoslovak army and later on for the needs of the Warsaw Pact. As a member of the Warsaw Pact, Czechoslovakia specialized in the production of training turbo-jets, including control and training equipment (production of battle aeroplanes was stopped), tanks and armoured fighting vehicles. Apart from this specialization, artillery

and infantry arms including ammunition were also produced as well as bombs and sapper equipment, commander systems and systems of anti-air-bombing protection. The production was distributed to the Czechoslovak army and in conformity with the communist doctrine, in large volumes were delivered also to the all countries of the Warsaw Pact as well as to countries within the Soviet sphere of influence including many developing countries in the Middle East, Asia and Africa that sympathized with socialistic ideas.

Diversification of the arms production is typical for Czechoslovakia. The share of arms production on the total production was higher than 20% only in 30% of Czechoslovak enterprises involved in the military production. Most of these armaments plants are final producers of heavy arms such as tanks, infantry vehicles, self-propelled guns and ammunition of large calibers which are located in the Slovak Republic (partially because of strategic reasons but, mainly as a solution for the industrialization of Slovakia). Conversely, the arms production in the Czech Republic is specialized in most cases to components, special equipment, devices and accessories, light weapons and ammunition.

According to some foreign sources, Czechoslovakia was the seventh or eighth biggest exporter of army production in the 1980. The value of exports to countries with convertible currency reached its peak in 1986, the ceiling volume of the production was reached in 1987. About 100 enterprises were involved in the production of arms, with 73 thousand people participating directly (as employees of military factories) and 50 thousand indirectly (employed in company-suppliers to the military factories). From the 70% of the production that was exported, 60% went to the USSR.

The most important exporters of conventional arms to developing countries according to the volume of export in 1985 - 1989 are listed in the following table:

1.	USSR	46.4 bil USD
2.	USA	21.4 bil USD
3.	France	12.3 bil USD
4.	China	6.7 bil USD
5.	Great Britain	5.6 bil USD
6.	West Germany	1.9 bil USD
7.	Italy	1.7 bil USD
8.	Brazil	1.3 bil USD
9.	Israel	1.0 bil USD
10.	CSFR	0.9 bil USD
11.	Sweden	0.8 bil USD

Source: Suddeutsche Zeitung (1990)

As far as the territorial division of arms exports is concerned, in 1984-1989 the largest volumes were heading to the following countries:

1. USSR	1990 mil USD	33.2%
2. Libya	925 mil USD	16.2%
3. Iraq	675 mil USD	11.8%
4. Syria	625 mil USD	10.9%
5. Algeria	410 mil USD	7.2%
6. Cuba	350 mil USD	6.1%
7. Poland	290 mil USD	5.1%
8. Hungary	130 mil USD	2.3%
9. others	415 mil USD	7.2%

Source: World Military Expenditures and Transfers, 1989

Exports of arms, of course, were a significant source of convertible currency income contributing positively to the balance of payments of Czechoslovakia. The civilian parts of the Czechoslovak economy were not able to generate sufficient amounts of convertible currency under the socialist system due to the inefficiency of central planning and directive type of management. It was estimated that arms production contributed annually 70 billion crowns to the Czechoslovak state budget in the 1980.

The following table provides list of the countries with the largest production of arms ranked according to the share of employees in military industries on total number of people employed in industry:

YEAR 1988	share of employees in military industries on total number of people employed in industry (%)	Number of people employed in arms production
1. Israel	9.23	90 000
2. USA	8.64	3 350 000
3. USSR	6.88	4 800 000
4. Great Britain	6.41	620 000
5. China	5.86	5 000 000
6. Canada	1.98	89 000
7. France	1.96	300 000
8. Poland	1.92	260 000
9. CSFR	1.?2	125 000
10. Switzerland	1.26	23 000
11. Norway	1.05	15 000
12. Egypt	0.98	100 000
13. Belgium	0.86	33 000
14. Finland	0.81	5 000
15. Sweden	0.80	28 000
16. West Germany	0.61	190 000
17. Netherlands	0.60	29 000
18. Italy	0.47	124 000
19. India	0.45	230 000
20. Spain	0.34	66 000
21. Australia	0.19	15 000
22. Brazil	0.12	75 000
23. Greece	0.05	9 000
24. Austria	0.03	15 000

As arms production accounted for such a important share of the total economy of Czechoslovakia, this country ranked among the ten most important arms producers in terms of the share of employees involved in arms production on the total number of people employed in industry. Given the quite significant share of the total economy devoted to arms production in Czechoslovakia and high percentage of labour forces employed in this sector, it is obvious that a reduction of arms production has been necessarily causing serious economic and social problems in the CSFR.

2. Main Problems Faced by the Military Industry in the CSFR

The general change in the political atmosphere during the late 80's resulted in the reduction of international tension and the end of the cold war but also gave rise to a new need to solve the problems resulting from the reduced demand for development, production and delivery of arms and other army equipment.

Since the production zenith of 1987, the volume of arms production in the CSFR has had a downward trend. This situation is caused by two main factors. Firstly, orders given by the Federal Ministry of Defense and Federal Ministry of Interior for supplies for the Czechoslovak Army have been diminished. Secondly, the exports to the Warsaw Pact countries, mainly to the USSR, dropped significantly and even stopped after the Velvet Revolution in the CSFR in November 1989 and breakdown of the Warsaw Pact in 1990.

The new Czechoslovak military doctrine which was adopted by the Federal Parliament on 20th March, 1991, has strictly defensive character. It clearly states that Czechoslovakia will pursue a peaceful policy of non-aggression and will limit its military activities (including arms production) only to the minimal extent necessary its striking power against a possible aggressor.

The problem of military conversion in the CSFR is affected by several other factors, mainly:
a) Following the outcomes of the Negotiations on Conventicnal Armed Forces in Europe held in Vienna, Czechoslovakia will have to reduce its army and the number of heavy weapons. The CSFR is now searching for an economic strategy to enable it to meet this obligation. One of the possible ways is to export them to "suitable" territories which are determined by the new Czechoslovak military doctrine (excluded are the countries which are the parties of any of the ongoing conflicts throughout the world).

b) The producers have to solve the problems resulting from the maintenance of a surplus of arms and other military equipment on stock for which there are no buyers. The state is no longer able to financially cover the undistributed production. Also in this case, export under control of the state might be one of the possible solutions.

c) The military conversion is to be accomplished in a relatively short period of time during which first the production of the heavy arms should come to an end. Initially, it was envisaged that the arms production would be reduced to 50 percent or even up to one-third as early as the end of 1991. However, these goals exceeded the real possibilities.

d) Another serious problem is the future adaptation of previously constructed military facilities, including unfinished military construction projects which is aggravated by the general decline in construction-investment activities in the CSFR.

Conversion of the military industries to civilian applications in the CSFR has been further complicated by the fact that it coincides with the transformation of the Czechoslovak economy to an efficient market system. This process of transition is itself very painful and evokes about many serious economic and social problems. The military conversion contributed significantly to the main negative impacts of the economic reform in the Czechoslovakia, such as the rise of unemployment and large decline in volume of industrial production, especially in the Slovak Republic. Although the successful accomplishment of military conversion is closely interlinked with the success of the Czechoslovak economic reform, its negative effects on military industries under conversion is much harder than on the industries with civilian production, because the conversion of the arms production to civilian applications is extraordinary demanded on capital. However, the amount of free capital is very limited because of the restrictive monetary and fiscal policies pursued by the Czechoslovak government which is aimed at curbing inflation.

The Czechoslovak economy, including the military industries, faces the following consequences of political and economic changes in the country and in the region of East-Central Europe:

- general reduction in purchase orders caused mainly by disintegration of Comecon markets, drop of investment activities and consumption of the population in the CSFR;

- transformation of the economy from planned towards market system caused plants to leave rapidly the system of plans imposed by state - the key economic tool used for forty years and switch to principles of a rather liberal market economy. In this way, plants formerly administered by their relevant branch ministries have become independent. This switch in requires a completely different behavior of the companies and radical change in their economic thinking.

- massive privatization, although a very positive and necessary step towards future efficiency and competitiveness of Czech and Slovak industries, causes temporary uncertainty among state plants and their management which could negatively affect pace of positive changes in these economic entities.

Therefore, the military conversion is much more difficult to implement under conditions of an unstable economy in the transformation process than if it were realized in a functioning and growing economy.

The conversion of the Czechoslovak arms production due to its general character, time pressure, complications caused by the ongoing transformation of the economy and massive privatization of the state enterprises in the conditions of the economic recession, seems to surmount in its demanding character all conversion programs already realized or being realized in developed countries with stable and strong economy.

The total impact of military conversion in the CSFR in 1991 is shown in Annex 2.

3. Factors in Conversion of Military Industries

In general, the military conversion tend to be similar to a post-war period when economy programs are aimed at redirecting the industry to civil production. This encompasses structural, technological and production changes and the retraining of labor.

From the technological and organizational point of view, military conversion is a transition from arms production to civil production. If production technology and production equipment used in military industry can be quite readily utilized in the civil sector of economy or if the final product is applicable for civilian use, conversion is not technically complicated. The crucial factors are mainly the production profile of the company, its technical maturity and capability, level of qualification of the workers and extent of the conversion. However, the serious complications come with the highly specialized kinds of battle technology or production of ammunition.

The conversion process has both economic and social aspects. The economic aspect concerns the question of compensation of military demand through changes in the structure of the state budget, generating incentives for economic growth of the country and keeping the rate of employment down during the period of conversion. The restructuring of working power and production capacities of the former military industries is inevitable. A strong economy is able to support economically this conversion process by restructuring the budgetary means without any significant economic and social shocks. This proposition was proven by the realization of conversion programs in the USA, Sweden, Germany, etc.

One crucial task of the conversion is to eliminate losses from the termination or reduction of the arms production by preparing and implementing effective new (substitute) programs with guaranteed distribution and by retraining workers and solving regional and local socio-economic problems.

To prevent significant negative impacts of conversion, the experts from developed countries, who had gained experience in military conversion in these countries, identified key factors forming the pre-conditions for a successful course of conversion. The following general factors were pointed out:

- long-term preparation of the conversion and its well-considered conception. By choosing a suitable strategy we can prevent complications in the reproduction process.

- step-by-step and smooth implementation that would enable the government to stagger certain complicated technical, organizational and economic solutions over a longer period of time, e.g. 5-10 years. It is said that annual reduction of military expenses by 0.5% of GNP should not lead to economic shocks and disproportions. For instance, Sweden is planning a reduction of its military expenses by one half within 25 years (1980 - 2005). Such a decrease of demand does not exceed usual irregularities on the market.

= pace of structural changes - restructuring of economy is a relatively stable phenomenon accompanying economic development. Since the conversion is just a specific form of such changes, no abrupt structural changes should occur in the course of the conversion. The changes should be gradual and manageable from the economic and social point of view both locally and within the whole regions.

= all problems connected with conversion are more manageable during a period of economic stabilization and rapid growth than during economic stagnation or even recession.

= effective demand for the new production and services has to be assured by changes in the structure of the state demand by a shift of the state expenses in military sphere to other spheres, mainly economic and social infrastructure. It appears that the best solution would be to invest in the development of services, infrastructure of transport and communications, power industry, environmental industry, scientific research, education and health care. This way can at least partially compensate for the possible extent of the new production over demand, otherwise it could be a drop of prices, aggravation of returns of the capital, etc. Another method is to lower taxes which would lead to growth of personal consumption. However, this possibility is limited by differences in the effective demand between different groups of citizens.

Defense conversion brings a range of consequences to the reproduction process. To assure a smooth transition, certain regulation from the center through various direct and indirect forms of state economic interventions is needed even under conditions of a functioning market economy. Among favourable pre-conditions of conversion it is worth mentioning diversification of arms and civil production in individual firms and companies. Such diversification helps to smooth the transition to civil production as well as also product and technological similarity of the arms production and civil production, namely in the sphere of electronics, automobile and aircraft industries. These findings emerge from various studies of the UN commissions and International Labour Organization.

The most complicated case for conversion program is the restructuring of enterprises that focused exclusively or in significant part on production of highly-specialized modern weapon systems. From the economic point of view, substitution of such production in a short term seems to be very complicated and would require extensive state economic intervention. In other countries, attempts to solve these problems led to creation of a range of work teams, commissions and councils. For instance, in Great Britain and Germany these analytical and consulting activities are very well developed within the framework of the Trade Unions.

4. State Policy and Strategy of Implementation of the Conversion Program in the CSFR

On the macro-economic level the goal of the Czechoslovak state, which is responsible for pursuing the radical economic reform aimed at transition of the national economy to a modern market economy, is to implement military conversion without worsening and threatening the macro-economic stability of the country. This means that, the state must share responsibility for this process by providing direct and

indirect support and assistance to the industries under conversion.

On the micro-economic level the present aim of military companies in the CSFR is to preserve or to regain their competitiveness. These companies must try to manage this problem by means of formulating substitute programs of civil production. In most cases the formulation of substitute programmes is combined with the preparation of privatization projects under the process of privatization of the Czechoslovak economy.

4.1. Steps Taken by the State since 1989

As early as in 1988, state authorities commenced analytic and prognostic work concerning future prospects of arms production in the CSFR. Conversion of military industries in the CSFR started in the beginning of 1989 as a result of democratization process in Europe and the abatement of international tension.

In 1989 the state subsidies aimed at reduction of arms production totalled 400 million Czechoslovak crowns. Most subsidies were channelled into the military enterprises in Slovakia, in the Czech Republic only one enterprise was subsidized. These subsidies covered stock credits as a liability of the state in the sphere of non-realized contracts.

In 1990 the Federal Government allocated for the same purposes 1.436 billion Czechoslovak crowns out of which about 400 million Czechoslovak crowns were assigned for direct subsidies to 25 enterprises in the Czech republic and the remainder was allocated to the Slovak Republic.

The year 1991 brought about a qualitative change in the approach of the state to the conversion of arms production. The use of the federal budget was aimed at support of projects that were submitted and realized as substitutional projects of new (civilian) production. These projects represent significant part of structural changes of the Czechoslovak industry.

The funds from the federal budget are distributed according to certain priorities set by the federal government and are provided in form of irrevocable grants. A team of ministerial, banking, military and civil experts was established for the purpose of evaluating proposed substitutional (conversion) projects according to the given project evaluation criteria. A special commission at the federal level was appointed to evaluate individual projects.

It was also decided to grant assistance to enterprises engaged in the liquidation of unused supplies that were initially intended for arms production. The state has been participating in covering the loss from direct sales to domestic and foreign customers or liquidation in cases the companies are unable to find buyers. This stage of the state assistance will be finished by the end of 1992.

Following the adoption of the Federal Government resolution No. 443/92, the state has generally continued to pursue this year the same strategy of promoting programs of conversion as in 1991. Subsidies are continually granted for covering interest rates on credits, for the purchase of licences, for covering licence charges and for the

purchase of machines and equipment, with the overall amount allocated for these purposes being 1,000 million Czechoslovak crowns.

A total of 28 enterprises in the Czech Republic have applied for support for 64 projects, of which 25 are new projects (to be launched in 1992) and the rest are projects launched in 1991. The volume of subsidies required from the federal fund for conversion totals 510.4 million Czechoslovak crowns in the Czech Republic (the Slovak Republic has submitted 100 projects worth 2,300 million Czechoslovak crowns). The deadline of selection of substitutional projects to be subsidized was the end of September 1992. The federal commission of experts recommended to distribute the conversion funds for 1992 as follows: for the defense conversion in the Slovak Republic the state will provide 793 million Czechoslovak crowns, out of which 430 million CSK will be used for financing 2 large conversion projects and remaining 363 million CSK will allocated for 109 smaller projects in 34 armaments plants. As regards the Czech arms producers under conversion, they receive 207 million CSK for supporting 41 substitutional projects in 21 plants.

For the sake of evaluation, the projects were divided into two groups according to investment exigency:

a) investment costs over 50 million Czechoslovak crowns
b) investment costs up to 50 million Czechoslovak crowns

The projects of the group a) were approved by Federal Government and concern exclusively projects in the Slovak Republic assigned to the local ex-producers of heavy weapons.

The group b) contains projects which met the criteria for state budget assistance. Decisions about assistance were given to the competence of the Federal Ministry of Economy and Federal Ministry of Finance and were carried out in accordance with federal budgetary rules, i.e. the volume of usable financial means for conversion was limited by possibilities of the state budget in 1991. In the Czech republic 62 projects were supported by the total of 300 million Czechoslovak crowns in 1991. The more significant substitutional projects are listed in the annexes.

4.2. Formulation and Elaboration of Conversion Projects Applying for State Assistance and System of Project Evaluation

In May 1991, the Federal Government set principles and requirements needed for submitting and approving conversion programs that require state assistance. After the project is approved, the funds are drawn in the form of credits, to cover interests from credits, purchase of licences and purchase of machines and equipment up to 30% of the total project cost. The enterprise submitting the project is obliged to prove its ability to financially cover remainder, for instance by bank confirmation.

The given conditions for the state assistance in terms of subsidies are as follows:

- creation of new jobs
- start up timing
- new production programs
- secured distribution

In case the enterprise is unable to meet the prerequisites, it is obliged to return the funds provided by the state to the federal budget. Any misuse of the financial resources constitutes a violation of the law on federal budget rules.

4.3. Project Evaluation Criteria

The projects are thoroughly assessed by the expert group according to the following criteria:

- range of negative impact of the conversion on the enterprise: ratio of special production to the total production measured by volume, labour, inapplicable assets and stock (scale: very significant --- very little);

- level of substitution the new production for the arms production: applicability of the original equipment, rate of lost and newly created jobs, balance of the growth of production vis-a-vis the volume of production in the years 1987 - 1990 (scale: insufficient --- excessive);

- competence of company management (scale: minimal --- very good);

- guaranteed financial sources for the conversion program: economic effect (scale: without perspective ---perspective);

- significance of the company and impact of the conversion in regional context (scale: very significant --- minor);

- program implementation (scale: prompt --- long)

- total costs and return of investment to state budget: speed of start up, profit, taxes (scale: three levels according to criteria);

- level of technology solution, competitiveness, prospects and assurance of distribution (scale: not suitable --- prospective).

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II. CONVERSION OF MILITARY INDUSTRY IN THE CZECH REPUBLIC

5. Characteristics of Arms Producers in the Czech Republic

The arms production in the Czech Republic culminated in 1987 with production in volume totalling 11.5 billion Czechoslovak crowns. This figure represented 39 percent of its total industrial production. Since that time the volume of the arms production has a decreasing trend. In 1990 it represented only 42 percent of 1987 volume. This decline was partially caused by a fall in wholesale prices of many raw materials, semifinished products and components on January 1, 1990.

Table: Arms Production in the Czech Republic

year	1988	1989	1990	1991	1992 (outlook)
volume of production (bil. crowns)	11.5	10.0	8.1	3.0	2.5

In the Czech Republic all military enterprises are under the Ministry of Industry of the Czech Republic.

Prevailing part of the enterprises under military conversion in the Czech Republic are mostly companies in which arms production represents 5 - 50% of their total production program. On the other hand, in Slovakia quite numerous part of the arms producers is specialized, almost exclusively, in finalization of the arms production. Moreover, the most significant Slovak armaments plants have large numbers of employees (12 - 15 thousand) and serve as decisive source of employment in regions where they are located. This fact determines the difference between the military conversion in the Czech republic and Slovakia. Czech military enterprises are then more capable of adaptation and their conversion programs less demanding from the investment point of view. Data collected by the Ministry of Industry of the Czech Republic tend to support this hypothesis - in the Czech Republic the total conversion costs amount to 8.1 billion Czechoslovak crowns while in Slovakia they reach 18.2 billion Czechoslovak crowns (see Annex).

In the Czech Republic more than 60 enterprises are involved in conversion which is two times more than in Slovakia. Out of 48 significant producers in the CSFR, 21 are from the Czech lands.

The subject of the conversion programs in the Czech Republic are mainly products of precision engineering, optics, opto-electronics, and other electronics.

The final arms production in the Czech Republic is represented by aircrafts and aircraft equipment, passive and active radiolocation and target searching, cross-country heavy vehicles, light weapons and ammunition, personal protection devices and some kinds of anti-infantry and anti-tank mines.

Conversion (substitutional) programs in the Czech Republic proceed from the adaptability of the high level technologies and highly qualified labour. Should these merits of the Czech enterprises under conversion be utilized up to their full potential, it is likely to increase the production of current competitive civilian products produced in these enterprises in quite a short period. However, the military companies have to find new markets, identify cooperation opportunities and get know-how and licences in order to increase the level of technology. One of possible ways is the involvement of foreign capital (foreign direct investments).

Table: Impacts of the introduction of the new Czechoslovak military doctrine on the arms producers in the Czech Republic in 1991:

idle stock	2,629 mil crowns
non-utilized assets	896 mil crowns
idle stock interest rates	84 mil crowns
further losses (cancelled contracts, penalties, etc.)	193 mil crowns

Newly introduced substitutional programs are facing serious distribution problems, firstly because of a lack of investment funds on the domestic market which has to survive the impacts of the transformation process and secondly because of the lower purchasing power of most households. This means that substitutional programs must also be targeting toward foreign markets.

The total economic exigency of the new production start-up under the substitutional programs in the Czech Republic was quantified as follows:

requisite non-investment means	610 mil Cz. crowns
investments	1,600 mil Cz. crowns
labor retraining costs	155 mil Cz. crowns
total	2,365 mil Cz. crowns

It is not realistic to cover these costs only from the sources of the currently economically weak enterprises. According to overall estimates the total impact of the conversion in the Czech Republic will be 4.9 billion Czechoslovak crowns. The sum of 155 million crowns appointed for about 7,000 lost jobs caused by conversion is an absolute minimum needed for the retraining. However, according to some estimates (Ministry of Labor and Social Affairs of the Czech Republic), the increase in the number of unemployed persons during the process of conversion could reach 20 thousand.

Arms, needed for the Czechoslovak army in the conformity with the new Czechoslovak military doctrine, will be produced in the certain territories and for purposes of essential state defense. These are the products of aircraft industry, passive radiotechnology, target

identification, light weapons, heavy vehicles with sapper systems, means of anti-nuclear and chemical protection. The procedure for the application for export and territories of possible export are set by the Federal Government of the CSFR and by the State Defense Council.

6. Prospects of Arms Production in the Czech Republic

The key arms production programs in competence of Ministry of Industry of the Czech Republic are:
- training systems for military pilots in the holding company AERO Praha;
- systems of active and passive radio-location in Tesla Pardubice; - explosives in the chemical factory VCHZ Pardubice;
- cross-country heavy vehicles Tatra, etc.

Besides these programs, also production of ammunition, light weapons, radio communication systems, means of individual anti-chemical protection, dosimeters, respiratory devices, optics, special optoelectronics and data-processing technology will continue.

The above-mentioned programs can fully satisfy the needs of the Czech and Slovak military forces.

7. Substitutional Programs in the Czech Republic

New (civilian) programs are in different stages of realization. It was previewed that the substitutional programs would produce goods valued at 1.9 billion Czechoslovak crowns in 1991 and almost 4.9 billion Czechoslovak crowns in 1992.

Substitutional production programs are based mainly on existing civil production of individual enterprises in those cases when distribution can be enlarged or when the enterprise is starting a new niche production to fill a gap in its production range. The new production is designed for both domestic and foreign markets and the programs also often include licensing and foreign cooperation.

State assistance is aimed at:

1) increasing capacities of the current civil production which is competitive and has enough customers (textile machinery, pumps, hunting arms, automobile industry, etc.);

2) filling gaps in assortment on domestic market (e.g. sanitary equipment, ecology equipment, toys, fireworks);

3) creating new, highly competitive products that are capable of succeeding in foreign markets;

4) using enterprises' own capacities that were freed with the termination of arms production;

As regards the categorization of substitutional programs that meet the requirements for governmental assistance in the Czech Republic they can be sorted into the following groups:

- components and spare parts for automobile industry
- sanitary products including medicaments

- production of electronic, pneumatic and hydraulic equipment
- covers for foodstuffs
- radiolocation and radio communication systems, optoelectronics
- textile machines and their components
- machines for polygraphic industry, pumps and measuring devices
- hunting and sport long arms including ammunition
- machine tools including accessories
- new toys
- equipment for dumps
- ecological machinery products
- automation elements including regulatory elements
- products for optics and laser technology
- wind power plants
- entertainment pyrotechnics

8. Experience Gained from the Course of Conversion and Privatization of Military Enterprises in the Czech Republic

The complicated and demanding character of the military conversion in the CSFR is caused by its combination with all other serious problems the CSFR economy is facing and has to solve at the same time.

These concurrent problems are:
1) The breakdown of trade links between former CMEA members for both civil goods and arms. This collapse caused a sharp drop in production in many industrial enterprises as well as a drop in income to the state budget;

2) the overall insolvency of enterprises which resulted in a lack of funds for investment and due to low purchasing power of households the domestic market demand is very weak. The market economy environment has emerged. However, at the same time due to the reasons mentioned above demand on the market is quite weak and our producers still do not offer suitable goods in assortment and quality demanded;

4) a lack of medium-term prognosis of the CSFR military budget that could direct the range of terminated arms production and still keep striking power of the state;

5) military conversion has a very negative temporary impact on regional employment. The regional organs often do not have an appropriate conception for creation of new jobs within the framework of regional policies of structural changes;

6) military conversion is combined with the privatization of the Czech economy. Substitutional programs have become part of the privatization projects of companies under conversion. As the privatization process in the CSFR has to adhere to a strict time schedule (deadlines for elaboration of privatization projects), the military conversion has thus been indirectly placed under time pressure.

The suppression of the arms production and the following start-up of the civilian production programs will result in the loss of jobs at least by 7,000. The Czech regions mostly affected by cut-back in the arms production because of high share of the arms production on the total industrial production of the region are Southern Moravia (23%), Central Bohemia (17%) and partially Eastern Bohemia.

Analysis of the conversion programs showed that, despite the state assistance, the implementation of substitutional programs is difficult due to their financial exigency. In many cases this was the reason why the enterprises backed off the new production programs. The flow of foreign capital into the CSFR up to now is not adequate to the needs of Czech and particularly Slovak economies, mainly because the privatization process has not yet been fully accomplished and last but not least, due to overall uncertainty arising from continuing disintegration of the CSFR.

Still, only a few new job opportunities which could absorb the newly unemployed have been generated in other spheres than industry. Therefore, in 1992 the state has addressed its assistance to restructuring the regional infrastructure, development of non-traditional or lacking services like tourism. State support is also provided to the emerging small and medium-scale private companies.

Annex A1-8 provides supplementary information about defense conversion in the Czech Republic.

9. Future Role of the State in Military Conversion in the Czech Republic

The basic precondition for a successful accomplishment of conversion of military industries in the CSFR is that measures taken by the state cannot be only limited to providing grants. That is why the state has re-evaluated its earliest plans. For the same reason the character of the state assistance has been shifted from directing and planning the conversion from the state level to supporting individual projects.

The state should also pay more attention to creation of favourable conditions for successful implementation of substitutional programs. The following direct and indirect means of assistance could be taken into consideration:
- purchase of licences and know-how
- promotion of international cooperation
- retraining programs
- state support for creation of small and medium-size companies that would absorb the unemployed workers.

The scope of the conversion will probably call for constant analysis of its course and making necessary adjustments during the realization of the privatization and restructuring process.
One of the possible way of assistance could be the creation of a conversion fund. The funds could be drawn as a fixed share of export revenues of certain commodities. Such a fund would also collect money from other sources, such as sponsors, etc.

Measures taken by regional organs should consist mainly of creation of new jobs through well-considered regional policy. This policy is to be oriented to support of small and medium-size private companies, development of communal services, tourism and other underdeveloped parts of the infrastructure. All of this assistance complement new retraining programs.

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III. CONVERSION OF MILITARY INDUSTRY IN THE SLOVAK REPUBLIC

10. Characteristics of Arms Production in the Slovak Republic

Production of arms in Slovakia began in 1928. In 1928, the Czech firm Zbrojovka Brno constructed a plant for production of light infantry arms and ammunition in Povazska Bystrica. In 1933 - 1937, Skoda Plzen built plants for artillery ammunition production (present ZVS Dubnica) and artillery arms production including necessary metallurgical plants (present ZTS Dubnica) in town Dubnica.

Significant development of arms production in Slovakia started after 1950, when arms production was reduced for strategic reasons in the Czech plants and shifted to Slovakia. Production of tanks was transferred from CKD Prague and Skoda Plzen to a newly built plant in Martin (present TEES Martin) and production of armoured transporters from Tatra Koprivnice to a new-built plant in Detva (present PPS Detva).

In following years new capacities for arms production were being built systematically:

sort of arm	name of arms producer
sapper technique	SS Kosice, Mostaren Brezno, Tatra Banovce, SL Komarno, Vagonka Poprad
large-calibre ammunition	Vihorlat Snina
optical instruments	EOPTA Bratislava
electrotechnic and electronic products for armaments production	TESLA Liptovsky Hradok, TESLA Vrable ZVT Banska Bystrica, KABLO Malacky
air jet engines/	PS Povazska Bystrica
components for armaments production	ZTS Prakovce, ZTS Hrinova, ZTS Bardejov, zavody SNP Ziar nad Hronom, EVU Nova Dubnica, ZTS Topolcany

The research and development basis of arms production was established, especially for the sphere of artillery rocket-launchers and mine-launchers including their ammunitions and further in the sphere of commanding and staff systems and reconnaissance means.

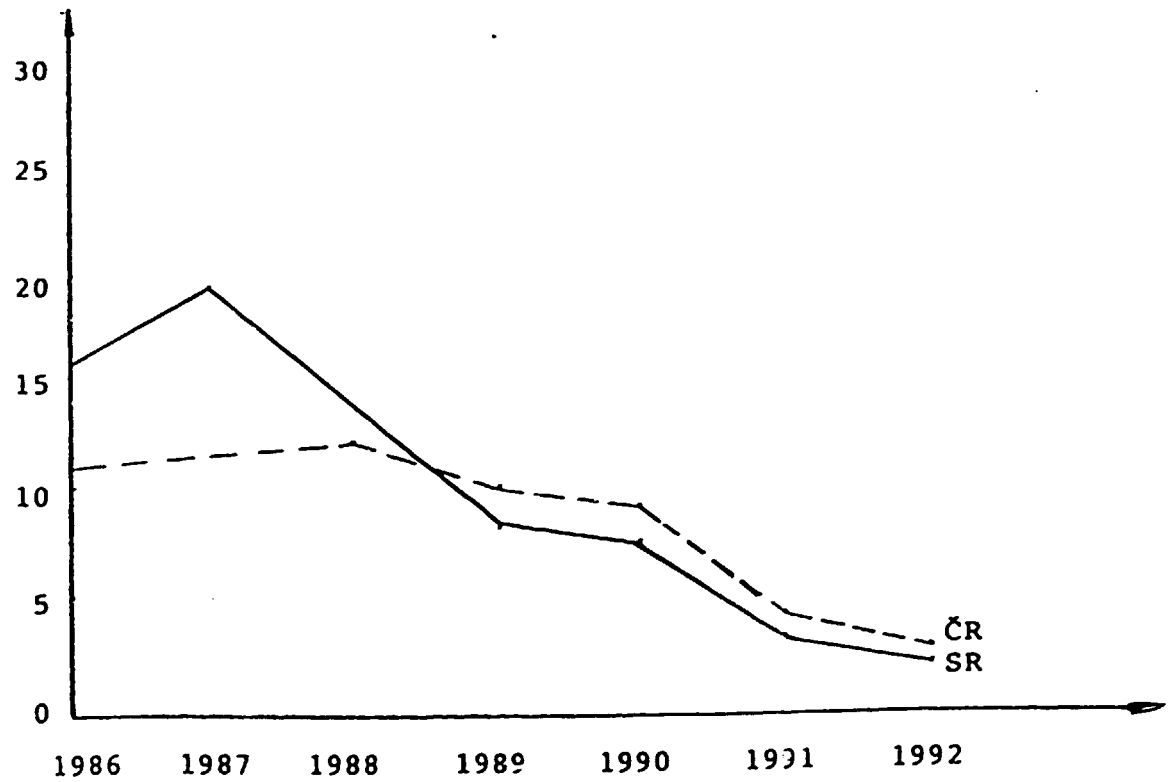
As regards the number of arms producers in the Slovak Republic, 36 arms plants were working in the Slovak Republic in 1987, 29 of them within the domain of the Ministry of Economy of the Slovak Republic. Total arms production in the Slovak Republic in 1976 - 1988 of final producers represented 145.0 billion Czechoslovak crowns. Maximum total

armaments production in the Slovak Republic was 17.8 billion Czechoslovak crowns in 1987, representing 60.8% of total arms production in the CSFR. Production of arms also accounted for 24% of the total production of engineering and electrotechnic industries located in the Slovak Republic versus 7% figure for the production of arms in similar industries located in the Czech Republic.

11. Impacts of Conversion on Arms Producers in the Slovak Republic

Reduction of arms production in the Slovak Republic after 1987 is illustrated by the following graph (comparing with the Czech Republic) in 1987 base-year prices:

Arms Production (in billions of CSK)



The arms producers in the Slovak Republic expressed the total impacts of the reduction in arms production on their economic situation numerically as follows (figures designated in millions of Czechoslovak crowns):

total impact out of:	7,993.0
= idle supplies	2,459.0
= idle capital funds	2,236.0
= other financial charge (unredeemed future period costs, overhead costs, credit interests, damages and penalization)	3,297.0

Expected decreases in employment in the Slovak military industry accounts for 40-50 thousand during the period 1992-1993, which represents 70% of total reduction of employment in the Czechoslovak military industries.

Besides the current problems facing the whole Czechoslovak industry in the process of economic reform, Slovak military plants are confronted with these specific problems thus making their situation even more serious.

First, insufficient capacities in research and development caused by the fact that the predominant portion of arms production in the Slovak Republic was subject to licences from the former USSR. Even the part of development of arms carried out in the CSFR was concentrated in special institutes supervised by ministries. The military companies under conversion lack time and funds for rebuilding their own R&D and therefore, are highly dependent upon the purchasing of licences.

Second, the absence of marketing and commercial experience hampers the development of civil production in the former military companies. The economic entity must take over full responsibility for selling their products and finding new markets. The primary goal of these plants is to introduce modern marketing and sales methods, by building-up their own marketing and sales departments with well-trained specialists.

Moreover, the plants have only a minimal ability of plants to generate funds from their operation activities necessary for restructuring and modernization. This situation can be attributed to severe reduction or complete discontinuation of arms production that was the key source of funds during previous periods. Civilian production in the Slovak military plants was merely supplementary in character. Newly introduced civilian programs have not yet brought desirable profits. This situation makes plants require excessively high credits with long due dates. This in turn creates a high level of indebtedness. Finally, the resultant high rates of interest in the CSFR reduce efficiency of civilian production programs.

Consequences of the reduction of arms production on the selected Slovak arms producers, from the viewpoint of production and employment, are given in Annex B1-8. This set of armaments plants includes 13 most important Slovak arms producers accounting for:

- 83% of arms production in the Slovak Republic in 1989,
- 78% of lost vacancies in 1988 - 1991,
- 80% of vacancies remaining in the Slovak military industry in 1991.

These plants represented 7% of the gross industrial product of the Slovak Republic in 1989. Compared to 1988, their arms production in 1991 was lower by 10 billion Czechoslovak crowns (in 1990 base-year prices) and represented 38% of total production of these armaments plants in 1991. Civilian production of these plants in 1991 decreased by 30% in comparison to 1988, due to for the most part, Comecon market disintegration and domestic order reductions.

12. State Policy in the Field of Conversion in the Slovak Republic

The Government of the CSFR alleviated economic consequences of arms production suppression in the Slovak Republic by the following measures:

1989:
- providing 367 million Czechoslovak crowns to ZTS Martin for solving the wage problems caused by reduction of arms production in this plant;

1990:
- granting 812.0 million Czechoslovak crowns (out of 1.2 billion crowns earmarked for the CSFR) to carry out conversion programmes;

1991:
- resolving the problems of liquidating idle stock of newly produced arms and their components by reimbursing 60% of expenses from the state budget (plants had to finance 40%). The state participation represents 1,436 billion Czechoslovak crowns to be provided for armaments plants in the Slovak Republic, consisting of 360 million Czechoslovak crowns spent in 1991 and the rest planned for spending in 1992 and 1993;
- 830 million Czechoslovak crowns was released from the state budget for liquidation of idle fixed assets;
- a special state contribution was provided for realization of selected conversion projects in the amount of 1,200 million Czechoslovak crowns in 1991;
- under an one-time only plan for relieving of debts aimed at reduction of state enterprises insolvency, the state cut the credit repayment obligation of the Slovak arms producers by 2,680 billion Czechoslovak crowns;
- armaments plants were drawing 6.5 million Czechoslovak crowns out of funds of the Ministry of Labor and Social Affairs of the Slovak Republic for retraining of 2,320 workers;

1992:
- state contributions for military conversion amounts to 1 billion Czechoslovak crowns. Slovak state authorities recommend the allocation of 710 million Czechoslovak crowns out of the state contributions for armaments plants in the Slovak Republic. The commission of experts on the federal level recommended for implementation in the Slovak Republic 2 large projects in total value of 430 million Czechoslovak crowns and further 109 small projects valued at 363 million Czechoslovak crowns for 34 Slovak armaments plants.

Besides the direct state participation in solving financial problems of armaments plants under conversion, the Slovak government provided TEES Martin with a state guarantee on credit in the amount of 2.2 billion Czechoslovak crowns aimed at financing the conversion (substitutional) program "Oil Engines Lombardini". In 1992, the Slovak Government approved state guarantee for 2.7 billion CSK credit for the substitutional program of ZTS Dubnica.

The Slovak Republic has been granted a subsidy for conversion plants located in Slovakia out of the programme PHARE. The sum of 380,000 ECU was assigned for elaboration of "Branch Feasibility Study on Arms Production Conversion in the Slovak Republic". The objective

of this study is to determine a mid-term strategy of restructuring and conversion of arms production in the Slovak Republic by means of addressing the following issues:

- evaluating contemporary pros and cons of the military industry with respect to its proposed conversion to civil production,
- estimating a need for restructuring of the individual armaments plants and the whole military industry,
- designing a plan of action reflecting determined priorities.

The firm SOFRES CONSEIL, SEMA Division Conseil was put in charge of elaborating the above-mentioned study. At present, the study is under discussion by the competent state authorities of the Slovak Republic. The study also contains an evaluation of conversion (substitutional) programmes proposed by plants themselves. Under the programme PHARE 1.0 million ECU is to be used for financing activities recommended by "Study ...".

13. Substitutional Production Programs

Armaments plants in the Slovak Republic submitted to the state authorities 117 substitutional projects totalling 15.77 billion Czechoslovak crowns of estimated costs on their realization. Out of these projects the Slovak experts recommended for implementation 64 projects valued at 11.46 billion Czechoslovak crowns which in total, should generate employment for 24,875 workers and lead to production amounting to 29,750 million Czechoslovak crowns in following years. Armaments plants require state participation on financing these projects up to 30% of total costs (3.8 billion Czechoslovak crowns).

13.1. Characteristics of Presented Proposals

From the point of view of time, substitutional programs can be divided into the following 2 categories:

- short-term programs with fast realization schedules. They are targeted primarily on assisting armaments plants "to survive" in years 1991 - 1993. Their basic objective is to alleviate their worsening financial situation as well as decrease in employment. Proposed production programs mainly consist in expansion of existing civilian production or in introduction of cooperative productions. The realization costs of these programs are relatively low;

- middle-term programs with realization scheduled for 1995. These programs deal with future optimal structures of plants. These programs also have a higher risk of failure and are also less predicable in their rates of success.

As regards subject of production:

a) Expansion of existing production is the prevailing subject of proposed substitutional programs. Program costs are directed to:
- increasing production capacity,
- obtaining higher use values of products, especially their quality and reliability by both innovation of products and modernization of technology of production,
- increasing labor productivity.

The main representatives of this group are:
- earth and construction machines (excavators, loaders, all-purpose carrier of equipments for road constructions);
- agricultural machines (tractors including forest ones, stack packing machines);
- handling equipments (e.g. high lift trucks, transport platforms, palette packing machines);
- axial hydrostatic converters;
- production of tools for mechanical machining, pressing, injection of light metals and plastics;
- industrial equipments for rubber, textile and woodworking industries, finishing equipments for rolling mills;
- axles and mechanical gearboxes for mobile machines.

b) Smaller in number but of high importance is a group of products proposed for production in participation with firms from developed countries (licence purchase including know-how, cooperation, etc.). The most important programs are:
- oil engines Lombardini,
- pumps for oil industry (REDA USA licence),
- axles with hydrostatic drive (EATON USA).

As far as market targeting of sales of civilian production output, a majority of the substitutional programs count on revival of the internal market, especially in agricultural and civil engineering but also, on recovery of the Eastern market, mainly in the Commonwealth of Independent States (CIS) where possible exports may range from 30% to 60% of the total production. Exports to markets of industrial countries represent a somewhat lower portion in all programmes (with the exception of cooperation under concluded agreements).

With the respect to their low ability to generate funds, the companies assume the following pattern of financing the conversion programs:

- companies'funds	10- 20%
- state participation	30%
- bank credits	40 - 55%
- foreign investments	5 - 10%

The numbers shown represent average values; there are armaments plants which will count on a bank credit excessing 70% because of an absolute lack of funds and which will use the financial support of the state for reimbursement of credit interests. However, this way of financing causes an enormous pressure on a plant economy for a long period.

13.2 Risks in Conversion Program Proposals

One of the major risks of successful realization of the substitutional programs is a lack or marketing and sales experience of armaments plants. Some companies are solving this problem by ordering elaboration of marketing studies produced for the most part, by foreign consulting firms. However, high prices of the studies and lack of funds in plants hamper more wide utilization of the services of consulting firms.

The lack of quality marketing strategies may put the armament plants at being unable to secure a market for the output (civilian products) of substitutional programs and hence unable to generate funds for redemption of credits taken by the armaments plant for implementation of the substitutional (conversion) program.

Risks lie also in territorial market targeting in relation to possible time delay of domestic market revival (in agriculture, civil engineering, road network construction, ...) and especially revival of market in the CIS.

Another problem is also the technical level and quality of civilian production of Slovak armaments plants. Comparative studies enabling a comparison of use values of products with those of renowned foreign producers are not elaborated to the appropriate extent to provide necessary range of information. Nevertheless, an objective assumption can be made that, in comparison with the world standard, use value and quality of the civilian output of armaments plants are in general lower even though some conversion programs are realized on the basis of purchased foreign licences and know-how. A risk resulting from this fact is lower marketability of the products or substantially lower sales prices which can negatively affect the project efficiency.

A very important prerequisite for market success even of high quality products is well-functioning sales and service network which, unfortunately, armaments plants have not built. Doing sales and providing services through intermediary agencies increase selling costs and reduce efficiency.

14. Current Problems of Military Conversion in the Slovak Republic

Implementation of conversion (substitutional) projects up to now shows the following results:

	1991 real	1992 plan	1993 prospect
production (mil. CSK)	3,147	5,650	11,845
sale (mil. CSK)	2,774	5,500	11,705
portion of civil production substituted for arms production	20%	33%	60%
number of workers	5,610	10,475	16,455

Following financial means (in millions of Czechoslovak crowns) were spent on implementation of conversion projects in the Slovak Republic:

Source of Financial Means	1991 real	%	1992 plan	%
plants' funds	361.5	14.3	582.0	16.5
bank credits	873.0	34.3	1,811.0	51.4
foreign capital	120.4	4.8	327.0	9.3
state participation	1,163.5	46.2	800.0	22.8
t o t a l	2,518.4	100.0	3,520.0	100.0

In comparison with 1990, civil production in the armaments plants experienced a reduction by approximately 30% in 1991. Employment in armaments plants decreased by 14,970 in 1991 and by 4,300 in the first half of this year. This situation is caused for the most part by a drop in demand on both domestic market and especially in former Comecon markets. Sales of civilian products produced by the armaments plants in developed countries have thus far been insignificant. In view of the fact that there have been few signs of revival at this time in the markets of the former Soviet Union and that the recession of the Czechoslovak economy has probably just reached its bottom, the production plans of the armaments plants under conversion seem to be unrealistic. The conversion plants can't rely on the expansion of exports of their products on the world market because of the overall unpreparedness of these companies to penetrate the markets of developed countries.

The ultimate problem involves securing financial means for implementation of the substitutional (conversion) programs. The plants' funds at present and in the successive years can cover only a minor portion of substitutional programs' costs (14 - 17%). State grants representing 46.2% of the total expenditures on conversion programs in 1991 will decrease to 23% in 1992. Participation of foreign capital has not yet reached the desirable level. For these reasons, the main source of financial means are bank credits; this trend is going to be even stronger in 1993 and 1994 when share of bank credits is predicted to reach 70 - 80%. However, the banks have taken on a more reserved position towards providing credits on such a scale. The banks conservative new position can be attributed to the general shortage of financial means created by the restrictive monetary and fiscal policy of the state as well as the high risks arising from the conversion projects. Large projects are financed only upon the condition that the state grants a guarantee for provided credits.

From the above-mentioned facts, we can derive a qualified assumption that conversion projects will not be realized in the projected range and that there will be delay in their implementation. This undesirable situation might be improved substantially by foreign capital participation in the course of privatization of these plants, which, however, doesn't seem to be probable.

Similar to the situation in the Czech Republic, the process of conversion of the military industry in the Slovak Republic coincides with privatization of the economy, which causes further complications because of rigid privatization schedule.

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IV. CONCLUSIONS AND RECOMMENDATIONS

Conversion of military industries into civilian enterprises represents a tremendous change in the economic structure of a country. It has its economic, technical and social dimension, which makes the process of conversion very complicated. Only a complex approach to the defense conversion can lead to a successful resolution of the problems.

The defense conversion has some common general features, which could be derived from the experience of the CSFR and also other countries that underwent military conversion in the past:

1. Conversion of military industry is, in fact, a particular case of industrial restructuring. Therefore, when preparing for the defense conversion, experience gathered during the process of conversion (restructuring) of metallurgy, mining industry, etc. in the country and/or in other countries should be taken into account. Direct involvement in this process and responsibility of the state for its implementation is necessary.

2. Defense conversion always causes short-term conflict in the sphere of employment. Inevitably, the initial effect of defense expenditures cuts and reduction of arms production is the rise in unemployment. However, as many studies in the industrialized countries prove, the rechannelling of financial and all other resources from military applications to civilian use will eventually have employment creating effect.

3. Arms production is concentrated in certain regions of a country, which depend on it as the only or a major source of employment. Naturally, any reduction of defense production has an adverse effect on employment in the region. The larger the proportion of defense employment in the regional labor force, the greater the problem will be. In order to avoid social tensions, government programs for retraining and redeployment of workers must be prepared and appropriate funds for their financing must be provided.

4. Military conversion should neither be the exclusive task of the government (state), nor the exclusive burden for armaments plants. There must be close collaboration between state and companies management and also co-operation between state and trade unions and management-labor collaboration.

In Czechoslovakia the conversion of military industries into civilian applications is being further complicated by the fact that, it coincides with the dramatic socio-economic changes in the country and falls into the period, when the economy is in deep recession. All of these facts make the role of the state in defense conversion even more important. The basic task of the state directly related to the conversion problems is to provide financial support for the substitu-

tional (civilian) programs of armaments plants and solutions for the regional problems, especially by providing funds for retraining and redeployment of workers.

Still another significant role of the state lies in creating a market economy environment (appropriate economic, legal and social conditions), assisting in the search for cooperation partners abroad and promoting an influx of foreign capital into the selected military enterprises with civilian production.

Importance of foreign capital participation consists not only in ensuring necessary financial means but also, in providing experience in the spheres of plan management, market research and preparing conditions for placement of plants on markets in well-developed countries.

Although the defense conversion brings serious problems in both Republics of the CSFR, the situation in the Czech republic is not so acute as it is in the Slovak Republic, because of different character and scope of the arms production in these republics.

Most arms producers in both the Czech Republic and in the Slovak Republic are not able to manage the process of military conversion by relying solely upon their own financial and technical means. Therefore, the assistance of the state is necessary and should continue. However, with regard to the different situation in military conversion in the two republics, the state policy may be applied in the different way reflecting the specific needs and specific problems of each of the two republics.

As regards the Czech Republic, the state will be engaged in supporting the ongoing and newly selected substitutional projects with a special emphasis on those enterprises which are likely to quickly redirect their arms production to effective civil production which can enable them to repay the loans on the conversion programs and thereby provide funds for the continuation of conversion.

Transformation of armaments plants in the Slovak Republic to civilian enterprises will be more painful and complicated and will take longer time. Apart from securing the appropriate financial means for an implementation of substitutional programs, the state will have to assist the defense companies in resolving a plethora of problems that cannot be managed by the companies themselves. The most acute problems of the armaments plants are as follows: low quality and insufficient use value of civilian products, lack of marketing and sales experience and missing sales and service network abroad, low quality of company management and minimal ability of companies to generate funds from their operational activities. The state should help the conversion plants particularly in the following ways: organizing training programs for managers and sales and marketing specialists, promoting international co-operation and an influx of foreign capital, providing state guarantees for loans and assisting in acquiring the modern technologies and know-how for renovation of plants. In view of the general shortage of funds for financing the substitutional projects, a limitation of the financial participation of the state in the implementation of the conversion projects to a maximum of 30% of their investment costs and up to 20% of their total cost is absolutely insufficient and must be increased substantially. The state must take over a full responsibility for resolving the

unemployment problems in the regions with a high concentration of arms production.

UNIDO, as the specialized agency with unique experience in restructuring of industries, modernization and revitalization of plants, retraining, training of specialists, mobilizing funds for industrial development and promoting foreign investments, could provide effective technical assistance to the CSFR in resolving the problems of military conversion especially in the following spheres:

- marketing and management training,
- retraining,
- establishment of sales and marketing departments in armaments plants,
- market analysis,
- preparation of company strategies,
- international co-operation (finding the financial assistance and technical cooperation partners in developed and developing countries)
- investment promotion (attracting FDI).

A N N E X E S :

BASIC INDICATORS

BASIC INDICATORS I: THE ECONOMY

Gross material product (1991)	:	Kcs 545.2 billion[a/]
Gross domestic product (1991)	:	Kcs 586.9 billion[b/] $83.8 billion[b/]
GDP per capita (1991)	:	$5,400[c/]
GNP per capita (1990)	:	$3,140[d/]
Population (1991)	:	15.6 million
Labour force (1991)	:	7.9 million
Total employment (1991)	:	7.7 million

Rate of unemployment (Percentage) :

1989	1990	1991
0.1	1.0	6.6

Growth of GDP (Percentage) :

1980-1987	1987	1988	1989	1990	1991[b/]
2.0	1.8	2.0	2.0	-1.7	-15.9

Structure of GDP (Percentage) :

	1970	1980	1990
Agriculture	10.1	7.7	7.2
Industry	48.5	49.7	49.4
Construction	9.0	9.1	8.9
Trade	11.7	12.9	11.6
Transport	3.9	4.4	4.4
Other services	16.8	16.2	18.5

	1989	1990	1991
Exports ($ billion) :	13.3	11.7	11.5
Imports ($ billion) :	13.7	13.2	10.5
Balance of trade ($ billion) :	-0.37	-1.5	1.00
Current account ($ billion) :	0.44	-1.10	0.36
External debt ($ billion)[e/] :	7.9	8.1	9.4
Debt service as percentage of exports:	20.4	13.8	13.9
Foreign reserves ($ billion)[e/] :	2.39	1.21	3.30
Official exchange rate (Kcs equivalents to $1) :	14.29	28.00	27.84
Consumer prices (Percentage change) :	1.4	10.0	55.0

a/ In constant 1980 prices.
b/ Estimate.
c/ In constant 1980 prices. Converted at the purchasing power parity rate of Kcs 7.0 per $1.
d/ World Bank, *World Development Report 1992* (Washington D.C., March 1992).
e/ End of period.

Source: Industrial Development Review Series - Czechoslovakia
.UNIDO, 1992

BASIC INDICATORS II: THE INDUSTRIAL SECTOR

Industrial value added (1991) : Kcs 310.4 billion[a/] ($28.4 billion)[b/]

Industrial employment (1991) : 2.41 million

MVA (1991) : Kcs 272.2 billion[a/] ($24.9 billion)[b/]

MVA per capita (1991) : $1,600[b/]

Growth of industrial value added (Percentage) :

1980-1987	1988	1989	1990	1991[c/]
2.8	2.2	0.5	-3.4	-19.0

Structure of industrial value added (Percentage) :

	1970	1980	1990
Mining	10.6	7.5	5.8
Energy	5.9	5.9	5.9
Metallurgy	12.2	10.5	9.3
Engineering	29.1	34.6	39.5
Building materials	4.3	3.9	3.3
Chemical industry	10.1	11.7	11.1
Light industry	15.2	14.5	14.2
Food industry	9.5	7.9	7.3
Other manufacturing	3.3	3.5	3.6

Share of industrial exports in total exports (January-June 1991) : 83 per cent

Share of industrial imports in total imports (January-June 1991) : 49 per cent

Structure of manufactured exports and imports (1990) (Percentage) :

	Exports	Imports
Food processing	3.3	9.0
Textiles, leather, footwear	8.0	3.5
Wood products, furniture	1.5	0.4
Paper, printing, publishing	1.0	0.6
Chemical products	9.4	12.0
Non-metallic mineral products	3.4	1.8
Iron, steel, other metals	9.0	11.0
Machinery and equipment	62.9	61.3
Miscellaneous products	1.5	0.4

Gross fixed capital formation (1989):

	Manufacturing	All industry
- Billion current Kcs	48.6	65.9
- As percentage of value added	20.7	23.1

Producer prices (Percentage change) :

1989	1990	Jan.-March 1991	April-June 1991	July-Dec. 1991
-0.7	4.5	39.8	9.6	0.3

a/ In constant 1980 prices.
b/ Converted at the industrial purchasing power parity rate of Kcs 10.94 per $1.
c/ Estimate.

Source: Industrial Development Review Series - Czechoslovakia
UNIDO, 1992

BASIC INDICATORS III: SELECTED INDICATORS OF CZECH AND SLOVAK REPUBLICS

Indicator	Unit	Year		Czech Republic	Slovak Republic
Population	Million	1991		10.3	5.3
	Share in total (Percentage)			66.0	34.0
GDP	Constant 1984 Kcs billion	1991		430.7	180.7
	Share in total (Percentage)			70.4	29.6
Growth of GDP	Percentage	1988		2.8	1.9
		1989		1.5	1.2
		1990		-1.9	-1.3
		1991		-14.4	-16.4
Structure of GDP by sector of origin	Percentage	1991			
			Agriculture	6.1	7.1
			Industry	51.6	48.5
			Construction	8.7	9.2
			Other	33.6	35.2
Gross industrial output	Constant 1984 Kcs billion	1991		506.4	199.5
	Share in total (Percentage)			71.7	28.3
Growth of gross industrial output	Percentage	1988		1.9	2.2
		1989		1.3	-0.7
		1990		-3.4	-4.1
		1991		-19.7	-24.7
Exports	Constant 1984 Kcs billion	1987		180.1	69.2
		1991		165.2	59.9
	Share in total (Percentage)	1987		72.2	27.8
		1991		73.4	26.6
Imports	Constant 1984 Kcs billion	1987		164.3	78.6
		1991		132.8	54.3
	Share in total (Percentage)	1987		67.6	32.4
		1991		71.0	29.0

Source: Industrial Development Review Series - Czechoslovakia
UNIDO, 1992

BASIC INDICATORS IV: INTER-COUNTRY COMPARISON OF SELECTED INDICATORS

Indicator	Unit	Czechoslovakia	Austria	Germany	Hungary	Poland
Population (mid-1990)	Million	15.6	7.7	79.5	10.6	38.2
Area	Thousand square km	128	84	357	93	313
GNP per capita (1990)	$	3,140	19,060	22,320	2,780	1,690
Average annual growth rate of GDP (1980-1990)	Percentage	1.4	2.1	2.1	1.3	1.8
Government consumption (1990)	Percentage of GDP	21	18	18	11	7
Private consumption (1990)	Percentage of GDP	51	55	54	62	54
Gross domestic investment (1990)	Percentage of GDP	30	25	22	23	31
Gross domestic savings (1990)	Percentage of GDP	28	27	28	27	39
Exports of goods and non-factor services (1990)	Percentage of GDP	33	41	32	33	26
Exports (1990)	$ billion	11.7	41.8	397.9	9.5	13.6
Imports (1990)	$ billion	13.2	49.9	341.2	8.6	9.7
Current account balance after official transfers (1990)	$ billion	-1.1	0.95	46.8	0.23	3.1
Gross international reserves (1990)	$ million	1,207	17,228	104,547	1,186	4,674
Total external debt (1990)	$ billion	8.1	..	..	21.3	49.4
Total debt service (1990)	Percentage of exports of goods and services	13.8	..	..	15.2	1.6
OECD imports of manufactured goods (1990)	$ billion	3.3	28.7	280.7	3.4	4.5

Source: World Bank, *World Development Report 1992* (Washington D.C., 31 March 1992); and Federal Statistical Office, Prague.

Source: Industrial Development Review Series - Czechoslovakia
UNIDO, 1992

ANNEX 2

Total impacts of military conversion in the CSFR - 1991

	Czech Republic	Slovak Republic	CSFR
Number of enterprises under military conversion	62	36	98
Number of conversion projects	186	118	304
Project costs (billions of Cz. crowns)	8.1	18.2	26.3
Number of jobs cancelled by military conversion (thousands)	20	38	58
Newly created jobs on the basis of conversion projects (thousands)	8.5	21	29.5

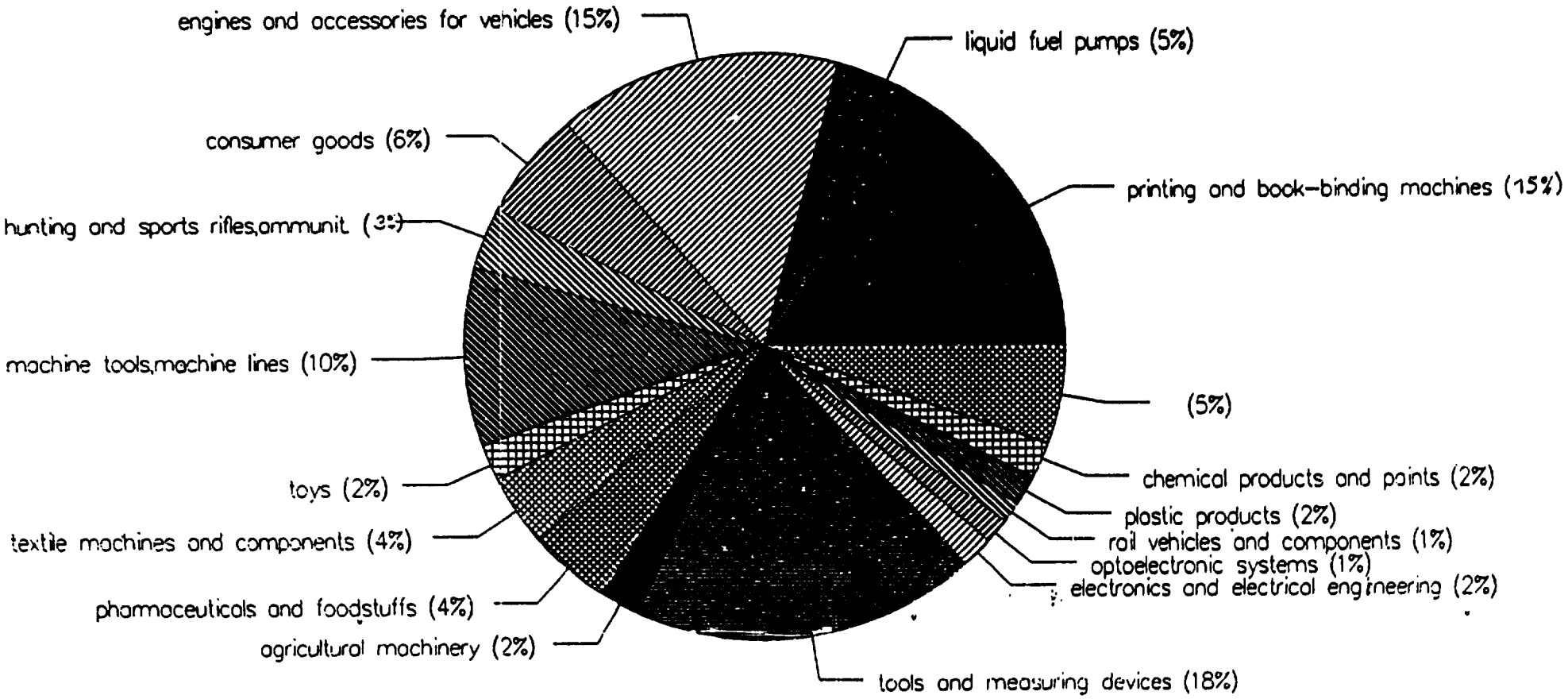
ANNEX A.1: Conversion of Military Industry in the Czech Republic

Branch orientation of the substitutional projects in the Czech republic

Branch	Planned production (mill.Kcs)			Newly created jobs		
	1991	1993	1995	1991	1993	1995
printing and book-binding machines	1050.0	1324.0	1453.0	4050	4190	4260
liquid fuel pumps	256.7	413.3	498.2	745	990	1075
engines and accessories for motor vehicles	52.0	778.2	1409.3	405	981	2032
consumer goods	36.0	274.0	573.0	343	198	168
hunting and sports rifles ammunition	66.2	283.8	310.7	173	584	672
machine tools,machine lines	79.6	909.3	945.6	832	1767	2019
toys	64.2	155.0	170.0	90	110	122
textile machines and componen	30.5	312.5	362.5	94	667	782
pharmaceuticals and foodstuff	121.0	336.0	402.1	273	536	672
agricultural machinery	70.0	230.0	230.0	183	390	380
tools and measuring devices	99.0	663.4	1711.4	289	1837	1893
electronics and electrical en	45.2	143.8	153.0	148	349	374
optoelectronic systems	57.5	78.1	134.5	306	367	472
rail vehicles and components	30.0	70.0	100.0	121	205	205
plastic products	0.0	140.0	155.0	0	92	92
chemical products and paints	0.0	10.0	203.0	6	7	25
ecological industry	100.0	370.0	490.0	179	471	695
SUMMARY	2157.9	6491.4	9301.3	8237	13741	15936

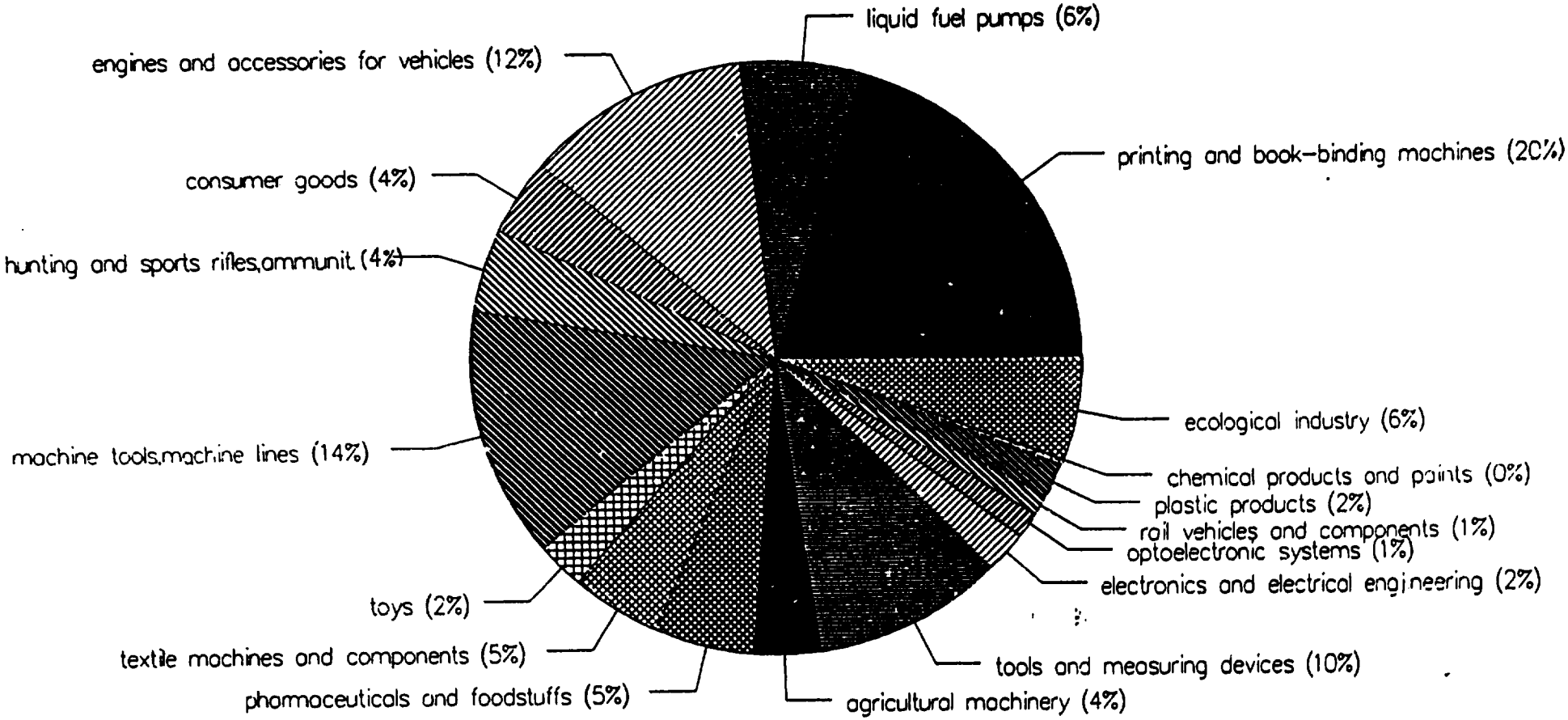
ANNEX A.2: CONVERSION OF MILITARY INDUSTRIES IN THE CZECH REPUBLIC

BRANCH ORIENTATION OF THE SUBSTITUTIONAL PROJECTS - 1995



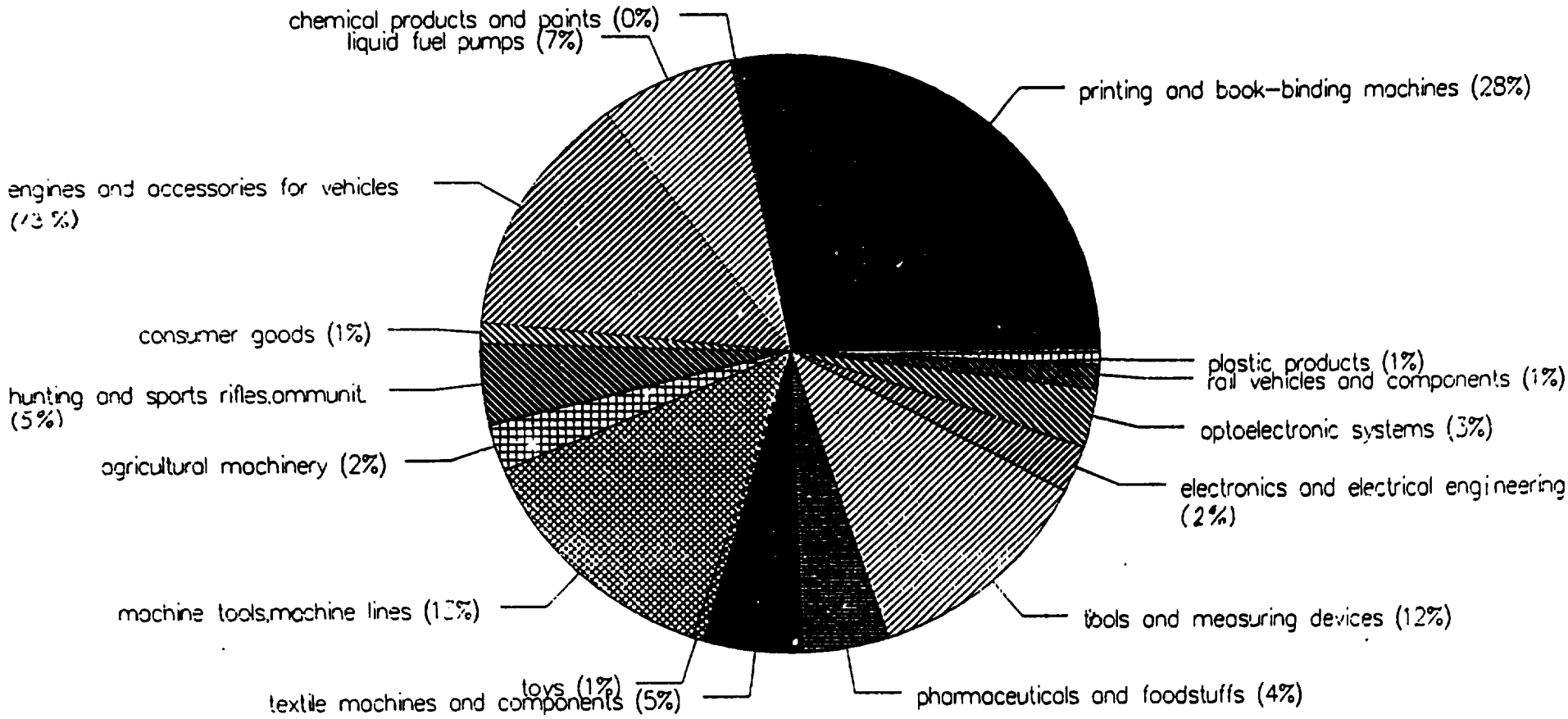
ANNEX A.3: CONVERSION OF MILITARY INDUSTRIES IN THE CZECH REPUBLIC

BRANCH ORIENTATION OF THE SUBSTITUTIONAL PROJECTS - 1993



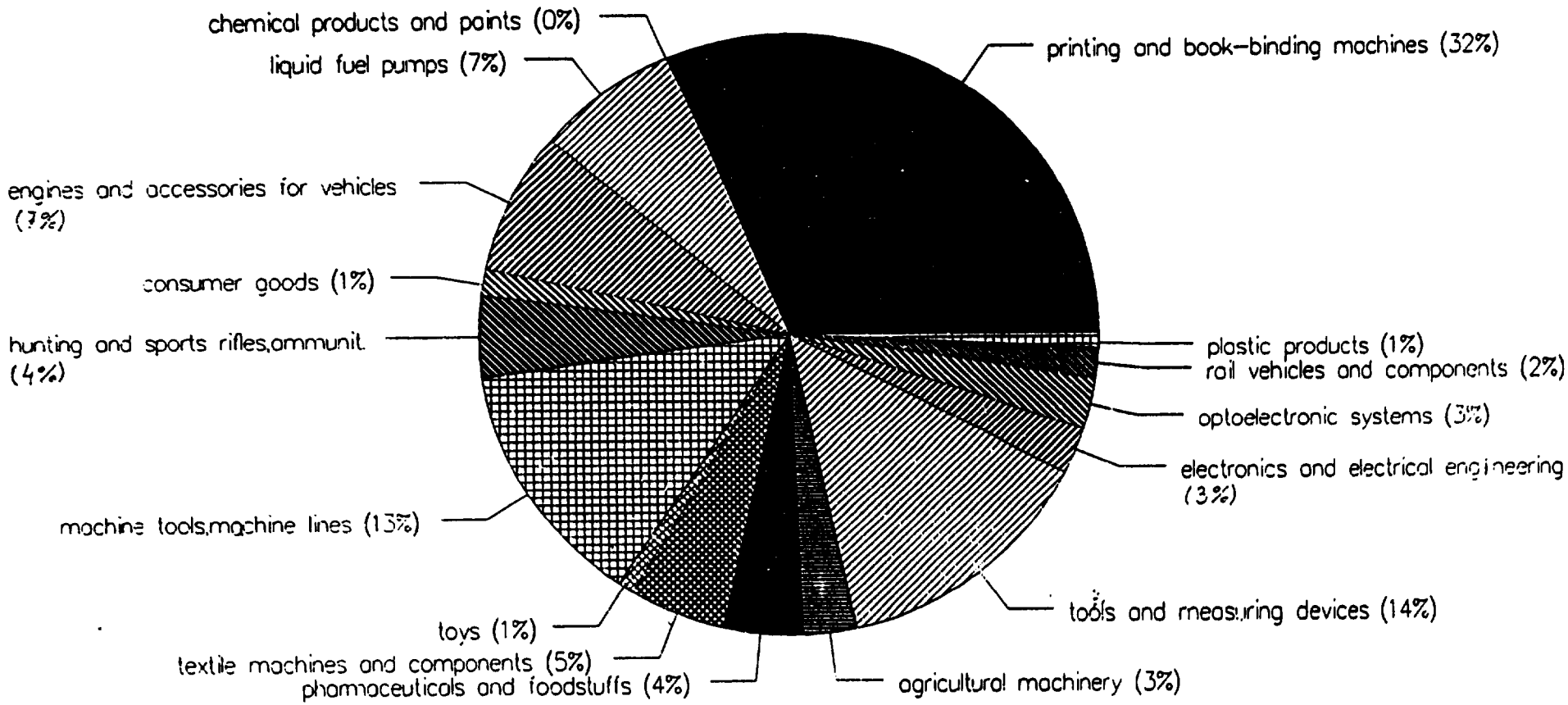
ANNEX A.4: CONVERSION OF MILITARY INDUSTRIES IN THE CZECH REPUBLIC

NEWLY CREATED JOBS UNDER SUBSTITUTIONAL
(CIVILIAN) PRODUCTION PROGRAMMES-1995



ANNEX A.5: CONVERSION OF MILITARY INDUSTRIES IN THE CZECH REPUBLIC

NEWLY CREATED JOBS UNDER SUBSTITUTIONAL (CIVILIAN) PRODUCTION PROGRAMMES-1993



ANNEX A.6: Conversion of Military Industry in the Czech Republic

Selected project proposals on substitutional production in the Czech Republic

Enterprise	production	
	new	substituted /military/
Adamovské strojírny Adamov	- polygrafic machines - fuel pumps and measuring devices	mechanical production of ammunition and missiles
Pal Magneton Kroměříž	- new generation of car starters 1.1kW/12 V	giroscops
Sellier-Bellot Vlašim	- shot cartridge - ball cartridge - antifriction bearings	ammunition
Vlárské strojírny Slavičín	- hoses for SKODA Volkswagen Group - textil loom - wheel minitractor - tool production	ammunition bombs (aero)
Meopta Přerov	- optics - ABS brakes	observing instruments for tanks
Česká Zbrojovka Uherský Brod	- long huntings guns	infantry weapons
Moravia Mariánské Údolí	- automated pressing shops	heat parts for aircrafts engines
Slovácké strojírny Uherský Brod	- ecological equipment - handling equipment and hydraulic systems	pontoon bridges towers

ANNEX A.6: Conversion of Military Industry in the Czech Republic

Zeveta Bojkovice	- calipper SOMET - grinding machine BNU 1 - disk brakes JAWA	hand shells grenades
Poličské strojírny Polička	- pneumatic units - drill chucks - electromagnetic horns - electrical hoists	antiinfantery and antitanks mines
LVZ Liberec	- air-condition systems	airconditions and filter ventilation for tanks and vehicles
Tesla Pardubice	- PPI radar - river radar RR 600 - radar visual indication system - rail radio system	radiolokatoin
VUCHZ Explosia závod 05	- medicaments on the basis of nitro components	explosives

ANNEX A.7:

CONVERSION OF MILITARY INDUSTRIES IN THE CZECH REPUBLIC
Imputs and outputs of projects on substitutional (civilian) production in selected military enterprises in the Czech Republic (data in millions of Cz.crowns)

Enterprise	Number of projects	Investment costs		Enterprise funds	Loan	Foreign capital	Required participation of state	Planned capacity/new created jobs (num.	
		Total	in 1991					1991	1993
Adamovské strojírny	2	337.0	130.0	52.3	110,0	-	174,7	91/-	1741/-
Pal Magneton Kroměříž	3	125.3	6.3	13.3	111.6	-	84.1	0/0	439/847
Sellier Bellot Vlašim	4	386.0	25.2	80.0	100.0	-	108.0	45/83	517/420
Vlárské strojírny Slavičín	5	135.0	135.0	0.0	54.0	-	81.0	166/600	600/150
Meopta Přerov	2	107.0	42.0	30.0	56.0	-	21.0	60/318	208/692
Česká Zbrojovka	1	110.0	26.7	59.0	29.6	-	21.4	53/173	93/304
Slovácké strojírny Uherský brod	3	88.0	20.8	49.4	20.0	-	18.6	105/209	490/146
Zeveta Bojkovice	3	45.5	32.2	13.5	-	-	32.0	99/225	164/434
Poličské strojírny	5	134.0	28.5	12.2	61.6	-	60.2	24/66	252/609
LVZ Liberec	1	78.0	25.0	12.0	27.0	20.0	19.0	50/80	260/550
Tesla Pardubice	16	194.3	26.6	101.5	30.0	-	62.8	1,6/582	510/181
Explosiu Semtín	13	224.6	16.2	137.7	271.9	175.0	140.0	2/28	174/65

ANNEX A.8:

CONVERSION OF MILITARY INDUSTRIES IN THE CZECH REPUBLIC

Basic information about selected imnportant arms producers under conversion in the Czech Republic

Nr.	Enterprise Town	1988 a)Total production b) % arms production c) employees (total) d)%employees arms prod.	1991 a)total production b)% arms production c)employees (total) d)%employees arms prod.	Method of privatization, regional importance
1	Tesla Pardubice	a) 1804.0	a) 1094.6	One of the key enterprises in the region.1351 jobs affected by conversion in 1991. Term of privatization -2nd wave.
	Pardubice	b) 74.6	b) 72.9	
		c) 6315.0	c) 4964.0	
		d) 63.2	d) 53.1	
2	VCHZ Explosia	a) 1068.8	a) 936.0	Inportant enterprise for employment in region Semtin.392 jobs ir the framework of conversion in 1991. Term of privatization-2nd wave.
	závod 05 Semtín	b) 31.7	b) 10.8	
		c) 1959.0	c) 1420.0	
		d) 26.0	d) 19.7	
3	Adamovské strojírny	a) 1429.2	a) 1811.5	Most important enterprise in district Blansko.792 jobs affected by conversion in 1991.Term of privatization-1st wave.845 497 shares issued /out of which 5% temporarily and 1% definitely in the National Property Fund,the rest for vouchers/for people ++
	Adamov	b) 26.8	b) 17.0	
		c) 5431.0	c) 4871.0	
		d) 10.8	d) 8.3	

++ This enterprise is privatized under special rights of state

ANNEX A.8:

CONVERSION OF MILITARY INDUSTRIES IN THE CZECH REPUBLIC

Basic information about selected imnportant arms producers under conversion in the Czech Republic

Nr.	Enterprise Town	1988 a)Total production b) % arms production c) employees (total) d)%employees arms prod.	1991 a)total production b)% arms production c)employees (total) d)%employees arms prod.	Method of privatization, regional importance
4	Pal Magneton	a) 1112.9	a) 1178.3	Largest enterprise in district Kroměříž,458 jobs affected by conversion in 1991.Term of privatization-2nd wave.
	Kroměříž	b) 34.5	b) 4.9	
		c) 4769.0	c) 4083.0	
		d) 10.9	d) 0.3	
5	Sellier Bellot	a) 594.6	a) 926.8	Most important job source in district Vlašim.Term of privatization-1st wave. 442 620 shares,out of which 20% temporarily kept in the National Property Fund,15% given to the town.377 jobs lost in the framework of conversion in 1991 ++
	Vlašim	b) 23.0	b) 13.0	
		c) 3565.0	c) 2614.0	
		d) 23.4	d) 18.8	
6	Vlárské strojírny	a) 537.0	a) 447.0	Important job source.265 jobs affected by conversion in 1991.Term of privatization-2nd wave.
	Slavičín	b) 47.2	b) 23.5	
		c) 2259.0	c) 2150.0	
		d) 31.5	d) 15.7	

++ Enterprise privatized under the special rights of state.

ANNEX A.8:

CONVERSION OF MILITARY INDUSTRIES IN THE CZECH REPUBLIC

Basic information about selected imnportant arms producers under conversion in the Czech Republic

Nr.	Enterprise Town	1988 a)Total production b) % arms production c) employees (total) d)%employees arms prod.	1991 a)total production b)% arms production c)employees (total) d)%employees arms prod.	Method of privatization, regional importance
7	Meopta Přerov	a) 660.0	a) 308.1	Term of privatization -1st wave. 505 192 shares issued.Second largest enterprise in district Přerov.1540 jobs affected by conversion in 1991. ++
	Přerov	b) 70.2	b) 15.3	
		c) 3994.0	c) 2912.0	
		d) 18.0	d) 6.2	
8	Česká zbrojovka	a) 427.3	a) 494.6	The largest enterprise in district Uherský Brod.Term of privatization -1st wave.519 709 shares issued,out of which 20% kept in the National Property Fund. ++
	Uherský Brod	b) 19.5	b) 0.2	
		c) 2890.0	c) 2821.0	
		d) 17.5	d) 1.5	
9	Slovácké strojírny	a) 529.0	a) 426.0	One of the three most important enterprises in district Uherský Brod. Term of privatization -1st wave.1% shares permanently kept in the National Property Fund. ++
	Uherský Brod	b) 40.0	b) 14.7	
		c) 2680.0	c) 2162.0	
		d) 62.3	d) 23.1	

++ Enterprise is privatized under special rights of state.

ANNEX A.8:

CONVERSION OF MILITARY INDUSTRIES IN THE CZECH REPUBLIC

Basic information about selected imnportant arms producers under conversion in the Czech Republic

Nr.	Enterprise Town	1988 a)Total production b) % arms production c) employees (total) d)%employees arms prod.	1991 a)total production b)% arms production c)employees (total) d)%employees arms prod.	Method of privatization, regional importance
10	Zeveta Bojkovice	a) 358.4	a) 230.1	Main source of jobs in the region. 618 jobs lost in the framework of conversion in 1991.Term of privatization -1st wave.245 426 shares issued. ++
	Bojkovice	b) 61.4	b) 36.9	
		c) 1872.0	c) 1526.0	
		d) 69.4	d) 44.7	
11	Poličské strojírny	a) 328.7	a) 333.7	The largest enterprise in district Semily.712 jobs affected by conversion in 1991.Term of privatization-1st wave. 237 091 shares issued,out of which 30% temporarily and 1% permanently kept in the National Property Fund. ++
	Polička	b) 79.2	b) 14.7	
		c) 1326.0	c) 1102.0	
		d) 61.8	d) 9.8	
12	LVZ Liberec	a) 259.0	a) 459.0	One of the key enterprises in the town Liberec.213 jobs affected by conversion in 1991.Term of privatization 1st wave. 93 059 shares issued,out of which 51% will be sold in direct sale to Czechoslovak shareholders.
	Liberec	b) 32.6	b) 10.1	
		c) 993.0	c) 725.0	
		d) 29.9	d) 29.3	

++ Enterprise privatized under special rights of state.

ANNEX A.8:

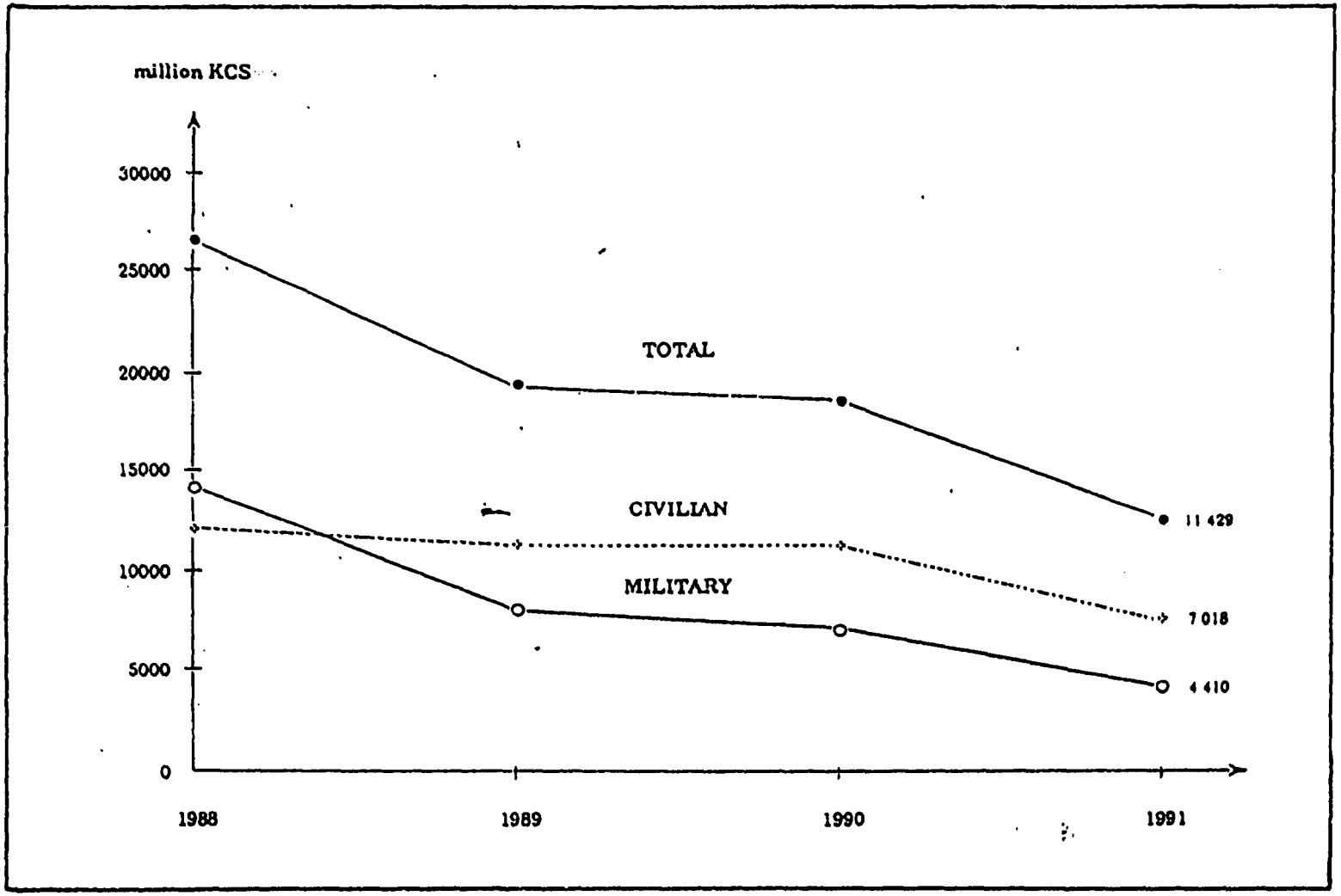
CONVERSION OF MILITARY INDUSTRIES IN THE CZECH REPUBLIC

Basic information about selected imnportant arms producers under conversion in the Czech Republic

Nr.	Enterprise Town	1988 a)Total production b) % arms production c) employees (total) d)%employees arms prod.	1991 a)total production b)% arms production c)employees (total) d)%employees arms prod.	Method of privatization, regional importance
13	Formy a plasty	a) 289.2	a) 370.0	146 jobs lost in 1991.Term of privatization-2nd wave.
	Chuchelná	b) 25.0	b) 1.3	
		c) 598.0	c) 643.0	
		d) 24.9	d) 17.2	

ANNEX B.1: Conversion of Military Industry in the Slovak Republic

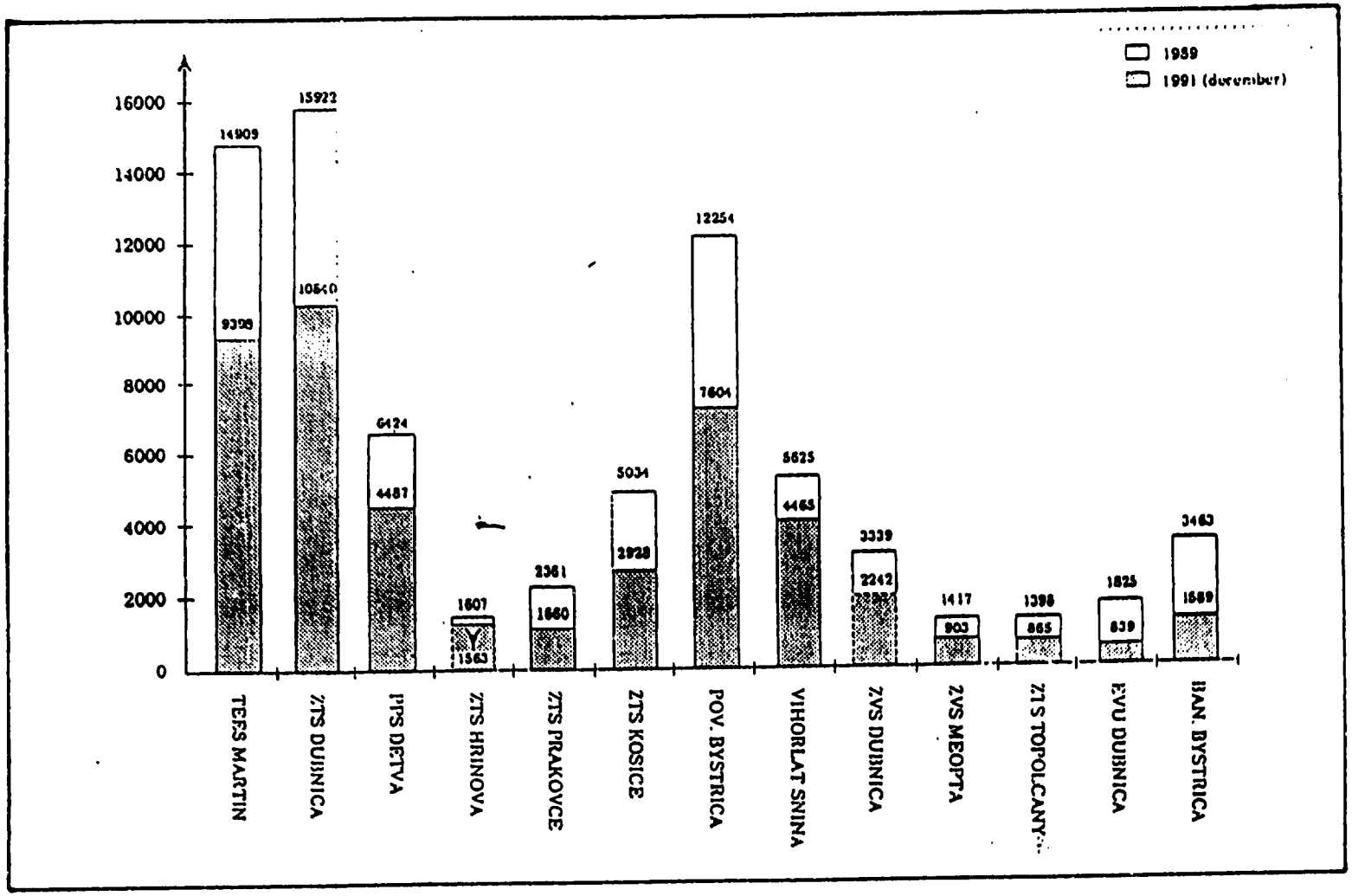
Production Output of the Selected Military Companies in the Period of 1988-1991



* 1933 constant value for KCS - deflation index : 0,6 between 1990 and 1991

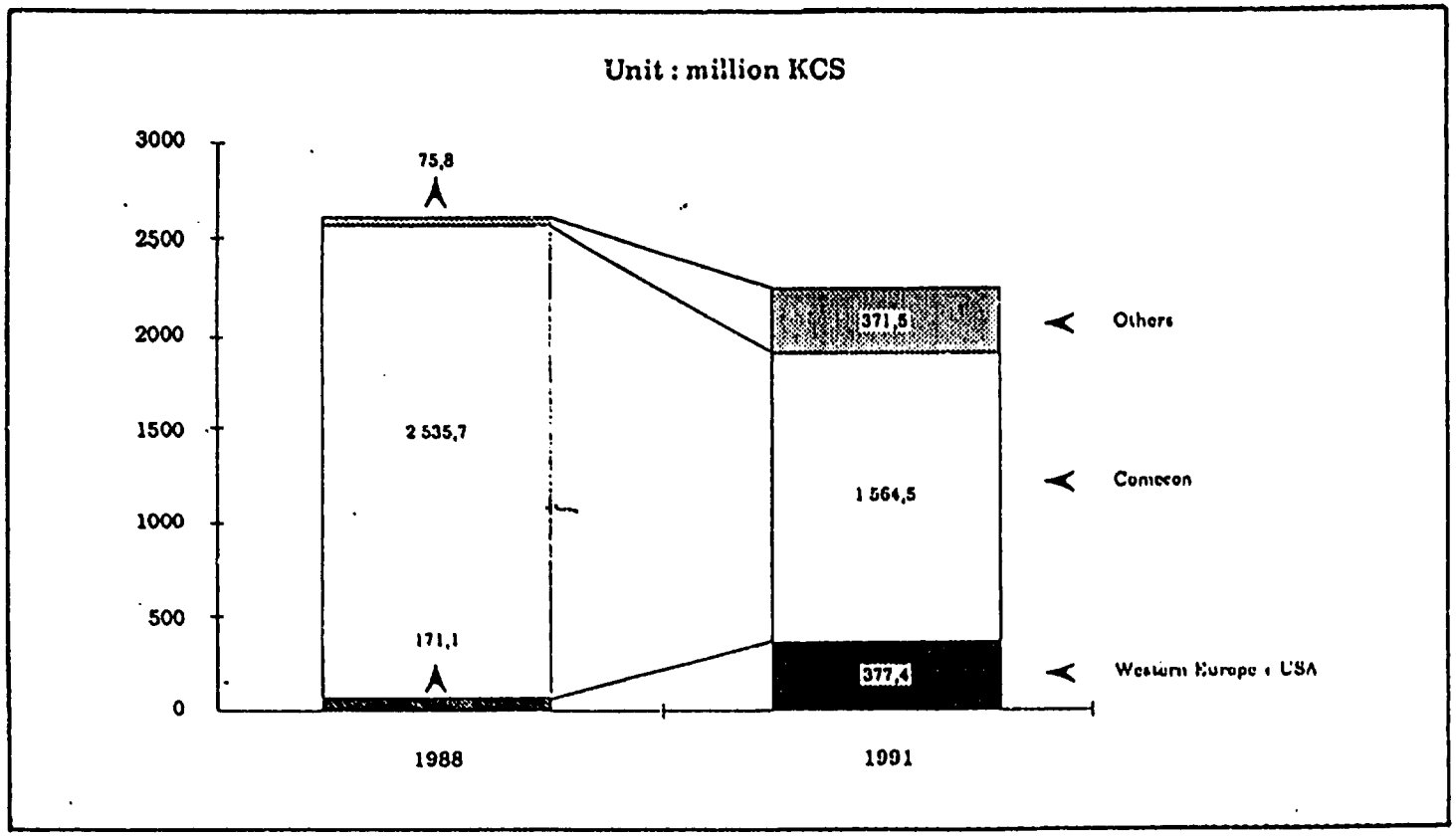
ANNEX B.2: Conversion of Military Industry in the Slovak Republic

Total Employment in the 13 Major Armaments Plants in 1989 and 1990



ANNEX B.3: Conversion of Military Industry in the Slovak Republic

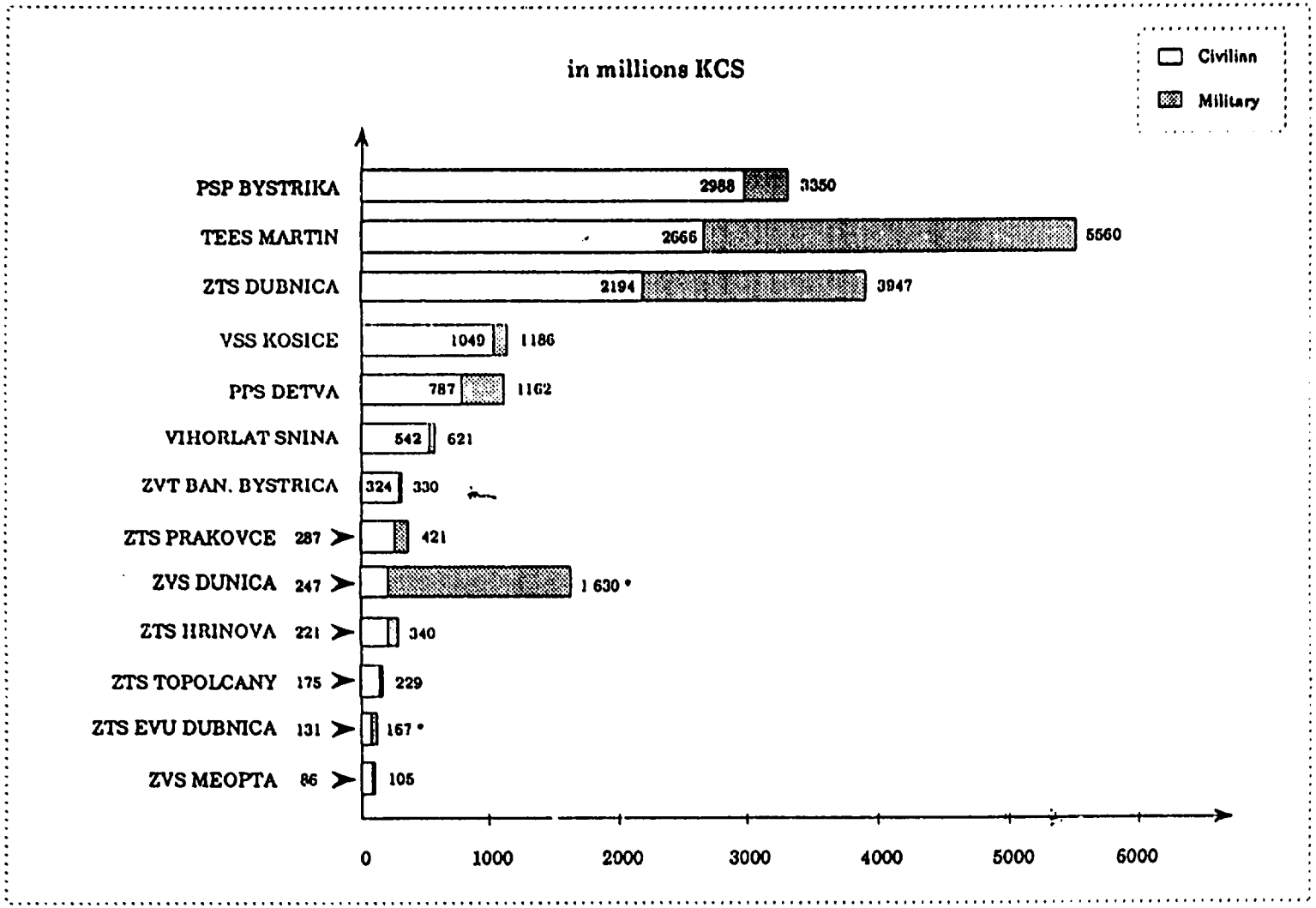
Destination of Exports of Civilian Products
Produced by Major Armaments Plants (1988 - 1991/Current prices)



* *Analysis based on the following companies : ZTS DUBNICA, ZTS HRINOVA, ZTS PRAKOVCE, VSS KOSICE, VIHORLAT, SNINA, ZVS MEOPTA, ZTS TOPOLCANY, ZVT BANSKA BYSTRICA*

ANNEX B.4: Conversion of Military Industry in the Slovak Republic

Production Output of 13 major military companies in 1991
/ranking according to the amount of their civilian production/

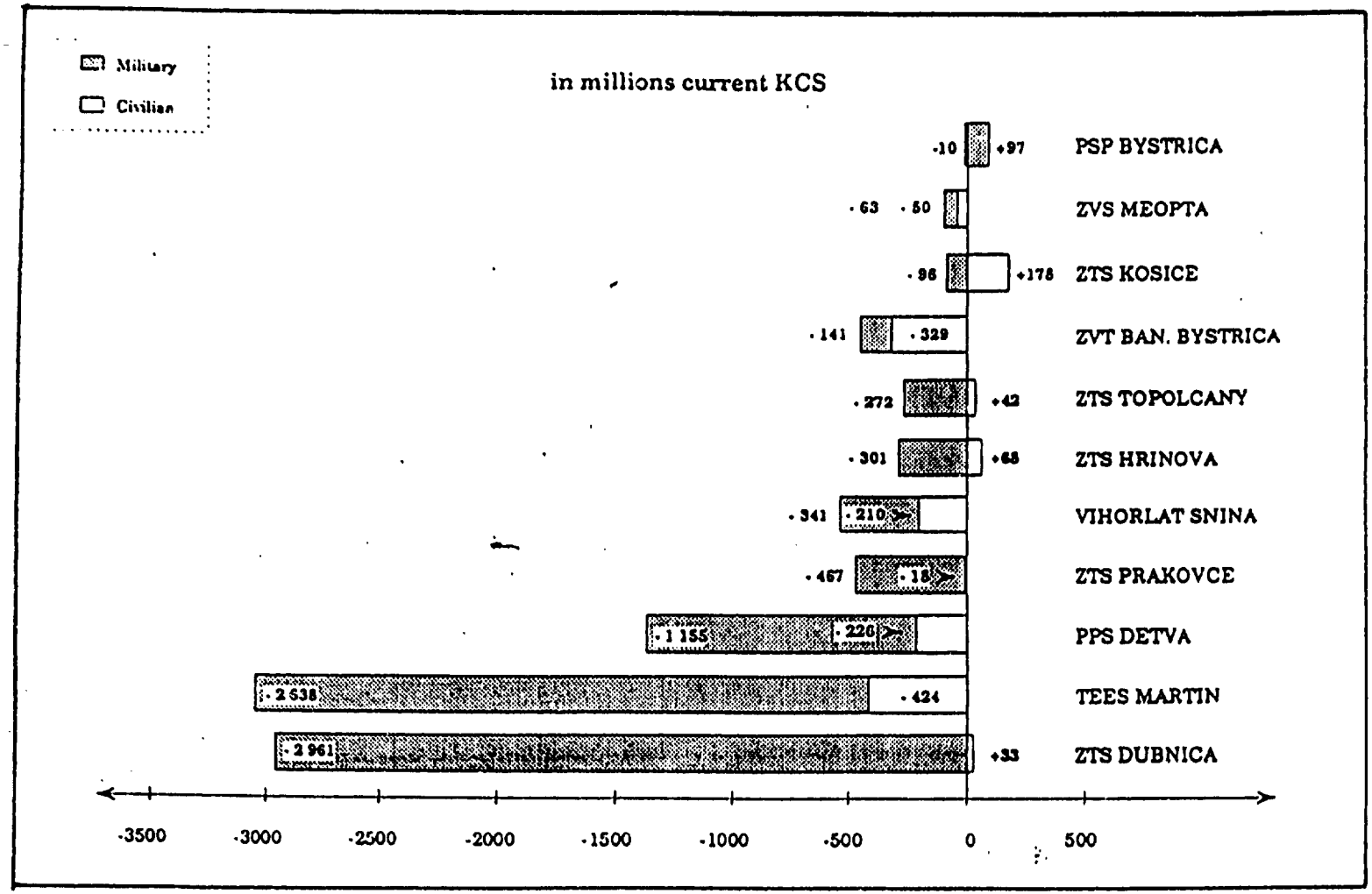


* *1990 datas (1991 datas non available)*

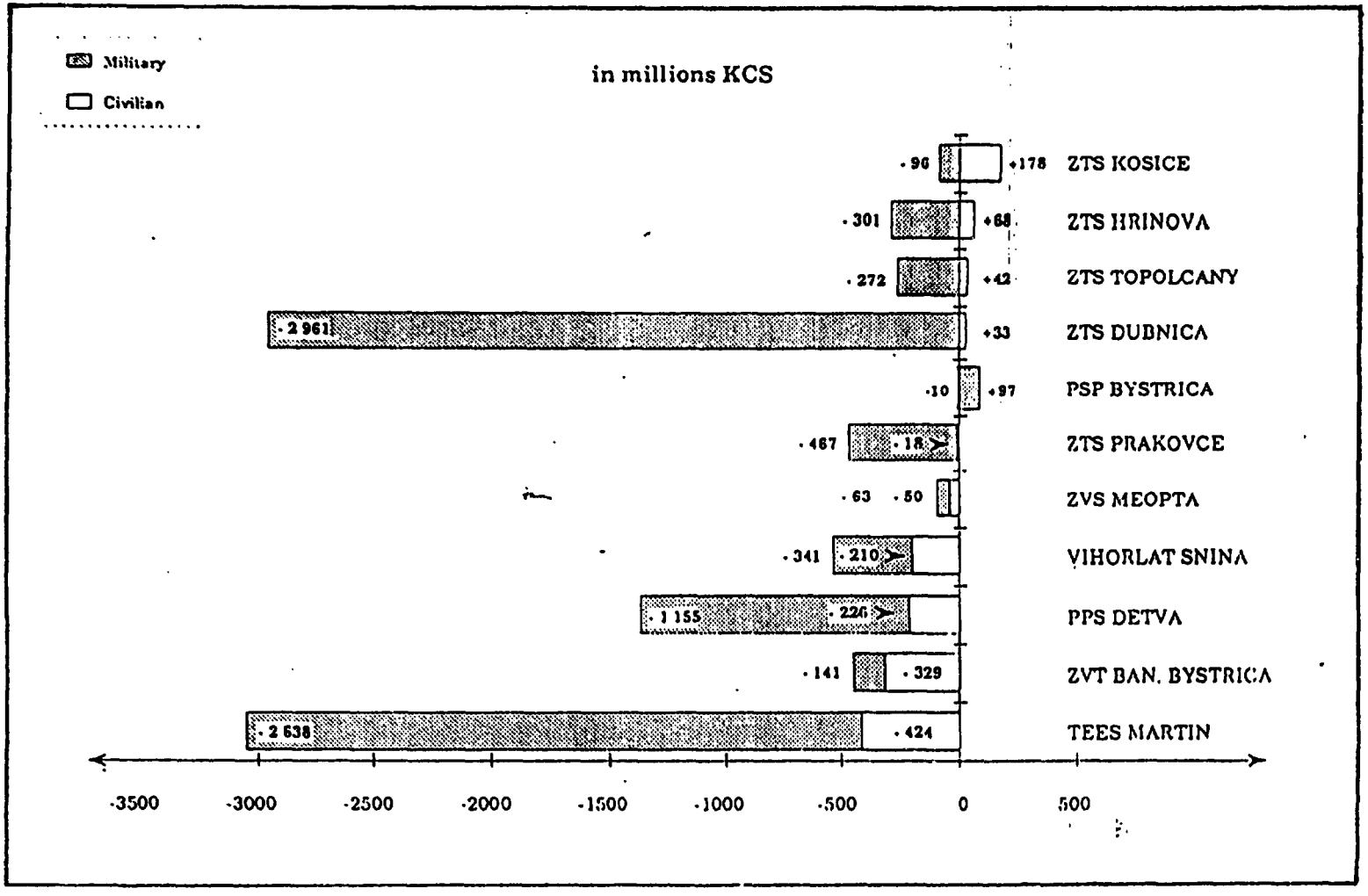
ANNEX B.5: Conversion of Military Industry in the Slovak Republic

Decrease in Production Output of Selected Armaments Plants in the Period of 1988-1991

/ranking according to the current value of the civilian production/



ANNEX B.6: Conversion of Military Industry in the Slovak Republic
Decrease in Production Output of Selected Armaments Plants in the Period of 1988-1991
/ranking according to the arms production decrease/



Note : dates non available for ZVS DUBNICA and ZTS EVU DUBNICA

ANNEX B.7: Conversion of Military Industry in the Slovak Republic

Basic information about conversion enterprises of the Slovak Republic [mil.Kčs]

No.	Enterprise / Seat / Telef. num. / Fax. num.	Establishment / Privatization vave / Form.of privatization / Number of share for koupon prival %	1988 / Total product / Armament prod.% / Employment / Armament employers %	1991 / Total product / Armament prod.% / Employment / Armament employers %	Character of armament production	Character of commercial production
1.	ZTS TS MARTIN 0842/601 0842/33928	1950 2.vave	8057,3 64,8 13790 23,8	4870,6 50,5 10103 19,8	-finalization of tank construction -construction of the main groups of tanks and aplications -construction of engines for tanks and infantry fighting vehicles -spare parts and modernization of tank sets	-steel castings,forgings castings of grey cast iron - agricultural tractors -forest wheel towing vehicles -building and carthing machines -oil, engines -special tools and machines
2.	ZTS DUBNICA n.V. 0827/293 0827/22829	1937 2.vave	6586,6 68,4 14398 56,9	3947,3 44,4 11756 46,8	-artillery technique and arms systems of tanks, fighting vehicles of the infantry (FVI) -finalization of FVI and aplic. -cooperation for tanks and FVI -spare parts and modern. of FVI sets	-steel castings, forgings special tools and machines -saws for metals, forging machines -axial hydrostatic transmissions, hydro-engines, hydr. systems,hydr.excavators, high-lift trucks

ANNEX B.7: Conversion of Military Industry in the Slovak Republic

Basic information about conversion enterprises of the Slovak Republic [mil.Kčs]

No.	Enterprise Seat Telef. num. Fax. num.	Establishment Privatization vave Form.of privatization Number of share for koupon prival %	1988 Total product Armament prod.% Employment Armament employers %	1991 Total product Armament prod.% Employment Armament employers %	Character of armament production	Character of commercial production
3.	ZVS DUBNICA 0827/291 0827/22572	1937 2.vave	1876,8 87,2 3416 47,9	942,2 76,3 2524 37,5	-manufacture of parts and finalization of large-calibre ammunitions for FVI tanks, gunnery, mine-throwers, and rocket projectiles	-civil pyrotechnics -constructional electro-elements (fransformers) -instruments for automation, contro -health technique -robotized systems
4.	PPS DETVA 0855/955111 0855/955122	1955 2.vave	2543,5 59,7 6560 54,0	1144,1 32,6 4793 24,3	-finalization of the FVI and appl. -automated systems of command and linkage -cooperation for the FVI programme and artillery technique -spare parts and teaching aids	- building, earth, and road machines -high-lift trucks -axles -robots and manipulators -special tools

ANNEX B.7: Conversion of Military Industry in the Slovak Republic

Basic information about conversion enterprises of the Slovak Republic [mil.Kčs]

No.	Enterprise / Seat / Telef. num. / Fax. num.	Establishment / Privatization vave / Form.of privatization / Number of share for koupon privat %	1988 / Total product / Armament prod.% / Employment / Armament employers %	1991 / Total product / Armament prod.% / Employment / Armament employers %	Character of armament production	Character of commercial production
5.	TESLA L.HRADOK 0844/2536 0844/2028	1947 1.vave kupon. 97	1056 66,0 2959 19,0	425,96 5,08 2122 1,5	-manufacture of components and finalization of the system of firing control for T-55 modern.	-construction of telecommunication systems -construction of tel.centrale - elements for the railway signal. network
6.	ZTS PRAKOVCE 0944/74101 0944/74146	1890 2.vave	902,8 66,5 2294 64,8	421,3 31,8 1782 29,8	- crawler tracks for tanks and FVI -connecting rods for engines -spare parts for crawler tech.	-castings of mang. steel -fie forgings -cut flangas: ČSN, DIN -engine connecting rods -small shaping technigue -gearboxes
7.	VIHORLAT SNINA 0932/2355 0932/2803	1952 1.vave kupon. 97	1173 35,9 5729 20,5	1142,5 12,7 4947 5,5	-projectile bodies and cartridge cases for large- -calibre ammunition (100, 120,122,125, 152 mm)	-bridge cranes,workshop cranes and pillar cranes -telescopic hydraulic cylinde -equipment for pressure and permanent mould casting of light alloys

ANNEX B.7: Conversion of Military Industry in the Slovak Republic

Basic information about conversion enterprises of the Slovak Republic [mil.Kčs]

No.	Enterprise / Seat / Telef. num. / Fax. num.	Establishment / Privatization vave / Form.of privatization / Number of share for koupon privat %	1988 / Total product / Armament prod.% / Employment / Armament employers %	1991 / Total product / Armament prod.% / Employment / Armament employers %	Character of armament production	Character of commercial production
8.	ZTS HRINOVA 0855/97381 0855/97406	1953 2.vave	614,7 72,3 1901 72,0	330,4 35,6 1697 29,0	-transmission sets for tanks and FVI -spare parts	-transmissions -axle differentials -hydraulic elements and sets -cooperation for road and building machines
9.	SL KOMÁRNO 0819/3551 0819/4524	1898 1.vave kupon. 97	1175,9 30,8 4595 9,8	938,5 11,6 3704 4,3	-welded subassemblies of artillery technique (wheel undercarriages) -weldments of FVI turrets -finalization of sapper technique (boats, drilling sets)	-passenger ships and cargo ship river and maritime, tug boats -technical vessels -frames of building machines -containers ISO
10.	ZTS TOPOLCANY 0815/505 0815/23363	1951 1.vave kupon. 97	459,1 71,7 1460 53,3	396,7 16,1 1188 7,9	-cardans for tanks and lorries V3S -undercarriage groups for FVI -cooperation for gurnery -finalization of PRAM mine-thrower	-hydraulic elements and sets -subassemblies of lorries, rai vehicles, tractors, agr.machi nes (cardans, steering boxes) -helth aids -stone grinders

ANNEX B.7: Conversion of Military Industry in the Slovak Republic

Basic information about conversion enterprises of the Slovak Republic [mil.Kčs]

No.	Enterprise / Seat / Telef. num. / Fax. num.	Establishment / Privatization vave / Form.of privatization / Number of share in kupon priv. %	1988 / Total product / Armament prod.% / Employment / Armament employers %	1991 / Total product / Armament prod.% / Employment / Armament employers %	Character of armament production	Character of commercial production
11.	PS P.BYSTRICA 0822/24477 0822/24613	1929 1.vave kupon. 97	3008,4 7,3 12415 13,7	3303,3 2,3 8859 2,5	-cooperation and subdeliveries for ammunition manufacture and rocket projectiles	-semi-finished products made of non-ferrous metals -machine-tools (grinders) -large antifriction bearings -tractor gearboxes -air jet engines -mopeds and motorcycles
12.	STROJARNE Malacky 0703/2141 0703/2147	1949 2.vave	334,0 60,5 965 74,0	189,7 24,5 675 21,0	-steel tanks, mud-guards, steel pressings for tanks and FVI -coupling and brake disks	- automobile and tractor fecal cisterns -agricultural machines (trailers, spreaders, carts) -tanks, coupling disks, gearboxes -special tools
13.	VSS KOSICE 095/822 095/54016	1886 1.vave kupon. 97	1054,9 20,9 4123 12,4	1186,0 11,5 3316 6,2	-cistern cars, trailers, semi-trailers and tanks for fuels and potable water -sapper, bridge, and disengaging cars	-castings of non-ferrous metals -cistern cars, trailers and semi-trailers -eccentric presses, cutting automatic machines and benders -containers for concrete mixtures

ANNEX B.7: Conversion of Military Industry in the Slovak Republic

Basic information about conversion enterprises of the Slovak Republic [mil.Kčs]

No.	Enterprise Seat Telef. num. Fax. num.	Establishment Privatization vave Form.of privatization Number of share for kupon privat %	1988 Total product. Armament prod.% Employment Armament employers %	1991 Total product. Armament prod.% Employment Armament employers %	Character of armament production	Character of commercial production
14.	VAB BANOVCE n.B. 0832/2591 0832/4012	1951 1.vave 15% state 51% kupon. 31% overseas part.	4652 4,1 5311 2,8	4536 1,2 4543 1,3	-construction of mobile undercarriages for gunnery -cooperation for construction of purpose made undercarriages for sapper and cistern superstructures	-lorries with bearing capacity more than 12 t -subassemblies of lorries (axles) -single-purpose machine-tools
15.	ZVT B.BYSTRICA 088/35141 088/35184	1947 1.vave kupon. 97	931 15,7 3597 7,4	302,5 1,8 2141 0,4	-cooperation and construction of components of electronic equipments for systems of firing control of tanks, mine-throwers, and survey vehicles	-machines for information processing (computer systems) -testing technique -equipment for wire telecommunication -elements for broadcasting and TV networks
16.	ZTS EVU NOVA DUBNICA 0827/292 0827/24740	1967 1.vave kupon. 97	270,6 43,8 1208 31,9	131 26,9 958 13,7	-control and directing elektroboxes for tanks,FVI and gunnery -spare parts	-converters, steering systems of drives, impulse converters -regulation drives -health technique

ANNEX B.7: Conversion of Military Industry in the Slovak Republic

Basic information about conversion enterprises of the Slovak Republic [mil.Kčs]

No.	Enterprise Seat Telef. num. Fax. num.	Establishment Privatization vave Form.of privatization Number of share for kupon priv. %	1988 Total product Armament prod.% Employment Armament employers %	1991 Total product Armament prod.% Employment Armament employers %	Character of armament production	Character of commercial production
17.	ZTS BARDEJOV 0935/4619 0935/6218	1970 1.vave kupon. 97	718,1 14,5 2276 18,0	561,7 2,7 1841 3,6	-hydraulic controls for applications of tanks and disengaging cars -cooperation for crawler and sapper techniques	-LIAZ and BELA crankshafts -ZETOR connecting rods -hydraulic elements and sets -stationary concrete mixing plants -small centre lethes and wood-working machines
18.	ZTS STROJARNE NAMESTOVO 0846/2650 0846/2679	1953 1.vave kupon. 97	297,0 37,7 1288 32,5	178,6 18,0 1140 13,7	-mechanical components and subgroups of FVI steering -cooperation in construction of tanks and applications	-parts and componente for ZETOR and URSUS tractors constructio -technological equipments for sewage treatment plants -machines of small mechanizatio for agriculture
19.	POHRONSKE STROJARNE HLINIK N.H. 0857/91206 0857/91229	1950 2.vave	185,1 39,8 910 35,8	126,4 7,9 742 7,2	-cooperation and construction of components for tanks and applications -spare parts	-mine locomotives -cooperation and construction o parts for tractors -cooperation and construction o parts for engines

ANNEX B.7: Conversion of Military Industry in the Slovak Republic

Basic information about conversion enterprises of the Slovak Republic [mil.Kčs]

No.	Enterprise Seat Telef. num. Fax. num.	Establishment Privatization vave Form.of privatization Number of share for kupon privat %	1988 Total product Armament prod.% Employment Armament employers %	1991 Total product Armament prod.% Employment Armament employers %	Character of armament production	Character of commercial production
20.	MEOPTA BRATISLAVA 07/286500 07/283528	1907 2.vave	217,0 37,7 1517 40,9	96,3 21,2 1028 10,5	-optical instruments for tanks and FVI -periscopes -indicators and cooperation for construction of the blasting equipment PTRS KONKURZ	-back projectors and apiprojectors -objectives and free optical parts
21.	ZTS RIM.SOBOTA 0866/24764 0866/24740	1979 2.vave	250,4 18,4 598 18,4	126,6 0,13 460 0,2	-cooperation and manufacture for FVI and applications -spare parts	-cooperation and construction of parts for building and earth machine -accessories to building machines -hydraulic elements and sets
22.	MOSTAREN BREZNO 0867/3151-5 0867/2440	1949 1.vave kupon. 97	713,2 6,2 3854 4,8	458,9 3,6 3055 2,3	-construction of sapper technique -railway bridges, pillars and layers of railway fields	-building tower cranes -depot cranes -gentry cranes -conveyers -gas boilers

ANNEX B.7: Conversion of Military Industry in the Slovak Republic

Basic information about conversion enterprises of the Slovak Republic [mil.Kčs]

No.	Enterprise Seat Telef. num. Fax. num.	Establishment Privatization wave Form.of privatization Number of share for coupon privat %	1988 Total product Armament prod.% Employment Armament employers %	1991 Total product Armament prod.% Employment Armament employers %	Character of armament production	Character of commercial production
23.	TESLA VRABLE 08783/2201 08783/3462	1951 1.vave kupon. 97	407,1 7,8 2398 10	158,028 0,17 1318 0,1	-construction of electronic blocks for mobile means of automated command of armies	-construction of equipments for radio-communication -construction of the reprod. technique -construction of microwave equipments
24.	ZTS LUCENEC 0863/204 0863/22302	1963 2.vave	388,5 6,9 826 6,9	197,6 0 434 0	-cooperation and construction of components for applications of tanks and FVI -spare parts	-building and earth machines (hinged loaders, compacters and cooperation)
25.	VAGONKA POPRAD 092/461 092/22018	1922 2.vave	1928,7 1,2 4289 2,5	1391,5 0 3470 0	-construction of sapper technique -shelter stations and sets ramming	-rail vehicles for goods traffic -undercarriages and subassemblies of rail vehicles -containers and modules of containers

ANNEX B.7: Conversion of Military Industry in the Slovak Republic

Basic information about conversion enterprises of the Slovak Republic [mil.Kčs]

No.	Enterprise Seat Telef. num. Fax. num.	Establishment Privatization wave Form of privatization Number of share for kupon privat %	1988 Total product Armament prod.% Employment Armament employers %	1991 Total product Armament prod.% Employment Armament employers %	Character of armament production	Character of commercial production
26.	ZTS VLKANOVA 088/88101 088/88173	1949 1.vave kupon. 97	335,6 4,2 1170 4,2	347,3 0,2 936 0,5	-bending shafts -cooperation in the construction of transmission sets	-bending metallic shafts -geared transmissions -cooperation in the construction of axles and transmissions -metallic hoses

ANNEX B.8: Conversion of Military Industry in the Slovak Republic

MEOPTA BRATISLAVA

General data on production and sales

PRODUCTION

Evolution (mio KCS)	1988	1989	1990	1991
Civil	135,8	135,4	122,1	85,8
Military	81,9	186,3	152,5	19,2
Total	217,7	321,7	274,6	105,0

SALES IN 1991

Products	Domestic	Export	Total
Overhead	12,6	21	33,6
Episcop	4,6	4	8,6
Total	17,2	25	42,2

Civilian Production:

Products	Production in 1991 mio KCS pieces / tons		Production in 1988 mio KCS pieces / tons	
Retro projector	34	8081	10,6	4654
Projector	2	1769	8	5063
Retroprojector for non transparent	9	1930	9,7	2945
Reprograf	1	21	89,6	2175
Coil	2	1287	5,4	4667
Metallic furniture	11			
Total	59		123,3	
Other	26,8		12,5	

Exports (1990)

Products	USSR	Other Comecon country	Western Europe and USA	Other countries
Overhead			21	
Episcop			4	
Total			25	

Military products : Basic optical components for vision blocks

ANNEX B.8: Conversion of Military Industry in the Slovak Republic

List of Selected Armaments plants :

name of plant	location (town)
- MEOPTA	Bratislava
- ZVT	Banska Bystrica
- ZTS	Topolcany
- ZTS	Prakovce
- VSS	Kosice
- ZTS	Hrinova
- PS	Povazska Bystrica
- ZVS	Dubnica
- PPS	Detva
- ZTS	Dubnica
- TEES	Martin
- Vihorlat	Snina

ANNEX B.8: Conversion of Military Industry in the Slovak Republic

ZVT BAN. BYSTRICA

General data on production and sales

PRODUCTION

Evolution (mio KCS)	1988	1989	1990	1991
Civil	653	684	684	324
Military	147	58	51	6
Total	799	742	635	330

Civilian Production:

Products	Production in 1991 mio KCS pieces / tons		Production in 1988 mio KCS pieces / tons	
D 01	17,4		10,2	
D 02	43,1		12,5	
D 04 computer, radio, TV	229,6		556,7	
D 05 radio, TV, testery	33,9		73,2	
Total	324,0		652,4	

Main military skill : Electronic components

SALES IN 1991 (mio KCS)

Products	Domestic	Export	Total
04 / 382 computer	80		80
Radio, TV	71	5	76
04 / 403 micro computer	43	30	73
05 / 516 Testery		7	7
Total	194	37,5	231,6

Eports (1990)

Products	USSR	Other Comecon country	Western Europe and USA	Other countries
Testery	7			
P.C	30			
Radio, TV		0,5		
Total	37	0,5		

ANNEX B.8: Conversion of Military Industry in the Slovak Republic

ZTS TOPOLCANY

General data on production and sales

PRODUCTION

Evolution (mio KCS)	1988	1989	1990	1991
Civil	133	170	196	175
Military	326	234	177	54
Total	459	406	373	229

Civilian Production:

Products	Production in 1991 mio KCS pieces / tons		Production in 1988 mio KCS pieces / tons	
High pressure valve for hydrostatic transmission	89	68 334	46	76 121
Servomotor for hydrostatic transmission	51	61 241	32	84 443
Handling systems with hydraulic devices	8		23	
Transmission shafts	10			
Total	158		101	
Other	17		32	

Main military skill : Caterpillar elements for tanks

SALES IN 1991

Products	Domestic	Export	Total
Components for hydrostatic transmission	49	93	142
Transmission shafts	3		3
Total	52	93	145

Exports (1990)

Products	USSR	Other Comecon country	Western Europe and USA	Other countries
Components for hydrostatic transmission	98%		2%	

ANNEX B.8: Conversion of Military Industry in the Slovak Republic

ZTS PRAKOVCE

General data on production and sales

PRODUCTION

Evolution (mio KCS)	1988	1989	1990	1991
Civil	305,4	251,7	292,4	287,0
Military	600,6	554,0	399,8	134,3
Total	906,0	805,7	692,2	421,3

Civilian Production:

Products	Production in 1991 mio KCS pieces / tons		Production in 1988 mio KCS pieces / tons	
Steel (t)	30,3	1044	51,2	2315
Forged pieces (t)	8,8	313	21,8	1092
Flanges (t)	128,9	5155	32,9	1434
Platforms (p)	9,1	151		
Track rods (p)	11,5	1828	24,5	4040
Gear boxes (p)	21,0	210	130,9	950
Cultivators MTP 317 (p)	14,4	3700	19,5	
Total	252,9		280,8	
Other	34		24,6	

Main military skill : caterpillars for armoured vehicles

SALES IN 1991 - in mio KCS

Products	Domestic	Export	Total
Steel	29,4	0,9	30,3
Forged pieces	8,8		8,8
Flanges	65,2	63,7	128,9
Platforms	0	9,1	9,1
Track rods	11,5		11,5
Gear boxes	21,0		21,0
Cultivators MTP 317	14,4		14,4
Total	150,3	72,8	223,1

Exports (1990)

Products	USSR	Other Comecon country	Western Europe and USA	Other countries
Steel				
Forged pieces				
Flanges				63,7
Platforms				9,1
Track rods				
Gear boxes				
Cultivators MTP 317				
Total				72,8

ANNEX B.8: Conversion of Military Industry in the Slovak Republic

VSS KOSICE

General data on production and sales

PRODUCTION

Evolution (mio KCS)	1988	1989	1990	1991
Civil	871	879	926	1049
Military	233	255	214	137
Total	1114	1134	1240	1186

SALES IN 1991 - mio KCS

Products	Domestic	Export	Total
trailers, tanks	501	46	847
forming machines, excentric press		147,7	
truck mixers		151	
military		81	81
Other		9	9
Total	501	436	937

Civilian Production:

Products	Production 1991 mio KCS	Production 1988 mio KCS
Iron, non ferrous metals	109	
Truck mixers	305	
Tank vehicles	262	
Forming machines	237	
Stationary gear boxes	59	
Other (tools,...)	77	
Total	1049	

Exports (1990)

Products	USSR	Other Comecon country	Western Europe and USA	Other countries
Trailers, tanks	29,9			18,1
Forming machines	43,9	6	39,4	58,4
Truck mixers	4,4		91,6	55,0
military	13,0			68,0
Total	91,2	6	131,0	199,5

Main military skill : Special purpose vehicles

ANNEX B.8: Conversion of Military Industry in the Slovak Republic

ZTS HRINOVA

General data on production and sales

PRODUCTION

Evolution (mio KCS)	1988	1989	1990	1991
Civil	153,1	182,7	193,8	221,1
Military	420,0	219,7	203,2	118,9
Total	573,1	402,4	397,0	340.0

SALES IN 1991 - mio KCS.

Products	Domestic	Export
Transmission systems, gear boxes	123	
Machine parts	28	

Civilian Production:

Products	Production 1991 mio KCS	Production 1988 mio KCS
Transmission systems, gear boxes	123,0	94,3
Machine parts (agriculture, civil equipment industry)	27,8	45,9
Tools	25,5	
TOTAL	176,3	140,2
Other	44,8	12,9

Exports (1990)

Products	USSR	Other Comecon country	Western Europe and USA	Other countries
Transmission systems gear boxes				
Machine parts				

Main military skill: Mechanical transmission components, gear boxes (for Detva's, Martin's armoured vehicles)

ANNEX B.8: Conversion of Military Industry in the Slovak Republic

PS POV. BYSTRICA

General data on production and sales

PRODUCTION

Evolution (mio KCS)	1988	1989	1990	1991
Civil	2 998	2 971	2 894	2 988
Military	265	175	254	362
Total	3 263	3 146	3 148	3 350

SALES IN 1991

Products	Domestic	Export
	n.a.	n.a.

Civilian Production:

Products	Production in 1991 mio KCS pieces / tons		Production in 1988 mio KCS pieces / tons	
Metallurgy	1 685		1 483	
Ball bearings	635		759	
Machinery tools	287		128	
Agricultural equipment, gear boxes, engines...	272		463	
Jet engines	33		1	
Total	2 912		2 834	
Other	78		137	

Source : Ministry of Economy

Exports (1990)

Products	USSR	Other Comecon country	Western Europe and USA	Other countries
(All)	34	42	27	

Main military skill : Ammunitions

ANNEX B.8: Conversion of Military Industry in the Slovak Republic

ZVS DUBNICA

General data on production and sales

PRODUCTION

Evolution (mio KCS)	1988	1989	1990	1991
Civil		384	247	
Military		1 585	1 385	
Total		1 801	1 632	

SALES IN 1991

Products	Domestic	Export

Civilian Production:

Products	Production 1990 mio KCS	Production 1988 mio KCS
Transformer, electronic	154	
Pyrotechnics	3,3	
Total	157,3	
Other	89,7	

Source : Ministry of Economy

Exports (1990)

Products	USSR	Other Comecon country	Western Europe and USA	Other countries
Total	65%	35%		

Military products skill : Ammunition filling

ANNEX B.8: Conversion of Military Industry in the Slovak Republic

PBS DETVA

General data on production and sales

PRODUCTION

Evolution (mio KCS)	1988	1989	1990	1991
Civil	1013,5	971,5	842,7	786,9
Military	1530,0	1225,2	1247,0	375,1
Total	2543,5	2196,4	2089,7	1162,0

SALES IN 1991

Products	Domestic	Export

Civilian Production:

Products	Production 1991 mio KCS	Pieces	Production 1988 mio KCS	Pieces
Small loaders	294,0	1 100	..	
Medium loaders	142,5	380	632,5	2 835
Big loaders	161,1	150	163,2	243
Total	597,8		795,7	
Other	189,3		307,8	

Exports (1990)

Products	USSR	Other Comecon country	Western Europe and USA	Other countries
(All)	72%	Poland : 10% Roumania : 3,7% Hungria : 3,4%		

Main military skill : Armoured infantery fighting vehicle

ANNEX B.8: Conversion of Military Industry in the Slovak Republic

ZTS DUBNICA

General data on production and sales

PRODUCTION

Evolution (mio KCS)	1988	1989	1990	1991
Civil	2161	2086	2107	2194
Military	4714	2520	2114	1753
Total	6875	4606	4221	3947

Civilian Production:

Products	Production 1991 mio KCS	Pieces	Production 1988 mio KCS	Pieces
01. Components (trucks)	53		94	
02. Rolling equipments	67		3	
Excavators	131		325	
Agricultural equipments	42		34	
03. Hydraulics	706		630	
04. Fork lifts	58	72	117	902
Excavators	11			
Locomotives	76		143	
07. Press	43		15	
Extruders	20		18	
08. Steel	15		92	
Casting	44		40	
Forging	428		469	
12. Saw	66		32	
13. Furniture	81		48	
TOTAL	1 799		2 046	
Other	395		47	

Main military skill : Truck components

SALES IN 1991 - mio KCS

Products	Domestic	Export	Total
Steel	15		15
Casting	43	1	44
Forging	397	90	487
Hydraulic	149	494	643
Components (truck)	54	63	117
Locomotives	76	-	76
Fork lifts	45	85	130
Extruders	21	2	23
	14	-	14
Excavators	119	29	148
Agricultural equipments	20	3	23
Furniture	56	23	79
Saw	12	-	12
TOTAL	1 021	790	1811

Exports (1990)

Products	USSR	Other Comecon country	Western Europe and USA	Other countries
Steel				
Casting				
Forging		26	33	
Hydraulic	261	125	45	
Components (truck)				
Locomotives				
Fork lifts				
Extruders				
Excavators	6	17	1	
Agricultural equipment				
Furniture	1		7	
Saw				
TOTAL	268	168	86	

ANNEX B.8: Conversion of Military Industry in the Slovak Republic

TEES MARTIN

General data on production and sales

PRODUCTION

Evolution (mio KCS)	1988	1989	1990	1991
Civil	3090	2258	2517	2666
Military	5532	2150	2079	2894
Total	8622	4408	4596	5560

Civilian Production:

Products	Production 1991 * mio KCS	Pieces *	Production 1988 mio KCS	Pieces
Dozers	73	34	.	.
Loaders	38	16	.	.
Agricultural tractors	992	2640	1140	6091
Pielstick diesel engines	199	290	331	355
Zetor engines	103	3853	517	17619
Lombardini engines	3	43	.	.
Other engines	118		102	
Forest skidders	140	184	491	1028
Forwarders	91	97		
TOTAL	1757		2581	
Other	760		509	

* Forecast

SALES IN 1991 - mio KCS

Products	Domestic	Export	Total
Dozers	19	54	73
Loaders	2	36	38
Agricultural tractors	234	757	991
Pielstick Diesel engines	.	481	481
Zetor engines	71	91	162
Other engines	10	115	125
Forest skidders	115	25	140
Forwarders	91	.	91
TOTAL	542	1559	2101

* Forecast

Exports (1990)

Products	USSR	Other Comecon country	Western Europe and USA	Other countries
Zetor engines		♦	♦	
Pielstick engines	♦			
Other engines		♦		
Agricultural tractors		♦	♦	
Forest skidders		♦	♦	
Total	66%		33%	

Main military skill : armoured vehicles

ANNEX B.8: Conversion of Military Industry in the Slovak Republic

VIHORLAT SNINA

General data on production and sales

PRODUCTION

Evolution (mio KCS)	1988	1989	1990	1991
Civil	752	747	768	642
Military	420	445	324	79
Total	1172	1192	1092	621

Civiliar. Production:

Products	Production 1991 mio KCS	Production 1988 mio KCS
Hydraulic jacks	91,6	143,7
Press	110,1	165,5
Travelling cranes	174,0	230,0
Total	376,7	639,2
Other	166,3	n.a.

Source : Ministry of Economy

Main military skill : Ammunitions

SALES IN 1991

Products	Domestic	Export
Press	2 to 3%	97%
Central heating	100%	
Travelling cranes	80%	20%
Hydraulic jacks	90%	10%

Exports (1st half of 1991)

Products	USSR	Other Comecon country	Western Europe and USA	Other countries
Travelling cranes	172,7	35,3		18
Hydraulic jacks		1,3	1,7	
Press	** (80%)			