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# brief 8

## Conversion in Poland:

***The Defense Industry and Base Redevelopment***

november 96

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# Conversion in Poland:

## *The Defense Industry and Base Redevelopment*

***by***
***Pawel Wieczorek and***
***Katarzyna Zukrowska***

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# Zusammen-fassung

## *German summary*

Erstmals werden in dieser Studie zusammenhängend die Erfahrungen mit betrieblicher und regionaler Konversion in Polen analysiert. Das Ende des Ost-West-Konfliktes und der Rückgang der polnischen Militärausgaben um fast 50% in den frühen 90er Jahren hatten erhebliche Auswirkungen auf die polnische Rüstungsindustrie. Der Umsatz ging um mehr als 80% zurück, die Beschäftigung sank von 180.000 Personen im Jahr 1988 auf 85.000 Beschäftigte im Jahr 1995 zurück. Die Überkapazitäten sind trotzdem weiterhin sehr groß. Durch den Abzug der sowjetischen Streitkräfte aus Polen wurden außerdem umfangreiche Liegenschaften verfügbar, die zivil genutzt werden sollen.
Konversionsbemühungen sind nicht von der allgemeinen Wirtschaftspolitik der Liberalisierung zu trennen. Eine spezielle Konversionspolitik gab und gibt es nicht bzw. nur insoweit als sie Nebenprodukt einer Politik zur Erhaltung einer polnischen Rüstungsindustrie ist.
Der wirtschafliche „Schock“ nach Einführung der Marktwirtschaft in Polen ab Ende der 80er Jahre lähmte zunächst das Management der vollständig im Staatsbesitz befindlichen Rüstungsindustrie. Die Produktion lag teilweise brach und es kam zu Streiks der Beschäftigen. Erst ab 1993 begannen staatliche staatliche Stellen, die Zukunft der Rüstungsindustrie in einer Reihe von Plänen zu definieren. Ein Kern von 31 Firmen wurde als für die polnische Rüstungsbeschaffung unerläßlich angesehen. Diese Firmen sollen durch Beschaffungsaufträge, aber auch Bemühungen um zivile Märkte, wirtschaftlich überleben. Sie werden als privatrechtliche Firmen vom Industrie- und Handelsministerium verwaltet. 13 weitere Betriebe, die Reparaturen durchführen, sind dem Verteidigungsministerium unterstellt. Die anderen Firmen wurden vorrangig auf zivile Märkte verwiesen.
Der Versuch, in zivile Märkte einzudringen oder bestehende zivile Kapazitäten auszubauen, wurde nur in relativ geringem Umfang von staatlichen Stellen gefördert, durch Kredithilfen, regionalwirtschaftliche und technologiepolitische Maßnahmen, die auch anderen Firmen offenstanden. Die Finanzierung notwendiger Maßnahmen mußte überwiegend auf offenen Kreditmärkten zu Marktbedingungen erfolgen.
Nach erheblichen Schwierigkeiten bei den meisten Firmen zeichnen sich deutlich Erfolge in der Gewinnung ziviler Märkte ab. Sie sind das Ergebnis oft schmerzhafter Lernprozesse. Mitte der 90er Jahre ist der zivile Umsatz bei den, weiter im Staatsbesitz befindlichen, Rüstungsfirmen deutlich höher als der Rüstungsumsatz. Während der Rüstungsumsatz in den 90er Jahren kontinuierlich gesunken ist, ist der zivile Umsatz seit 1992 wieder gestiegen.
Die Rüstungsindustrie ist der wohl am härtesten vom Schock der Auflösung des alten Wirtschaftssystems getroffene Sektor. Der Schock war notwendig, um die Voraussetzungen für dauerhafte Erfolge auf zivilen Märkten herstellen zu können. Es ist zweifelhaft, ob mit mehr direkter staatlicher Hilfe mehr erreicht worden wäre, als jetzt durch Initiative der unmittelbar Betroffenen. Die indirekte Unterstützung durch den volkswirtschaftlichen, makroökonomisch stabilen Aufschwung war hilfreicher als was an direkter Unterstützung zur Verfügung gestellt wurde.
Der Prozeß der Nutzung ehemaliger militärischer Liegenschaften hinkt hinter dem der Umstrukturierung der Rüstungsindustrie deutlich hinterher. Ein Teil der Liefenschaften wird auf ansehbare Zeit nicht verwertet können - wegen der geographischen Lage aber auch wegen des Zustandes, in dem sie von den abziehenden Truppen hinterlassen wurden. Die für eine ökologische Sanierung notwendigen Beträge können nur über einen längeren Zeitraum zur Verfügung gestellt werden.

# Introduction

This study is a first attempt to produce a comprehensive overview of post-Cold War changes in the defense industry in Poland. These changes occurred in three separate areas: marketization of production, downsizing of the sector itself and of individual enterprises, and conversion. The study attempts to demonstrate that downsizing and conversion in Poland were accomplished mainly by the market forces themselves with only fairly limited government intervention. Moreover, it shows that this was probably one of the most efficient ways for enterprises and management to learn how to operate on the market, acquiring and developing entrepreneurial skills.

The study consists of the following sections:

- the historical background, in which we comment very briefly on how the arms industry in Poland developed;
- the Polish arms industry of today, giving an overview of the contemporary situation in the sector;
- the macro-politics of the government, indicating what measures were introduced by the government in relation to the military sector;
- the process of conversion and the difficulties involved in this;
- the scope of conversion, indicating how far-reaching the process was;
- sources from which conversion was financed, listing and discussing where funds necessary to cover the cost of changes came from;
- conversion of unproductive objects at the former Northern Group Forces (Soviet troop) bases;
- conversion of productive objects, showing what changes were accomplished at the enterprise level;
- a report on case studies, which supplies examples of companies which have been converted, explaining these processes in more detail;
- an annex with the list of the major arms producers in Poland in 1995.

The study closes with conclusions.

# Historical Background

The scale of contemporary conversion potential as well as the geographical location of the arms industry are both determined by decisions made in the past. In such circumstances it is necessary to outline, in brief, the historical background of the Polish arms industry.

The traditions of the defense industry go back to the inter-war period, when, mainly in the 1930s and within the framework of the so-called Central Industrial Region, most of the arms-producing factories were built. Factories set up during that period in Starachowice, Pionki, Swidnik, Mielec, Rzeszów and Stalowa Wola, now—after post-war reconstruction and multi-stage modernization—form the core of the military sector today.

In the post-war period, defense investments in Poland were conducted at varying speeds and on various different scales. This mainly depended on the current state of world politics and military affairs, on commitments to military alliances as well as on the economic condition of the country. By 1988, the industry had reached its highest production capacities which was the year in which orders from national contractors—mainly from the Ministry of Defense (MoD)—and export opportunities began to decline dramatically.

In that year, fundamental changes which had taken place in Europe—mainly in the near vicinity of Poland—and in the rest of the world began to create a new context for the existence of the Polish arms industry, in particular with regard to scale. Because of new international and national conditions, Poland was faced with a difficult dilemma: how could the country get rid of the unnecessary burden of excessively developed arms-production capacities assuring at the same time its justifiable defense needs? how could it utilize the rationally redundant production capacities of the arms industry, at the same time attaining its second goal, namely effective conversion, acceptable also in social and economic terms? The process of conversion has to be seen as a crucial part of the systemic transformation conducted in Poland.

Transformation encompasses the following changes:

- from central planning and command-distribution to market mechanisms;
- from a one-party system to democracy;
- from centralized administration to decentralized administration;
- from state ownership to private ownership;
- from controlled prices to liberalization of prices;
- from full employment to accepted levels of unemployment;
- from a closed economy to an open market.

Despite their relative scope, all these changes were carried out at high speed, a process which was not without its limitations and costs; these appeared however to be unavoidable.

# The Polish Arms Industry of Today

In the course of transformation, Poland has had to change the structure of the organization of its industrial branches, decreasing the share contributed by heavy industrial output and increasing the share of consumer goods and services. This has led to extensive changes in employment structure, also affecting agriculture. Military production, as part of the heavy industry sector, is not unique in respect to change, although the changes here seem to have been the most far-reaching compared with the economy as a whole. Changes in military production encompass:

(1) downsizing of individual enterprises;
(2) downsizing of the sector itself;
(3) conversion.

In 1995, about 150 companies participated in the production of arms and military and logistic equipment (together the so-called 'special production'). Most of these enterprises are suppliers or co-producers of industrial goods for civilian markets. The core of the military industry consists of 31 companies which are supervised by the Ministry of Industry and Trade (MIT) (see Table 1 of the Annex). They handle 90 percent of all the orders placed with the defense industry by the MoD and other contractors of special production. Alongside these enterprises, there are an additional 13 companies under the supervision of the MoD. These provide repair/overhaul services to this specific market, specializing in repairs of military equipment. Orders from the MoD dealing with goods of general application ('double- or dual-use' goods) are carried out by 23 additional companies. In 1989, 128 firms had enjoyed the privileged status of being termed 'special-production enterprises'. Of those, 39 produced military equipment as a final product. The remaining 89 focused their activities on dual-use products, supplying the market in addition with services of different kinds such as overhauling (see Chart 1).

Poland—like most other European countries—cannot abandon the production of military equipment completely, even though it does not always correspond to the criterion of economic effectiveness. There are several factors which determine the possibilities of meeting the defense needs of the state:

- Poland, today, is not a member of any political or military alliances. Under such circumstances, the only reliable source of supplies for the army in the case of war or the threat of an open conflict is the national defense industry.

- In economic terms, the national arms industry is the source best able to meet the requirements of the army as regards supplies of technical equipment and overhaul services: taking into account the fact that the prices of military equipment produced in Poland are in some cases two-to-three times lower than world prices, the absence of a national arms industry would mean a significant increase in costs for the maintenance of the military forces.

- The export of arms and military equipment (made possible by the existence not only of sufficiently developed production capacities but also of scientific research centers) is a source of funds to finance the required imports of modern defense technology and repair services, as well as of a wide range of materials and up-to-date sub-assemblies, the lack of which would totally preclude the production of several important military systems.

- Special production is of a unique character and—in contrast to other branches of the manufacturing industries—cannot be substituted. This fact is decisive for the position of the defense industry within the defense system of the country and the national economy; and this is so, despite the fact that the share of special industrial production accounted in 1995 for only for 0.4 percent of the total production output of the country, and was nearly five times lower than in 1988 (1.9 percent) (*Cash*, 4 November 1994, p. 13; *Nowe Zycie Gospodarcze*, 14 September 1995, p. 25).

## Table 1: Production and employment in the defense industry

| *Year* | *Value of total production (civilian and special)* *In million zloty* | *Value of special production* *Constant prices 1995* | *Employment in civilian and special production* *In thousand peaple* |
|---|---|---|---|
| *1986* | 5,390 | 2,910 | 175 |
| *1988* | 5,760 | 3,100 | 180 |
| *1990* | 3,380 | 1,200 | 145 |
| *1992* | 1,310 | 870 | 99 |
| *1995* | 2,300 | 580 | 85 |

***Source:*** *Military Department of the MIT and information released by specialized newspapers like* Polska Zbrojna *or the monthly publication* Zolnierz Polski, *both issued by the MoD*

The data in Table 1 shows that, between 1988 and 1992, the production of the defense industry was gradually shrinking. This fact applies to both types of production, civilian and military. From 1993 to 1995, this trend only continued in the case of military equipment and weapons, while the total value of the production of the defense sector as a whole indicated an upswing. This fact implies that the sector was going through specific changes in its product range structure, after which, mainly as a result of conversion, the defense industry began to supply the civilian market, retaining at the same time its military capacities and deliveries. The scale of conversion is in reality lower than suggested by the statistics in Table 1. The diminishing volume of special production was followed by a reduced use of production potential, isolated after the accomplishment of special orders. In 1995, those capacities were estimated at 20–25 percent, while in 1988 they had been 80–85 percent. (Authors' estimates, based on information from the MIT.)

When there is sufficient demand, the Polish arms industry manufactures—or is in a position to manufacture—several types of conventional weapons and military equipment, such as:

- main battle tanks and armored personnel carriers;
- some types of artillery systems, such as 152mm self-propelled howitzers and 23mm anti-aircraft guns;
- helicopters and light-weight aircraft (training, training/ combat, medical, transport);
- small ships (landing, mine-sweepers, reconnaissance, hydrographic) and fast patrol craft;
- anti-aircraft missile launchers and anti-tank guided missile launchers;
- small arms, ammunition (from 5.6mm to 125mm for tanks), explosives, mines, aerial bombs;
- several types of electronic equipment (for instance radio-stations, radio-location stations, signal equipment, telemeters, fire control systems);
- logistical equipment.

Since the end of the 1980s, the output of the defense industry (including production for both military and civilian markets) has been falling in a systematic manner. According to estimates in 1988, the total value of production of the defense sector (in constant 1995-prices) reached the level of 5,760 million zloty; in 1990 it came down to 3,380 million zloty, in 1992 to 1,310 million zloty, rising once more in 1995 to 2,300 million zloty, which is 39.9 percent of the value of seven years earlier, when it was at its highest level. The value of special production has declined even faster: in 1988 it was estimated at 3,100 million; in 1990, the total value of special production supplied to the national and export markets was estimated at 1,200 million zloty while, in 1995, it reached the level of only 580 million. This means that in 1995 production of special goods was one fifth of its value in 1988 (see Table 1). The utilization potential

for civilian production does not exceed 60–65 percent of total production capacities, nevertheless it is much higher than that allotted to special production which is only used in 20–25 percent of the total capacities. (Authors' estimates based on information obtained from the MIT in a document dated 9 April 1993.)

Parallel with the decline in production of the arms industry, the level of employment in the sector was decreasing. In actual fact this led to employment being reduced by half. (The sector had employed 180,000 workers in 1988 (*Rzeczpospolita*, 14 February 1993, p. 7; *Gazeta Przemyslowa i Handlowa*, 1993, No. 38, p. 1; *Przeglad Techniczny*, 1995, No. 13, p. 8.)) In numerous cases, this has created serious social problems, particularly in towns which have not been able to offer alternative sources of employment, such as Swidnik or Mielec.

Changes in the scale of production and levels of employment have been closely linked to the position of the defense industry in the political and economic system of the state. Until 1989, the sector enjoyed the benefits of far-reaching preferential treatment and privileges (priority in the supply of technical and raw materials; ease of access to low interest-rate credits, taxation reductions, and so on). An entire range of preferential treatment artificially increased the profitability of the companies along with their competitiveness. At the beginning of the 1990s, however, the defense industry was incorporated into the mainstream of the market economy.

Today, arms-producing enterprises generally function under the same conditions as companies supplying the civilian sector.

The fact that the 'rules of the game' mentioned above were changed without providing any kind of special systemic 'shock-absorbers' is one of the main reasons for the economic difficulties, faced by enterprises engaged in military production since systemic transformation began to take place. These changes took place despite the fact of the existence of specific features, characteristic of the defense sector as a whole, which limit abilities to adapt, in particular the narrow specialization and the rigid structure of production factors.

All in all, the military sector was the hardest hit part of the economy in the transition period. Nevertheless it is difficult to conceive of an effective tool for carrying out both conversion and restructuring of the sector in view of the formidable monetary conditions and the readjustment from a command-distribution toward a market-driven economy.

The facts mentioned above have had a specific impact on the possibilities for conversion. In addition, they have also affected all company assets which are one of the main sources from which to finance transition from military to civilian production.

# Macro-politics of the Government, in particular relating to the Arms Industry Sector

The main purpose of the government's macro-policy toward the marketization process is to introduce homogenous and long-lasting systemic solutions which create a basis for the future economic system of the country. Such activities encompass both a set of general steps which apply to the economy as a whole as well as particular measures, geared to specific sectors including the arms industry.

State activities within the framework of the marketization process which address the needs of the economy as a whole include the liberalization of prices and foreign exchange; macro-economic stabilization measures; and institutional changes both within and outside national borders.

Despite the fact that price liberalization causes a marked increase in prices in the initial stages, it can be considered a most effective instrument for simultaneously balancing supply and demand and for bringing prices to their realistic levels as well as for encouraging the covering of costs and the elimination of subsidies. This is a single move which—in a relatively short time—leads toward stabilization of prices at a new, higher level. Realistic prices mean that their levels have been defined as a result of the balance achieved between supply and demand.

### *Table 2: Selected data on the economies of Poland, the Czech Republic, Hungary and Slovakia*

| *Country* | *GDP value compared with former year* Percentage change | | | *Level of inflation* Percentage change | | | *GDP in 1995* |
|---|---|---|---|---|---|---|---|
| | *1993* | *1994* | *1995* | *1993* | *1994* | *1995* | *1989=100* |
| *Czech Republic* | 0 | 2 | 3 | 21 | 10 | 10 | 85 |
| *Hungary* | -2 | 2 | 1 | 23 | 22 | 20 | 86 |
| *Poland* | 4 | 4.5 | 5 | 23 | 27 | 22.5 | 100 |
| *Slovakia* | -4 | 0 | 1 | 23 | 16 | 10 | 84 |

***Source:*** *Lavigne, 1995*

### *Table 3: Level of inflation in Poland in 1990–1995*

Percentage change

| *Year* | *1990* | *1991* | *1992* | *1993* | *1994* | *1995* |
|---|---|---|---|---|---|---|
| *General* | 24.93 | 60.4 | 44.3 | 37.6 | 29.5 | 21.6 |
| *Food* | 21.73 | 35.2 | 43.8 | 37 | 27.9 | 18.8 |

***Source:*** *Ocena przebiegu procesow gospodarczych w 1995 r. na tle lat 1990–1994 [Assessment of Economic Progress in 1995 based on the Years 1990–1994]. Central Planning Office (CUP). Warsaw, May 1996, p. 107*

## Table 4: The level of external debt

In US $ million.

| Year/Country | Czech Republic | Hungary | Poland | Slovakia |
|---|---|---|---|---|
| 1993 | 8,496 | 24,560 | 47,246 | 3,626 |
| 1994 | 10,694 | 28,251 | 42,174 | 4,310 |
| 1995 | 13,654 | 33,034 | 44,557 | 4,910 |

**Source:** *Statistical Bulletin Poland-Czech Republic-Hungary-Slovakia, Central Statistical Office (GUS) 1995, Warsaw, January 1996, p. 11*

## Table 5: The exchange rates of national currencies in relation to US dollars

| Year/Country | Czech Crone | Hungarian Forint | Polish Zloty | Slovak Crone |
|---|---|---|---|---|
| 1993 | 29.96 | 100.70 | 2.1344 | 33.20 |
| 1994 | 28.05 | 110.69 | 2.4372 | 31.28 |
| 1995 | 26.36 | 132.50 | 2.4330 | 29.54 |

**Source:** *As above, p. 12*

Liberalization of foreign exchange plays a multi-functional role:

- It halts the price hikes which would normally follow the liberalization of prices accompanied by limited imports, especially in an economy short of foreign exchange.
- It expands the choice of offers on the internal market, by introducing competition.
- It indicates how companies should act in order to survive under the new conditions.
- It shows consumers that they have a choice and that they can be more demanding toward the goods and services offered.

Macro-economic stabilization is attained partially through the balance between supply and demand. State policy in this field is based in the first instance on two supporting mechanisms: monetary policy (quantity of money on the market) and exchange-rate policy (introduction of the national currency to the exchange markets and the level of the rates of exchange). A third element of state policy concerns the proportions between the rise in wages and the rise of prices (Lavigne, 1995, pp. 113–154).

Institutional changes are mainly concentrated on the introduction of solutions which help the market economy to function and which are dependent upon internal and external economic relations. Concentrating on the main domestic problems, these solutions include: creating conditions for privatization; creating the conditions essential for the functioning of the market economy (banking system, social security net, stock exchange); and, creation of a labor market with laws pertaining to unemployment and social security. In parallel to this, the state must establish a network of external institutional connections (Balcerowicz, 1995). The main role in this connection is ascribed to relations with international financial organizations (the International Monetary Fund (IMF), the International Bank for Reconstruction and Development (IBRD or World Bank), the European Bank for Reconstruction and Development (EBRD)and the Organization for Economic Cooperation and Development (OECD)), the integrational organizations (the European Union (EU), the European Free Trade Association (EFTA) and the Central European Free Trade Agreement (CEFTA)) and those organizations or institutions engaged in international security (North Atlantic Treaty Organization (NATO), the Western European Union (WEU) and the Organization for Security and Cooperation in Europe (OSCE)).

Solutions applied particularly to the defense industry are in general similar: as the defense industry is an inseparable part of the economy, it is also affected by marketization and cannot function independently of the general 'rules of the game' introduced in the course of this process. The weight of this problem within the transformation process as a whole depends on the scale of the military sector, its share in the total industrial potential and in employment, and its turnover on the world arms market.

In the former communist countries, heavy industry within the defense sector was developed at the cost of underdevelopment in the field of consumer goods. The creation of demand in shortage economies is one of the causes of forced savings, which, in economic jargon, is often called 'inflation overhang'. In market economies on the other hand, the defense industry is a factor which creates demand in conditions of surplus; in other words, it acts as a tool which improves the state of the economy. Unfortunately this role is connected to the necessity of increasing expenditures ascribed to such purposes and, in long run, turns out to be an expensive measure because it creates inflation by means of increased internal debt (budget deficit) and the costs of servicing it.

Government activities toward the defense industry in Poland have covered the following: budgetary policy (level of purchases in the defense sector and their structure, as well as the financing of research and development (R&D)); legal regulations; creation of the institutional framework for the future functioning of the industry; support to exports (for example, co-financing of exhibitions); and institutionalization of external contacts. Several ministries have been responsible for attaining these goals including the Ministry of Finance, the Ministry of Foreign Affairs, the Ministry of Foreign Economic Cooperation and the Ministry of Industry and Trade.

The Ministry of Finance was additionally responsible for the policy which resulted in the mobilization of savings, which were subsequently transferred into investments in accordance with the goals of development policy.

Budget policy is part of the policy of 'difficult money'—the economy stabilization measures carried out by the State (see Table 6). Defense expenditures in 1996 reached the level of 8,364 million zloty which is a 43.6 percent drop in comparison to the 1989-level. This was followed by major restructuring of the expenditures which led to an increase of personal expenditures and reductions in procurement (by 76.9 percent) as well as in R&D.

## *Table 6: Defense expenditures in Poland in 1989–1996*

(Current and constant prices, based on 1996-level)

| *Year* | *Current prices* | *Constant prices* | | |
|---|---|---|---|---|
| | *Value in million zloty* | *Value in in million zloty* | *Decrease in comparison to previous year in %* | *Decrease in comparison to 1989 in %* |
| *1989* | 215 | 14,837 | - | - |
| *1990* | 1,464 | 13,353 | -10.0 | -10.0 |
| *1991* | 1,821 | 8,680 | -35.0 | -41.5 |
| *1992* | 2,564 | 8,332 | -4.0 | -43.8 |
| *1993* | 3,849 | 8,066 | -3.2 | -45.6 |
| *1994* | 5,074 | 7,921 | -1.8 | -46.6 |
| *1995* | 6,594 | 7,921 | 0.0 | -46.6 |
| *1996* | 8,364 | 8,364 | 5.6 | -43.6 |

***Source: According to information from the Financial Department, Ministry of Defense***

A system of legal regulations was created covering:

- regulation of ownership changes in the arms industry[1];
- the question of control of transfers of advanced technologies[2];
- terms of granting concessions and control over the arms trade.

Macro-stabilization is a precondition for investment, both national and foreign. It sorts out the market environment so that the proper signals are given; in a destabilized economy on the other hand, or in one which is in the process of stabilization, these signals are distorted. Despite this, market signals—even cleared of their distortions—are on their own always too weak to enable correct decisions to be made as to what has to be produced, where it has to be produced and in what quantity. Such decisions have to be taken at the micro- (or enterprise-) level. Moreover, as economic decisions are full of risks, the state cannot engage its assets in undertaking steps which in the future could be considered as failures: the risk has to be taken by the enterprise itself.

Individual enterprises have been forced to reduce their costs to become competitive. The strength of signals indicating the appropriateness of such action in the first stage of transformation was determined mainly by two factors: (1) the strategy of devaluation; (2) the intensity of the competition or, in other words, the degree to which the market had opened up. In the second stage, the need to further stabilize the economy eliminated the first factor (devaluation) but at the same time increased the strength, and impact, of the second. This can be considered the main tool of industrial policy, although there are also some additional activities, which in general are of minor importance and have limited influence on the economy as a whole. In order to be as objective as possible, these other tools will be described as well, despite the fact that the main function of the State during transition is first and foremost the introduction of stabilization measures and measures to increase competition. In more advanced stages, the requirement to increase competition becomes the leading policy of the State. The whole period of transition requires specific exchange rate policy, which in the case of Poland had three main phases: (1) a fixed exchange rate; (2) violent fluctuations and (3) floating.

Stabilization and competition are the preconditions of deregulation, privatization and the restructuring of the economy. This has been demonstrated primarily by the American and British economies. Now others are following suit, including Germany and Japan (Bienkowski, 1995). It is also becoming clear that the EU is heading for the same goal, which will be achieved by 'de-statization' of the economic policy by the introduction of the Maastricht Treaty criterion on economic convergence accompanied by the subsidiarity rule and the regionalization of relations (Delamaide, 1994).

[1] Enterprises which require special approval of the Seym (Polish Parlament) in the course of privatization are listed in: Rozporzadzenie Rady Ministrów, 24.04.1994, zmieniajace rozporzadzenie w sprawie okreslenia wykazu przedsiebiorstw panstwowych i spólek o szczególnym znaczeniu dla gospodarki panstwa, których przeksztalcenia wlasnosciowe podlegaja szczególnemu trybowi [Decree of the Council of Minsters, dated 24.04.1994, changing the Decree on the List of Government Enterprises and Joint-stock Companies of Special Importance for the State Economy, which are Privatized on Special Terms], Dziennik Ustaw, Journal of Legislation, 1994, No. 51.

[2] Ustawa o zasadach szczególowej kontroli obrotu z zagranica towarami i technologiami w zwiazku z porozumieniami i zobowiazaniami miedzynarodowymi [Law on Special Control of Foreign Trade in Goods and Technologies subject to International Agreements and Obligations]. Dziennik Ustaw, Journal of Legislation, 1993, No 129.

## Table 7: Main political parties and their attitudes toward economic policy

| *Political party* | *Attitude toward the State's presence in the economy* |
|---|---|
| Coalition of the Democratic Left (SLD) | Control of the inflow of foreign capital. Intervention of the government with special concentration on branches facing particular difficulties. Clear evolution toward lesser presence of the State, while in power. |
| Polish Farmers Party (PSL) | Active intervention. Fewer privileges for foreign capital. |
| Democratic Union (UD) | Indirect intervention through taxes, custom duties, laws, interest rates. Trade liberalization. Integration into the EU. Consistent decentralization. Free inflow of foreign capital. |
| Union of Labor (UP) | Active industrial policy. Foreign capital should be utilized to create new jobs. |
| Liberal Democratic Congress (KLD) | Least possible intervention of the government. Free inflow of foreign capital. |
| Solidarity Trade Union (NSZ Solidarnosc) | Intervention during the transition period. Controlled inflow of capital. |

***Source:*** *Zukrowska. 1995c, p. 67–80*

The selection of proper mechanisms with which to shape the branch structure of industry generates heated discussion among theorists and practitioners (see Table 7). The key issue in this dispute concerns the proportion of market- and state-intervention necessary to shape the structure of industry. In most of the countries, the state pursues an active policy toward structural changes in its economy. Such activities are supported by the argument that market forces are too weak to produce proper conditions for the required development of the industries in question. The fact that there is no precise definition of this notion in economic text books causes the temperature of the discussion to rise even further. The difficulty in defining what is, and what is not, an industrial policy arises from the fact that it is difficult to distinguish which activities fall into the categories of trade, financial, regional, environmental, health, defense, education and public policies (Ciamaga, 1993, p. 21). According to L. Ciamaga, industrial policy: (1) defines realistic goals; and (2) offers support in the form of the means and methods to achieve these; the said goals can be either short- or long-term. The state is equipped with various different tools which help to achieve these policy goals, namely major economic parameters and, occasionally, administrative instruments. The most frequently used tools belong to the areas of: financing/co-financing of R&D, education, regional development, infrastructure, environment protection, defense subsidies, and subsidies for declining branches and companies. In the case of trade policy, import quotas are also used (quantitative or tariff) along with agreements on marketing rules or other trade regulations.

According to Klemens Scierski, Minister of Industry and Trade, Poland needs an overall vision for its future. A step forward was the Cabinet's approval of the industrial policy program entitled "International Competitiveness of the Polish Industry". The key goals set down in this document are, firstly, increasing competitiveness and, secondly, creating conditions for economic growth within an open market economy. Policies will be included to promote exports and to incorporate advanced technologies into Polish industries. Achieving these goals will require the restructuring of industry, the development of small- and medium-sized businesses, and changes in the legal and organizational environments. Despite the formulation of a general framework for industrial policy in Poland, the Minister says, there is still no clear picture

of what to do with industrial giants. According to him the question is not which industries are destined for growth and which for closing down but rather one of the liquidation of those large state-owned companies which are permanently making losses and have no prospects of becoming competitive under the new economic conditions. This is especially true of industries which are energy- or resource-intensive and/or harm the environment (see Lipowski, 1996).

The Ministry of Industry and Trade has formulated a policy toward the defense industry based on a solid evaluation of the sector, stating the following[3]:

- The defense industry is a strategic part of the economy in the sense that it guarantees the defense of the State and security.
- The sector has notable merits, namely modern production potential in most of its enterprises and a highly qualified labor-force.
- Weaknesses of the sector are as follows: poor utilization of production potential, resulting from shrinking demand; the fall of sales on traditional markets; difficulties in conversion due to the specific nature of the equipment.

The restructuring of the defense industry was to include the following steps:

- Ownership restructuring, conducted according to the regulations agreed by the Council of Ministers on 19 May 1992. This aim was to be achieved by changing the ownership status of major companies from state-owned companies to stock companies. These could take three forms: (1) with 100% ownership by the State Treasury; (2) with the majority of shares belonging to the State Treasury; or (3) with the control-package of shares belonging to the State Treasury.
- Production in the defense industry is undergoing a process of consolidation. This takes the form of technical restructuring based on conversion from military to civilian production and the promotion of advanced technologies, which can increase the competitiveness of the production on the world market.
- Financial restructuring according to the agreement reached between the Government and the trade unions as well as the refunding of costs for keeping some industrial potential, necessary from a security point-of-view.
- Restructuring of employment (adjustments in employment to suit the demands of the sector); adjustments of qualifications of the workers to the changes dictated by the restructuring process.

According to the plans, the goals were intended to be accomplished by:

- Creation of four branch holdings, consisting of enterprises with similar types of production: traditional weapons; aircraft; radio-location equipment, opto-electronics and general electronics; and finally armored vehicles.
- Concentration of the special production in order to minimize cooperation ties and production costs.
- Change in production profiles, with the support of foreign credits.
- Budget guarantees of financial support for the security capacities.
- Refunding of debts stemming from deliveries to the former USSR.

For several different reasons, the goals, formulated above, were not achieved. Argumentation here differs from author to author. According to J. Czekaj, J. Hausner and S. Miklaszewski, these goals were not reached because of the following obstacles (Czekaj et al., 1993, pp. 25–26):

- Economic barriers: Lack of a well-developed capital market and of an efficient banking system; limited inflow of foreign investment; pressure to transform the growing external debt into an internal one; necessity to invest large amounts on the continuation of previous investments.
- Social barriers: Reactivation of branch interest groups; unfulfilled expectations considering the burdens of transformation; expectation of state-financing of social services and state functions.
- Institutional and political barriers: Dominant consumption approach in society; unstable political structure; lack of democratic and political traditions; unstable legal system.

[3] Polityka przemyslowa. Zalozenia. Program Realizacji w latach 1993–1995 (kierunki) [Industrial Policy. Main Objectives. Program of Realization 1993–1995 (Directions)]. MIT, Warsaw, September 1993, Annex 1.

All these arguments did not prove sound because they were conceived too quickly after implementation of the so-called shock therapy[4], when the outcome of the new strategy had not yet stabilized. The economy was in the phase of deregulation. Now, looking back from the perspective of 1996, it is clear that the strategy worked but that state presence was strictly limited to really serious cases. A special study conducted at the Institute of Development and Strategic Studies, Warsaw, (IRiSS) shows that, after a certain period of hesitation and passivity, companies began to find their way in the new environment[5]. In some cases this was done with the help of the Industrial Development Agency (ARP) (*Voice of the Polish Industry*, 24 September 1995, p. 5), in others, thanks to activities undertaken at the local or regional level, although a more active approach in the second case requires the further decentralization of state administration.

The ARP was established in 1992 and carries out several functions. It is a financial institution which can grant loans to, and issue guarantees on behalf of, state-owned enterprises that are under restructuring. It coordinates restructuring programs and at times plays a management role by taking shares in client companies. In some instances, ARP acts as a bankruptcy trustee. The Agency opened its doors more than four years ago, but already has some definite successes to its credit. Admittedly mistakes have also been made, but this is only natural.

On the other hand the ARP has already saved dozens of factories, the workers of which would have faced unemployment. It is the only agency of this kind in Poland, one whose task is not to distribute government handouts, but to make money by investing. It was the ARP which brought about the solution of the many complex problems at the Ursus Tractor Factory. The Agency also helped Diora Consumer Electronics Poland in Dzierzoniów. One of ARP's most spectacular successes was the creation of the Special Economic Zone in Mielec. Many 'economic miracles' have taken place in such zones around the world. In creating the Mielec Zone, Poland was drawing upon the experience of other countries. Foreign and domestic companies that operate in the zone enjoy preferential treatment with regard to taxes. The Ministry of Industry and Trade estimates are that 7,000 new jobs will be created in the zone and a further 3,500 new jobs in the surrounding area. Over 200 million zloty of (additional) government revenue will be generated from personal income taxes, VAT, and business taxes collected outside the zone. The ARP will be responsible for managing the zone, which will not only decrease unemployment but also promote the development of small- and medium-sized businesses and utilize existing industrial assets.

Summing up this section it should be said that the success a company has with restructuring and adjustment depends above all on the new strategy which is applied by the management of that company. In some specific cases, assistance to companies has come from the ARP. The industrial policy implemented by the State on the other hand is only successful in some areas, namely (1) macro-stabilization measures; (2) protection of the car industry; (3) savings policy and investment policy.

4 The term shock therapy is used for rapid liberalization of prices and foreign trade which (with some additional conditions) form the most effective strategy of macro-stabilization.

5 J. Kotowicz, "Inwestowanie, innowacyjnosc," [Investment, Innovation] *Gospodarka Narodowa* 1995, Nos. 8–9. p. 34. Joanna Kotowicz-Jawor, "Resume", *Gospodarka Narodowa* Nos. 8–9, p. 42.

# Conditions of Conversion

The notion of conversion, today, covers various different activities carried out by individual companies. According to BICC, (BICC 1996, p. 19) conversion covers:

- **Reallocation of financial resources away from the defense sector:** This is accompanied by a drop in income for the companies and employees concerned, as well as for the military, but at the same it brings benefits in the form of financial resources for productive programs, development, environmental improvements, improved infrastructure, and re-training.

- **Reorientation of military R&D:** This results in the 'costs' of underemployment of R&D facilities, 'brain-drain' and job losses. Among the benefits, on the other hand, one finds the absence of 'crowding-out', and the availability of financial resources and qualified scientists and engineers to tackle global challenges.

- **Restructuring of the defense industry:** This leads to the following disadvantages: drops in production, job losses, overcapacities, economic distortions. Positive features of the reorientation of production are: useful products, the availability of modern production facilities, and compensatory employment.

- **Demobilization of troops:** The costs of this are: job losses, economic dislocations, social and political instability, and the benefits: availability of skills, public works programs, repair of war damages, resettlement.

- **Closure and redevelopment of military bases:** Costs: job losses, loss of local business, structural vacuum. Benefits: opportunities for alternative reuse for education, industry, commerce, transportation or recreation.

- **Coping with surplus weapons:** Costs: high investment costs, pressure to export arms, ecological hazards. Benefits: reduced number of weapons, reduced acquisition and maintenance costs for weapons, scrap value, limited use in non-military programs.

There is no doubt that conversion is a complex and highly ramified problem. Implicit in conversion is the reduction of military armed forces and armaments, a fact which renders it, par excellence, a political issue.

The economic aspect is connected with a whole catalog of questions, which concern: (a) the role which military expenditures and special production play in the economies of different states; (b) the economic implications of disarmament in the context of the macro-economy; and (c) the consequences for the situation of individual companies within the defense industry which, according to their specific situation and incorporating the question of dependence on military orders, have to face complex problems of a financial, technical and social nature.

The social aspect of conversion concerns the rational use of the material and non-material sources at the disposal of the country. These sources can and should be utilized for the purpose of enhancing the quality of life of the nation and not to create danger for human existence. This problem must also be seen in the context of the difficulties faced by individual enterprises in their search for alternative workplaces for people formerly engaged in special production.

From the point-of-view of scale and character of activities linked to conversion, the following points are important:

- With the changes of the 1980s and 1990s, all alliance commitments which were connected with Polish membership in the former Warsaw Treaty Organization (WTO) and the Council for Mutual Economic Assistance (CMEA) became invalid. Before that, Poland had been keeping a relatively high production potential in the defense industry as well as in the military infrastructure, which—being subordinated not only to the requirements of the Polish Army but also to those of the WTO—considerably exceeded the country's needs.

- In a relatively short time, the Polish Armed Forces were reduced by nearly 40 percent, as the number of soldiers was diminished from 412,000 in 1988 to 250,000 in 1995. These reductions in personnel were accompanied by vast withdrawals of military equipment from the army. Within the framework of reduction commitments stemming from the Treaty on Conventional Armed Forces in Europe (CFE), Poland destroyed 1,120 tanks, 301 armored personnel carriers, 741 artillery systems and 61 combat aircraft between October 1992 and the middle of September 1995 (Firlej and Jopek, 1996). The reductions in numbers of personnel in the Polish Army made some parallel limitations in military infrastructure possible and these were also essential for the efficient functioning of the defense force.

- Conversion must not be allowed to lead to a destabilization of the State's defense abilities. It can however, and in fact does, create opportunities to bring the Polish economic-defense sphere closer to NATO standards. It also creates the conditions which are a prerequisite for seeking possibilities to decrease the social and economic burdens of defense preparedness.

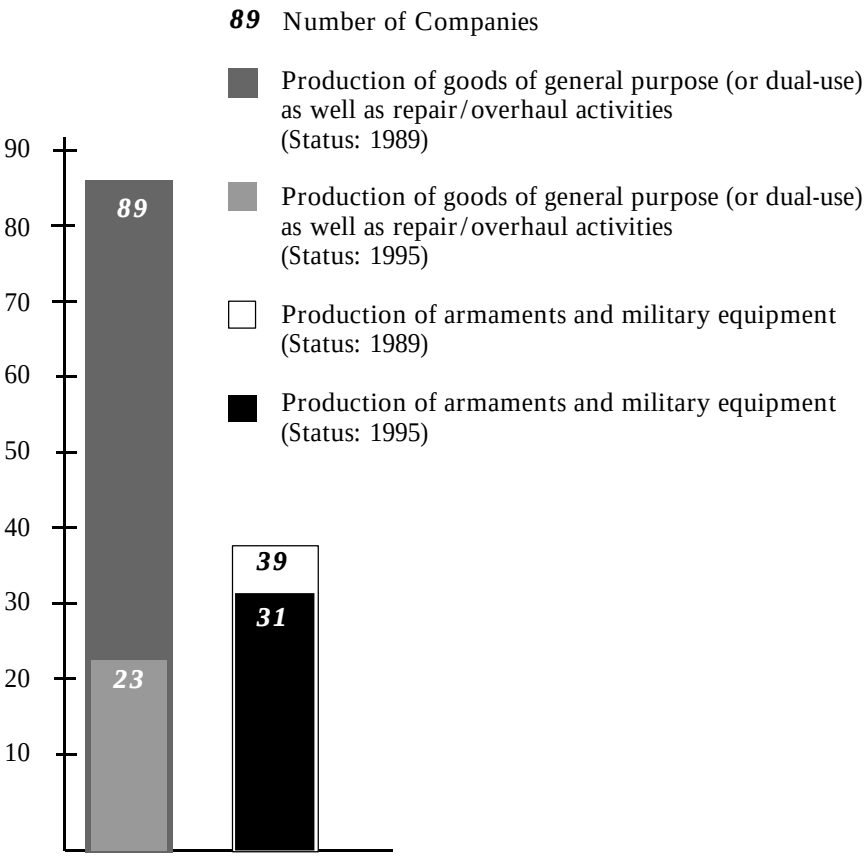
- Unfortunately Poland has been forced to introduce the conversion program on its own, restricted by the limitations of its abilities and strengths. An additional challenge of conversion in the case of Poland can be found in the fact that it has to be accomplished under complex social and economic conditions which are tied up with the process of transformation of the economic system (Pietrewicz, 1995).

To sum up: Conversion, as practiced in the 1990s, has turned out to be different in comparison to what it was thought to be in earlier decades, when the approach to conversion was purely theoretical and based on experience gained during the post-war period. Under contemporary conditions, we face the problem of high unemployment, accompanied by relatively limited inflation. These conditions make the process more difficult in comparison to the post-war period when unemployment was accompanied by expanding markets and demand, with high utilization of production capacities.

# The Scope of Conversion

In its first phase, conversion focused attention on the profitable and unprofitable firms (the so-called 'winners' and 'losers') in the sector, as in other branches of industry. State intervention was utilized as the ultimate tool, although some bank credits and arrangements with debtors could be considered as stemming from the 'invisible' hand of the government. This 'invisible' hand resulted in control over bankruptcies in the initial period of transition. This instrument was much more effective than visible aid in the form for example of subsidies, as it forced management and workers to adjust to market behavior quicker. Visible aid provokes passivity, while market conditions require a more active attitude. The process of conversion was limited in the introductory phase by falling demand on the civilian markets, lack of flexibility of industrial potential and limited access to financial resources. When available during that period, the latter were used incorrectly, from an economic point-of-view, and contrary to the principles of restructuring.

## *Chart 1: Conversion in the defense industry 1989–1995*




***Source:*** *Same as Tables 1 and 2*

In the case of Poland, the conversion process encompasses activities dealing with:

a) The alternative utilization either of the entire capacities or only of partial capacities of several enterprises of the defense industry. The greatest problem is ascribed to those companies producing armaments and military equipment, goods sold exclusively to two types of customers, the MoD and other institutions of the internal security domain. From 1989 to 1995, the number of firms supplying deliveries of this type diminished by 8, as some of the companies were liquidated (see Chart 1). The majority of the remaining enterprises producing weapons and military equipment had to change the structure of their production and adapt part of their production capacities to the fulfilment of the civilian orders.

In the case of companies specialized in the production of general (or dual-use) goods (companies which, in the past, were part of the military industry and which, today, are working for the needs of the civilian market) conversion is an easy task from the organizational and technical point-of-view. Among 89 enterprises specialized in this type of production, 50 were not faced with any specific difficulties as a result of structural changes to their production capacities; their adjustment strategy was limited to the search for new customers, although this was not always successful. In the case of 16 enterprises, the scope of activities within the framework of conversion was wider and was connected with changes introduced into the technological lines.

b) The utilization of land handed back by the military forces, including buildings, constructions of different types and installations, all of which were part of the defense infrastructure used by the army. Part of this infrastructure was formerly used by the Polish Army either for its own purposes or on behalf of the Warsaw Treaty Organization. Other sections were used by military units stationed in Poland until September 1993, as some of the barracks belonged to the former Soviet Union. These units formed the so-called Northern Group of Forces (NGF). By the end of 1995, the Polish Army had handed back territories of a cumulative capacity of about 11,000 hectares, on which there were 818 buildings and 1,000 different installations. The NGF units, which had been living in Poland on the basis of the "Agreement on the Withdrawal of the Russian Federation Army from the Polish Territory" of 22 May 1992, handed over to the Polish authorities territory with a total area of 70,900 hectares, on which 7,854 buildings and constructions were situated. 90 percent of the property were then assigned to civilian use.

The process of conversion of the defense industry is not an autonomous undertaking in Poland: it was aimed first and foremost at adjusting the structure and size of the special production to current needs dictated by national and foreign contractors. Secondly, its purpose was to create conditions for the stable functioning of the sector as a whole within the new political, military and economic realities. The restructuring of the defense sector was intended to lead toward increased effectiveness by means of strengthening the innovative and competitive aspects of production. In practice, the accomplishment of the restructuring program of the defense industry also implies two more things: on the one hand, the expansion development of civilian production carried out within the enterprises in this sector; on the other, the elimination of overcapacities within the area of special production which arose from the break-up of the WTO. Under contemporary conditions, the restructuring program of the defense industries leads to the conversion of part of the production capacities of the sector. In other words, it affects rationalization of their utilization with the aim of meeting social requirements as closely as possible. Despite this fact, there are numerous signs that the effectiveness of production could be improved even further by a better calculation of costs. It appears that the competitiveness of the goods produced for the civilian and military markets becomes greater when competition itself is intensified. Moreover, the existing reserves in this field give vast opportunities for international cooperation in production.

# Sources for the Financing of Conversion

There is no doubt that conversion costs money. The inputs required are defined by various different features characterizing production, of which these are some: (1) share of military production in the overall output (scale of diversification); (2) flexibility of the industrial potential; (3) type of production; (4) scale of the enterprise; (5) type of technology used (dual- or mono-use). These are the main features determining the costs of conversion and are indirectly also the sources available from which to finance the adjustments.

Funding for conversion comes from several sources. Primary importance is ascribed to the following:

a) **Company funding:** means made available by companies themselves from their own sources. It is worth stressing that numerous enterprises based their future plans of development on the hope of increased opportunities to export military equipment. Incomes from such activities were expected to ease the process of restructuring and the modernization of existing machine-tools as well as to facilitate the introduction of new production lines, including civilian products. The concept of 'increased export for conversion'—in the light of the difficulty in trying to increase special exports which, from 1990 to 1995, have not surpassed the value of US $80 million per year—proved unrealistic in practice. Taking into consideration the fact that an important part of the enterprises grouped in the defense sector continuously face great financial and economic difficulties and do not possess sufficient capital resources, all attempts to convert production using only their own financial sources are limited in practice to a small number of enterprises and to a restricted degree of change in the organizational and/or investment plans.

b) **Bank credits:** banking credits contracted by enterprises. Some credits are guaranteed by the government. The best example is the case of Wroclaw's HYDRAL factory which, in 1994, received government guarantees for taking on US $ 45 million of foreign credit. Support achieved in this way formed the financial base with which to accomplish the restructuring program at that factory, including some activities leading toward conversion. Within the framework of that program, a modern line was set-up for the production of ecological gas-compressors utilized in many fields of the economy (*Nowa Europa*, 26 April 1994, p. 4). Up to the end of 1995, a total of 11 government guarantees were given to 11 individual enterprises in the defense industry.

A serious limitation restricting bank credits to defense enterprises is ascribed to the high indebtedness of those enterprises toward the banking system, the State Treasury, and the Central Office of Social Services. In 1995, within the framework of the so-called financial restructuring, 13 companies belonging to the sector conducted conciliatory proceedings which resulted in debt reductions to a total value of 810 million zloty. This corresponded to 82 percent of the total debt. Conciliatory proceedings in court were conducted in the case of another four enterprises and this resulted in further debt reductions of 51 percent of the total value of obligations. The total value of debt reductions are estimated at 45 million zloty.

Thanks to the conciliatory and mediation procedure, the debts of defense plants were reduced by 800 million zloty, in comparison to the former level of 1,770 million in May 1994. The debt problem had not been solved conclusively, however, as debts started to climb up again in a comparatively short period of time, reaching the level of 1,520 million in December 1995 (*Przeglad Techniczny*, 1995, No. 27, p. 8; *Rzeczpospolita*, 17 September 1995, p. 10). This tendency was mainly caused by the fact that a large section of the debts estimated to exist during the conciliatory procedure were to be returned between 1995 and 1996. This target period was too short to achieve adequate solutions to the complex problems of a technical and practical nature which defense companies were facing. It is worth stressing that, in 1995, only one-third of all firms of that sector had credit abilities and could take up credits from the banking system. A characteristic feature of the defense sector is that the debt problem mainly

affected those companies which were heavily dependent on their deliveries to the military market. In each case such dependency necessitated an extensive and costly conversion program.

c) **Government means:** A part of these means (only a relatively small fraction of the total amount) is used directly for financing conversion purposes while another part is allocated directly to the general support of the defense industry in order to improve economic conditions. Support from the government agencies takes several forms:

- Support in burden reduction within the sector.
- Financial support for research and development conducted according to the needs of the sector as well as to those of the civilian sector.
- Sometimes the State Treasury takes over part of the production overcapacities—mainly objects which are not directly engaged in production.
- Financing the costs of keeping some reserve production capacities in case of war or the threat of war.
- Facilitation of wider access of the enterprises to guarantees given by the banks.

Even if dotations and other supportive activities conducted by government agencies are not linked directly to conversion, in practice they serve this purpose as they improve the conditions in which the defense industry functions and help to solve some of the economic and financial problems enterprises in this sector face. In practical terms, such activities enlarge the space which enterprises have at their disposal for maneuvering within the field of investment, as regards changes in their product range, and for the marketing of products on new markets.

d) **Private capital:** Since 1990 many changes in ownership structure have been undertaken in Poland. The process of ownership-restructuring affects all significant sectors of the economy including the defense industry. The majority of those enterprises (88 in number) which lost their status as defense industry units from 1989 to 1995 were transformed into one-owner, joint-stock companies belonging to the State Treasury. In 63 of these cases, the State Treasury then sold part of the shares of the enterprises to private investors. The inflow of private capital subsequently helped to modify production, including the replacement of special production by goods for the civilian market.

Of the 31 companies, considered the core of the defense industry, 28 were transformed into State Treasury joint-stock companies; three of these then transferred their ownership to a third party (creditor); in the remaining cases, the State Treasury was the sole owner, except for 20 percent of the shares which belonged to the company staff, as regulated by the law of ownership transformation.

Within the process of redevelopment of the property taken over by civilian authorities from the NGF units which were leaving Poland, a greater role was played by private capital. This was similar to the case of property returned by the Polish Army as a result of the reduction of military forces and armaments. Nevertheless, even in such cases, the interest of private capital to invest in this sector was relatively limited.

e) **Municipal sources:** This applies to relatively limited sources that were used in the process of redevelopment of objects handed over by the NGF units as well as by the Polish Army. These means covered expenditures for the renovation of objects and the resettling of those living on the sites and for some elements of technical and economic infrastructure. By supplying funds, the municipalities were trying to reduce the pressure of demand for low-cost flats for low-income households, as well as to meet the vast needs of education and health care.

f) **Sources from the Scientific Research Committee:** This committee supports numerous scientific and research studies, including those conducted in the field of defense. Thanks to support from this committee, centers formerly specializing in research for military purposes were able to launch several scientific projects. This helped them to change their orientation profile from military to civilian production as required by the new needs of the national economy. The Scientific Research Committee also financed some of the enterprises dealing with ecological damages caused by the NGF units which were stationed in Poland.

g) **National Fund for Environmental Protection and Water Management:** Means coming from this fund were used to address the damage caused by the NGF units when stationed on the Polish territory.

h) **Foreign aid:** This covered, firstly, all finances relating to consulting work connected with further changes in the functioning mechanisms of the defense industry, as well as so-called business plans. It also covered enterprises engaging in market research and the introduction of

international quality systems such as ISO 9000, helping to bring standards up to the level of the EU market through a set of specific regulations. The most important role in this context is ascribed to PHARE, the Polish-Hungarian Assistance for the Restructuring of Economies, and EFSAL, the European Fund for Structural Adjustment Loans.

The sectoral study entitled "Program of Restructuring the Defense Industry in the Years 1995–2010" was financed from PHARE sources.[6] Work on that project was conducted between 1994 and 1996 at a total cost of 324,000 ecu. Six companies engaged in special deliveries in the past (and of which three still have defense industry status) have utilized funds from the PHARE Program.

The largest amount—800,000 ecu—is assigned to the planning and creation of the special economic zone in Mielec. PZL-MIELEC is the only enterprise of the defense industry to have used EFSAL money up to now (90,000 ecu). (This unpublished information came from the Office of the Government Representative for European Integration and Foreign Aid). These financial resources were granted for the modernization of the infrastructure of the airport situated close to the plant. In addition they were assigned to help solve some of the social problems connected with the necessity of labor reductions in the factory. It must be stressed however that, up till now, defense enterprises belonging to the defense sector have only used foreign aid on a limited scale.

i) **Cooperation between Polish defense industry firms and foreign companies:** This kind of cooperation is carried out mainly in the form of joint ventures. It concerns, first of all, civilian projects, primarily in the aviation branch of the industry. The establishment of joint ventures provides support for Polish enterprises mainly in the three fields of capital, technology and management. This helps to develop civilian production and usually leads to conversion of the section of production capacities, formerly allocated to the military production.

This process can be illustrated by once more using the case of PZL-MIELEC which is now cooperating with the Boeing Corporation by supplying 100 complete door assemblies for the Boeing 757. This contract was negotiated as a trade-off against the purchase of airplanes bought from that company by the Polish Airline LOT. Mielec also has a cooperation agreement with the Italian corporation Alenia, which has ordered the production of fuselages for the ATR 72. Cooperation with the German company Stemme relates to parts for gliders.

PZL-RZESZÒW has developed joint venture companies with Spanish (Hispano-Suiza) and American (Boeing) capital. In the first case, the contract covers the production of gear-wheels for Trent 700 engines. In the second, it relates to the production of various different components for CFM 56 engines. It is worth mentioning that Wroclaw's HYDRAL has already established initial contacts with Lucas in Britain, Hydro-Line in the United States and SKF in Sweden. In the future, this may lead to closer cooperation in production (*Polska Zbrojna,* 4 March 1993, p. 3: report on the Polish aircraft industry; *Polska Zbrojna,* 4 February 1993, p. 4: report on the future of the Polish aircraft industry; *Warsaw Voice,* October 1994, p. 6; Czerwinski, 1995).

To sum up, there are nine different sources from which to finance conversion and adjustment to the new requirements of the market. In the process of reshaping production, Polish enterprises have used one or several of these sources, depending on the particular strategy chosen by their management.

[6] The Sectoral Study formed the basis for preparing a government program, dealing with the restructuring of the defense industry. The program was accepted by the Council of Ministers in April 1996.

# Conversion of Unproductive Objects

Conversion strategies in Poland differed in relation to the object concerned depending on whether it was productive or unproductive. This in turn has created differences in methods of financing, management and ownership-restructuring. The best example of conversion of unproductive objects is probably the non-military use of former military bases.

In the economic sense, the abolishment of the NGF bases as well as of some of the installations used by the Polish Army has had its price and this can be measured in part through the decreased incomes of those companies previously providing food, water, electricity, health and other services. On the scale of the economy as a whole, these lost amounts are relatively small. (Information about this particular subject is rather limited and would be an appropriate subject for additional research.) Nevertheless, it is clear that military orders played an important role in the general income of the local community. The re-use of property taken over from the military results in certain losses when considered at local level even if calculated with a profit but the question of future investments is still open and subject to debate.

The property which has been taken over is often of such a specific nature that it is difficult to redevelop it quickly to civilian purposes; in some cases, this even proves impossible. In the majority of cases, this problem relates to installations and buildings of purely military purpose, such as shelters, bunkers, ammunition stores, barracks and oil-stores. All are located away from main communication routes and large towns.

As far as the installations left behind by the NGF units are concerned, the possibilities of conversion are additionally affected by the following factors:

a) The majority of the installations (95 percent) constructed by the Soviet army were built without the permission of the Polish authorities. This means that most of the buildings do not conform to the construction, energy or environment regulations, binding in Poland. Moreover, most of the installations were not accompanied by any legal, technical or geodetic documentation when returned to the Polish authorities.

b) Constructions which belonged to the NGF were usually exploited in violation of the rules of utilization, that is, for example, the required maintenance or repairs were not carried out. Moreover, during withdrawal, Soviet troops dismantled the technical infrastructure of the objects left behind, or even ransacked them. This applied to electric and telephone lines, water and gas pipes, sewers, central heating, fences, doors, windows, and so on.

c) The land and the facilities used by the NGF were also exploited contrary to regulations on environmental protection. As a consequence of this, soil and water (both ground and surface water) have been poisoned with heavy metals, phenols, detergents and petrol-derivative products. The threat caused by the great number of unexploded shells left on the grounds of former firing ranges is yet another a problem in itself. Problems arising from ecological devastation also occur on ranges used by the Polish Army, although this is on a smaller scale in comparison to ranges abandoned by the former NGF units.

The redevelopment of the grounds, buildings and installations which have been taken back from the army should normally be proceeded by the compilation of the missing documentation and by an assessment of the value of the objects. In most cases, some of the missing technical infrastructure has to be rebuilt. First of all, sewage treatment plants must be constructed and bridges and communication routes repaired. The buildings must be equipped with water pipes, sewers, electricity and telephone networks. The firing ranges must also be checked with mine-detectors. Grounds must be protected from further devastation, caused by ecological damage. All this requires extensive investment which often exceeds the total value of the object itself.

In January 1995 the Council of Ministers accepted the “Program of Redevelopment of Grounds Degraded by the Army of the Russian Federation”. As a result, an inter-ministry group was established to coordinate the work of removing post-Soviet ecological damage. A detailed program of activities for 1996 was prepared; of an estimated total value of 88.2 million zloty, 43.7 million was to be spent in the

current year, while the remainder was to cover the period 1997–1998. (This information comes from the unpublished report "The Program of Reduction of Damages caused by the NGF Units stationed in Poland" of the Office of the Council of Ministers, Warsaw, 1995.)

The state budget is the main source for the financing of redevelopment of former military ranges for which 30 million zloty has been earmarked. The National Fund of Environment Protection and Water Management (NFOSGW) has allotted 12 million zloty to this specific goal. Foreign aid programs will supply 1.15 million zloty , while 590 thousand zloty will come from local administration. Redevelopment in 1996 is expected to cost 9.6 million zloty of which most will come from the NFOSGW.

The work planned will be limited to the redevelopment of the grounds polluted by petrol-derivative products and to the protection of surrounding areas from further damage. Several garbage dumps will also be removed. The cleaning up the grounds of the airfield at Krzywa (Legnica *voyvodship*[7]), costing 43.9 million zloty, together with the redevelopment of the range in Borne Sulinowo (7.8 million zloty) are considered to be the two largest undertakings in this program.

Some grounds and buildings left by the NGF units have been easily adapted to the needs of the new owners in a short time. For others, however, it has been difficult to find new owners and this has led to the preparation of special legal regulations on "Alterations to State Treasury property taken over from the Army of the Russian Federation," approved by the Seym, the Polish parliament, in June 1994. This regulation created favorable conditions for the utilization of reclaimed property, because it shortened the procedures accompanying changes in the ownership of property as well as introducing a reduction in some taxes and payments. It has since become clear that property formerly used by the Polish Army or the NGF units cannot be redeveloped rationally without extensive support from the state budget.

This was one of the reasons behind the preparation of the strategic government program entitled "Redevelopment of the Property taken over from the Army of the Russian Federation". This program is aimed at the coordination of all activities undertaken in this specific field. The first work to be undertaken within the framework of this program started in June 1995, and it is planned that the project as a whole will end in December 1999. It is estimated that the utilization of grounds and buildings, which are still unused, will require investments of up to 102 million zloty (excluding the cost of dealing with ecological damage). 42.5 million zloty will have to be spent on the reconstruction of damaged or missing technical infrastructure, while 59.9 million zloty are the estimated costs for the general redevelopment of the property. The program is financed from several sources at the disposal of *voyvods*[8], who, among others, use these dotations from so-called 'goal-reserves' of the state budget for such purposes. This is done alongside the use of support from the Fund for Environment Protection and Water Management, as well as money from the Committee of Scientific Research. Payments from the companies and individuals who will be taking over the properties in question also play a significant role.

Up to the end of 1995, 41 thousand hectares and 5,426 buildings had been converted to civilian use; 70.9 thousand hectares of grounds and 7,554 buildings and constructions had been taken over from the Soviets; 29.9 thousand hectares and 2,428 buildings are still waiting for their turn to be redeveloped. A quarter of the property returned to civilian authorities by the Polish Army has been used (3.5 thousand hectares and 450 buildings and installations). (This information comes from the unpublished report "Redevelopment of Property taken over from the Army of the Russian Federation" of the Council of Ministers, Warsaw, 1995). The main problem linked to the adaptation of former military bases originates from the fact that the properties in question (mainly those that have not found a new owner) are not attractive to investors from an economic point-of-view.

To sum up, because of the fact that large amounts of money have to be mobilized, including the state budget, the process of redevelopment of property left behind by the NGF units or returned by the Polish Army will gradually be expanded as time goes by and will continue another 10 years. Management will often face situations similar to what happened in Kluczewo or Chojna (both in Szczecin *voyvodship*) when, in the middle of September 1995, an advertised tender relating to two airfields was met with no interest at all (*Polska Zbrojna*, 22–24 September 1995, p. 3). This indicates that some of the properties will be left unused—perhaps as a monument to the Cold War period.

[7] *Voyvodship:* Administration unit, comparable with districts in other countries.
[8] *Voyvods* are the administrators of *voyvodships*.

# Conversion of Productive Objects

Conversion of productive objects is obviously more important than conversion of unproductive ones, as it deals in the first place with real matters of social concern. In this sense, the process must be accomplished relatively quickly and effectively, a fact which ironically limits the total—capital and social—costs of the process. From this point-of-view, conversion guided by market forces has turned out to be the most effective kind because it is over relatively quickly and the problems are concentrated in the first stage.

In the first half of the 1990s, the arms industry was confronted with specific conditions which can be compared with a suspension in a vacuum. On the one hand, this had been caused by a major reduction in orders from the MoD and other customers of the military market as well as from the international market; on the other hand, by lack of clarity about the future of the sector. All in all, it was not clear what kind of demands would be made on the sector. Generally, several phases of reaction could be observed: (1) passivity; (2) the search for methods of survival; (3) consideration of possible sources of investment; (4) exploration of possible ways to introduce innovations.

**In the first phase**, when enterprises encountered rapidly deteriorating economic and financial crises, the overwhelming majority of enterprises did nothing more than insistently pressurize their relative ministries, namely the Ministry of Industry and Trade, the Ministry of Defense and the Ministry of Home Affairs. That was done in an attempt to retain the former level of orders and to demand consistent financial support. The enterprises themselves were totally passive as far as attempts to seek alternative sales markets and the introduction of adjustment measures toward the changing demands of the market were concerned.

The ministries supervising the enterprises of the defense industry required the fulfilment of formerly submitted programs, which included the retention of reserve production capacities in case of war or the threat of war. This demand was not however followed up by the transfer of the necessary financial support. Such a stalemate situation lasted until the beginning of 1994. Up to then, all companies were running into financial trouble reflected in a rapidly growing indebtedness. This was accompanied by increased tensions in the social sphere. The necessity of labor reductions—reaching an overall level of 90,000—resulted in industrial action.

**The second phase** of reaction was characterized by a more active approach on the part of the enterprises themselves. Facing bankruptcy, all of them made attempts to prepare readjustment programs (business plans), using in some cases the 'know-how' of foreign experts; after the initial stage of passivity, it had become clear that companies had to become active on their own in search of the required financial means, that would enable them to introduce adjustment changes into the organizational structure of the enterprise, its product range, the technologies used and marketing possibilities.

In 1994, under the regulations introduced by an ordinance of the Council of Ministers, 31 enterprises were selected for the group that was to 'enjoy special status'. This fact was equivalent to the guarantee that at least part of their production would find a market. Nevertheless, the value of orders placed with those companies was considerably lower than in the 1980s. Moreover, six of enterprises on the list have still not received any orders from the government since the regulation was issued. In such circumstances, the majority of the enterprises have attempted to lessen their dependence on the military market, achieving this by conversion of the productive capacities.

It is characteristic of the second phase of conversion that most enterprises tried to introduce commodities onto the market which did not require complicated technologies and which were not very demanding from a technical point-of-view. Such a strategy did not require special investment inputs which might have been necessary as a result of the limited possibilities of using production capacities. Moreover, most technologically complicated products did not seem to be competitive on the market, especially in comparison with imports. High production costs were the main reason behind this.

**In the third phase**, companies negotiated their indebtedness with banks and other creditors, reducing the financial burdens and extending the time limits. This created prospects for the further functioning of the enterprises and their move forwards towards phase four.

**In the forth phase**, businesses operating in the transition economy tended to begin to behave like normal companies in a market environment. Based on former experience, about 20 companies of the defense industry prepared conversion programs, which included the introduction of highly advanced technological goods for the civilian market. The list of newly introduced products included machine-tools and mechanical equipment (cranes, mechanical shovels, trawlers, electric carts, electro-technical products (electric engines, generators, electronic/ mechanical equipment for household use) and electronic equipment (radios and TV sets). At the beginning, most of the enterprises tried to find the financial reserves for conversion by increasing their arms exports. Sources for such changes were supported by banks and/or cooperants engaged in the endeavor.

When this turned out to be impossible, company management resorted to taking up bank credits which, in some cases, were guaranteed by the government. They also made attempts to find partners in the West and to establish closer cooperation with them.

While the financial difficulties companies faced could be considered the main obstacle to conversion at the time, limited knowledge of financial and economic mechanisms controlling the market was an additional factor which hindered the smooth functioning of companies in the civilian field. Those companies displayed very little marketing activity and were faced with competition on both the home and the foreign markets. Moreover, they often did not have the necessary experience and finances to launch successful promotion and marketing campaigns.

A tank may be just as heavy as a crane, but it is six times more valuable. To achieve the same turnover as when selling 300 tanks per year, a factory has to produce 1,800 cranes and this number increases still further if the factory wants to reach a similar level of profitability (*Cash*, 4 November 1994, p. 13).

The majority of the firms undertaking activities leading toward changes in their production profile and to closer cooperation with civilian companies were confronted with the demand barrier. This is caused by several factors:

a) Relatively high production costs for civilian commodities, caused by the specifics of military production (relatively expensive machine-tools; the vast and usually well-protected grounds on which the enterprises were situated; the necessity of keeping production capacity reserves in case of war or the threat of war). This increases the competitiveness of purely civilian companies.

b) Inadequate quality of the civilian goods, a characteristic especially of the first stage of conversion.

c) Relatively minor efforts on the part of companies in the areas of promotion and marketing.

d) Poor knowledge of the needs of civilian markets and lack of understanding of the mechanisms of competition.

e) Recession of some branches of the economy which could otherwise buy equipment from the converted enterprises of the arms industry. This includes mining and construction companies, two branches which used to have the highest demand for civilian products manufactured by the military industry.

All this is the reason why enterprises in the military industry still only use their production potential to a very limited extent. However stages similar to those which the arms industry enterprises went through have also been

observed in the civilian branches: after a period of passivity, civilian companies started to look for methods which might give them a chance to survive. In the latter two phases, they started to invest and look for innovations and, in this, their actions were similar to those of their western partners. 'Learning by doing' proved to be the best method to ensure their survival. Most of the enterprises in civilian branches are now ready to seek closer contacts with partners from abroad and it can be expected that, with a small time delay, similar reactions will take place in the military sector, especially once adjustment to new production conditions have incorporated a strategy of cutting-off dependence from military contracts.

It would seem important to analyze why some companies have been successful in their adjustment while others failed. There is no one answer to this question: each case turns out to be very specific. However, generally, the background of a successful strategy can be ascribed to:

- good managerial qualities;
- success in finding a niche on the market;
- a shrewd strategy in negotiating debt reductions;
- the strategic investor (minimum percent of the shares);
- effective restructuring;
- introduction of innovations;
- flexible adjustment to market demands;
- pressure on the part of the employees to implement change and credits granted to the management to carry out its plans;
- an increase in competitiveness through the reduction of costs, increased quality and a wider range of products.

Actual evidence of strategies used is found in comments on policy adjustment at the micro-level. In the first stages of transformation, the drop in the exchange rate of the zloty forced companies to act economically. At a more advanced stage, this was enforced by increased competition. Now, however, even if competition is still increasing, countries which are experiencing transformation are gradually facing a period of return to stabilized exchange rates.

# Case Studies— A Report

The Polish arms industry offers numerous examples of successful conversion strategies. Nevertheless, this is not reflected widely in the relevant literature. The reason behind this is simple: the government is mainly concerned with the remaining core of the Polish arms industry and does not focus anymore on companies which have successfully diversified or converted to supplying the civilian market, adjusting at the same time to the new rules of the game dictated by that market. Below, we present several examples of how companies have adjusted to the new conditions and of how entrepreneurial behavior has begun to develop.

## *Company name: BUMAR-LABEDY*

**Economic and financial standing:** In 1992, BUMAR faced bankruptcy. In order to reduce part of its indebtedness, two consecutive agreements were negotiated with two main creditors. This created the necessary conditions for launching a program of far-reaching changes in the organization of the enterprise as well as in its production. By 1995, BUMAR belonged to the group of 'best performers' in the Polish arms industry. This was based on the fact that its activities were profitable, a rare occurrence in the sector.

**Role of special production in overall economic activities:** BUMAR is one of the largest enterprises in the defense industry and is a final producer of armored equipment. At the end of the 1980s, the share of special production in the total output was estimated at 90 percent. In 1995, this share fell to about 40 percent, which nevertheless indicated that BUMAR was still highly dependent on military orders.

**Experience in activities for the civilian market:** BUMAR belongs to the group of companies which have a relatively well-developed experience in the production of technologically fairly advanced civilian goods. In the 1990s, the range of civilian production was, in fact, extended by new types of road-cranes, automatic shovels and mining loaders.

**Degree of flexibility of production capital:** Because of the far-reaching specialization of military production, possibilities of alternative use of the production factors are limited. In other words, civilian production heavily depends on investment requirements which have to be carried out beforehand.

**Social status: lay-offs in the enterprise and unemployment in the region:** BUMAR is one of the biggest concerns in the Katowice *voyvodship*. The rate of unemployment in the region was 11 percent in 1995, and was below the average for the country at a whole (15.5 percent). Nevertheless, BUMAR is now facing strong social tensions, as 7,500 people have been laid off.

**Prerequisites of conversion:**

a) Creation of stable conditions for the smooth functioning of the enterprise within the new political and economic realities, which would allow the easy accomplishment of production goals for both special and civilian markets.

b) Avoidance of further lay-offs of the workers.

**Methods of conversion:**

a) Division of the enterprise into smaller self-financing units.

b) Riddance of unnecessary production and unproductive capital.

c) Development of civilian production while retaining particular production abilities within the framework of the special production.

**Potential markets:** BUMAR has relatively good prospects for selling its products on both the home market and abroad.

**Degree of advancement of conversion:** considerable.

**Sources of financing conversion:**

a)Own means (from exports).

b)Bank credits.

c)Cooperation.

(*Zycie Gospodarcze,* 3 July 1994, p. 18, K. Sonntag "BUMAR Labedy.")

## *Company name: RADMOR*

**Financial and economic standing:** For a certain period the enterprise was making losses. Since 1995, the financial situation has systematically improved.

**The role of special production in overall economic activities:** Relatively high: the share of special production in overall activities is 30 percent.

**Experience in activities for the civilian market:** Specialization in a limited number of products (radio receivers sets).

**Degree of flexibility of production capital:** relatively high.

**Social status: lay-offs in the enterprise and unemployment in the region:** In 1995, the average unemployment rate in the region was 14.6 percent, lower than the average for the country as a whole. During the adjustment program, 650 workers at the plant were laid off.

**Prerequisites of conversion:**

a) Improvement of the financial standing of the company.

b) Creation of stable perspectives for the further development of the company.

**Methods of conversion:** The conversion program is part of a wide-reaching project to restructure the enterprise. RADMOR is making continued efforts to develop a small number of civilian goods for telecommunications (within the framework of the State's program of expansion of telecommunications to villages) as well as goods for the construction industry.

**Potential markets:** Limited to the home market.

**Degree of advancement of conversion:** average.

**Source of financing conversion:**

a)Own capital.

b)Banking credits.

## *Company name: PZL-MIELEC*

**Economic and financial standing:** PZL-MIELEC has been having great problems with the restructuring of its production and exports in all of its attempts to adjust to changing conditions on the home and international markets. This is derived from the relatively low competitiveness of products which were formerly mainly sold to the Soviet Union and produced according to the technological and quality standards acceptable to that customer. Transfer to free currency accounting in external trade, at the beginning of 1991, caused a reduction in orders and delays in payment of goods already delivered to the Soviet (Russian) partners. At the same time, its main customers on the national market had also reduced their orders considerably (MoD; air flying clubs). Such decisions were caused by limited financial means for the purchase of airplane technology. In 1995, as a result of this, the enterprise found itself in a very critical financial situation and was on the verge of bankruptcy.

**The role of special production in overall production activities:** PZL-MIELEC is one of the largest enterprises within the airplane-producing branch in Poland. Dependence on military supplies is fairly high, as special production amounts to 40 percent of total output.

**Experience in activities for the civilian market:** The enterprise has experience in the production of civilian planes of a fairly simple construction; it also produces golf-carts and old-timer racing cars.

**Degree of flexibility of production capital:** average.

**Social status: lay-offs in the enterprise and unemployment in the region:** PZL-MIELEC is the only large enterprise in a region with a population of 110 thousand. The Rzeszów *voyvodship* belongs to the part of Poland which is highly exposed to structural unemployment. In the middle of 1995, the unemployment rate here reached 18.5 percent which was very high in comparison to the average for the whole country. The enterprise had to dismiss 12,000 of its employees.

**Prerequisites for conversion:**

a) Alternative use of the production in a large company with well-established production.

b) Resolving the issue of unemployment.

**Methods of conversion:** At the end of 1992, when the economic and financial situation of PZL-MIELEC became dramatic and the management of the plant was not able to pay salaries to its workers, a solution was found by implementing the idea to create a special economic zone and free duty area. Preparation of the planning for the zone was entrusted to an Irish company from Shannon called International Development Ireland Ltd. In July 1993, it presented a comprehensive project for the zone.

The main purpose of the zone was to create legal, financial and organizational conditions sufficient to attract foreign capital. According to the plans, foreign direct investments (FDIs) were responsible for upgrading capital and technology of the existing industrial potential of PZL-MIELEC, as well as for improvements to the surrounding infrastructure (major airfield); they were also responsible for the transformation of the former concern into several independent companies with a status of joint-stock companies. All this was intended to create new development perspectives, both for the company as well as for the region as a whole.

In 1994, the Seym approved an act dealing with special economic zones and a year later the Council of Ministers submitted an appropriate directive concerning Mielec establishing the EURO-PARK-MIELEC. It was the first special economic zone in Poland with a total area of to 575 hectares (of which 350 hectares were ascribed to an airfield with two airstrips).

Six enterprises, set up during the restructuring process of PZL-MIELEC, were located within the special zone:

- the PZL-MIELEC Airplane Factory Ltd.;
- the PZL-MIELEC Motor Production Plant Ltd.;
- the PZL-MIELEC Injection Systems Production Plant Ltd.;
- the PZL-MIELEC Automobile Factory Melex ;
- the PZL-MIELEC Power Generating Plant;
- the Gepard Automobile Factory Ltd

*Voice of the Polish Industry*, Supplement to the *Voice of Warsaw*, September 1995, p. 2.

**Potential markets:** Determined by the development of cooperation with foreign partners and the inflow of foreign capital.

**Degree of advancement of conversion:** The creation of the zone was commenced in 1995.

**Sources of financing conversion:**

a)Foreign capital.

b)Banking credits.

c)Tax reductions.

## *Company name: KRZYWA*

Joint-stock company, established to redevelop the grounds of the former airbase in Krzywa, Legnica *voyvodship*, previously belonging to the NGF.

**Social status: lay-offs in the enterprise and unemployment in the region:** The Legnica *voyvodship* belongs to the part of the country with a high rate of unemployment. In the middle of 1995, the unemployment rate in the region was 19.7 percent.

**Prerequisites for conversion:**

a) Civilian use of the object (with a total of 5,000 hectares including two regular-length runways and 260 different buildings and installations, including gas-pumps).

b) Improvement of the ecological situation.

c) Creation of new jobs.

**Methods of conversion:** Plans for using the airfield and the housing estate situated in the neighborhood foresee the establishment of an international center for cargo transport which would comprise a duty terminal, store-houses and tourist/hotel infrastructure.

**Degree of advancement of conversion:** average.

**Sources of financing conversion:**

a) State means (allotted specifically to remove the ecological damage).

b) Banking credits guaranteed by the government.

c) Private capital.

## *Company name: TARNÓW*

**Economic and financial standing:** During last three years, the enterprise has been functioning on the verge of bankruptcy, achieving unfavorable financial results, some of the worst in the whole arms industry.

**The role of special production in overall economic activities:** relatively high. The share of special production in total production amounts to 30 percent.

**Experience in activities for the civilian market:** Limited to a few specific commodities (freezing equipment, machine-tools).

**Degree of flexibility of production capital:** average.

**Social status: lay-offs in the enterprise and unemployment in the region:** average. The rate of unemployment in the region in the middle of 1995 was 13.9 percent which was lower than the average for the country as a whole. From 1992 to 1995, employment linked to special production was reduced by 120 persons.

**Prerequisites for conversion:**

a) Protection of the enterprise from liquidation.

b) Creation of conditions providing sustainable prospects for development.

**Methods of conversion:** The program of conversion is part of a far-reaching project to restructure the whole enterprise. TARNÓW is trying to further develop the production of a limited number of civilian goods which it had specialized in earlier.

**Potential markets:** Limited to the national market.

**Degree of advancement of conversion:** Changes well advanced. Program of restructuring 80 percent-fulfilled.

**Sources of financing conversion:**

a) Building credits.

b) Support from the government.

## Chart 2: Location of selected former military establishments

| | |
|---|---|
| 1. Gdansk, Gdynia | - UNIMOR, RADMOR |
| 2. Grudziadz | - STOMIL, Grudziadz |
| 3. Bydgoszcz | - BELMA, NITROCHEM |
| 4. Poznan | - STOMIL-Poznan |
| 5. Bolechowo near Poznan | - PRESTA |
| 6. Warsaw | - RADWAR, Warszawa-OKECIE, PCO, PZL-WASZAWA II, WAREL PZL-WOLA |
| 7. Lódz | - PROGAZ |
| 8. Niewiadów | - NIEWIADÓW |
| 9. Pionki | - PRONIT |
| 10. Radom | - LUCZNIK |
| 11. Swidnik | - PZL-SWIDNIK |
| 12. Krasnik | - KRASNIK |
| 13. Skarzysko-Kamienna | - MESKO |
| 14. Wroclaw | - HYDRAL |
| 15. Panki near Czestochowa | - MASKPOL |
| 16. Krupski Mlyn | - NITRON-ERG |
| 17. Stalowa Wola | - STALOWA WOLA |
| 18. Nowa Deba | - DEZAMET |
| 19. Mielec | - PZL-MIELEC |
| 20. Labedy near Gliwice | - BUMAR-LABEDY |
| 21. Bierun Stary near Tychy | - ERG |
| 22. Tarnów | - TARNÓW |
| 23. Rzeszów | - PZL-RZESZÓW |
| 24. Jaslo | - GAMRAT |

# Conclusions

All practical experience in post-communist states indicates that factories always face the same problems when trying to overcome barriers in switching from military to civilian production. As the scale of industrial potential is different however, the scale of the problem varies from country to country, being greater in Poland or Slovakia and less acute in Hungary or the Czech Republic. Nevertheless, despite all individual features pertinent to particular national economies of the region, the economy as a whole responds in the same way to similar market impulses. This applies to the macro-stabilization policy as well as to the reaction of the enterprises themselves. Decisions in this field are very complex as they are accompanied by specific social costs. However, it must be stressed that there is only one way to achieve stability and this necessitates making difficult decisions. The quicker these are undertaken, the sooner the goals of macro-stabilization will be reached, and growth will follow automatically.

The arms industry, as this study of the Polish experience shows, is not an exception to this rule. Despite specialization, companies react in the same manner. The market is forcing politically difficult decisions to be made, and factory employees are seeing that they are adhered to by management. This process cannot be achieved overnight: it costs money and takes time. Alongside this, additional problems need to be solved whose nature is political and which, in such circumstances, have to be solved by politicians, while economic decisions have to be left to the management. Aid for enterprises should come from institutions which function on commercial conditions, otherwise, in most cases, it is a waste of money. This has to be made clear to actors, despite the fact that political decisions about the political system and the shape of security system are still open. The solution to this problem requires international cooperation. It becomes more and more clear that the questions of the downsizing of defense enterprises and of increased competitiveness can be solved simultaneously through closer production ties between East and West. This calls for the abolition of Article 223 of the Treaty of Rome and other consecutive decisions with the goal of equalizing conditions for military production with those for civilian production.

This conclusion is supported by the following findings:

- None of the countries concerned have completed discussions about **a new defense doctrine and the future structure of the defense forces**. Moreover, the question of military alliances still seems to be an open issue. This means that the demand for future requirements of military equipment and the possibility of supply (from the national market or via imports) can only be the subject of speculation. Such a situation brings about difficulties in defining the scale and structure of the national defense sector. Nevertheless, in all post-communist countries, the capacities of the military industry have been downsized, and the process differs from country to country. Generally, three models become apparent: (1) downsizing dictated by market forces; (2) downsizing with the strong presence of state intervention; (3) downsizing with a mixed approach.

- **Specialized machine-tools cause difficulties** for any alternative use of the equipment belonging to companies in this sector.

- **Conversion requires relatively high financial inputs**. The involved and complex nature of the overall financial situation of numerous enterprises is one of the main barriers to changing the structure of production without outside aid. Such support can be given by the state or by private capital. There are some signs which indicate that the privatization of the sector will face many difficulties. Prospects of direct foreign investments in this sphere also seem limited.

- A final solution is needed concerning the **reserves of military potential** which have to be retained by all the companies in case of war or the threat of war.

- Several companies from the military sector are faced with **serious difficulties in preparing themselves for the new market conditions**, in which a growing role is ascribed to the level of costs of production, the degree of technical advancement and the ability of quick adjustment to the market requirements. This is a direct effect of the 'hot-house' conditions in which defense enterprises were operating in the past. Facing market realities between the late 1980s and early 1990s, those companies lost their privileges for technical and raw-material supplies as well as their access to low-interest credits. It is now the general case that all companies producing military equipment and weapons are in a relatively worse economic condition in comparison to those enterprises which supply the civilian market.

There is a need for the exchange of information on the armed forces, armaments and arms production as well as on progress and difficulties faced by the military sector. There are also some voices mentioning the possibility of introducing steps toward the international harmonization of conversion. These ideas are positive, but somehow still unrealistic in the circumstances of today when countries still face difficulties in defining their national requirements toward the sector.

In the light of profound changes underway on the international scene, far-reaching transparency in the military sphere is not only desirable but also possible—and necessary, if all existing doubts and prejudices of the real intentions of individual countries are to be removed.

The Polish experience clearly indicates that market-driven reforms are one of the most effective ways of teaching management how to adjust their strategies toward market-orientated behavior. In their adjustment to a market system and lower demand for their products, military enterprises have gone through consecutive phases of reaction: (1) passivity/'wait-and-see policy'; (2) introduction of temporary measures (such as unpaid, compulsory vacations; selling-off overcapacities of the factory, especially unproductive property); (3) more active steps: struggle for survival (looking for help at ministerial level, seeking partners among other companies and within the banking system); (4) stage of increased investments; and (5) introduction of innovations.

Alongside that process, most of the enterprises have made attempts to reduce their dependence on military orders. Their ownership status has also been altered when they were transformed from state companies into joint-stock companies owned by the State Treasury. In such conditions, companies are prepared for privatization, and this process can encompass foreign capital inflow in accordance with the developments anticipated on the world arms-producing markets. The military industry is an inseparable part of the economy and has to adjust to market rules with tough competition on the world market as well as intensified international cooperation. This is dictated on the one hand by the necessity to convert and on the other hand by the prospect of integration into NATO and the European Union.

# Annex

## *List of major arms producers in Poland, 1995*

***(Company; type of military production; alternative production after conversion)***

## *I. AMMUNITION AND SMALL ARMS*

1. **Company:** LUCZNIK Zaklady Metalowe (metal works), Radom

**Type of military production:** small arms (5.45–9.0mm).

**Alternative production**:
- hunting weapons, gas and sport guns;
- precision molds and pressure casts;
- tools, control instruments, molds;
- technological services.

2. **Company**: MESKO Zaklady Metalowe (metal works), Skarzysko Kamienna

**Type of military production**: ammunition, anti-tank missiles, anti-aircraft missiles.

**Alternative production:**
- hunting and sport ammunition;
- technological services.

3. **Company**: DEZAMET Zaklady Metalowe (metal works), Nowa Deba

**Type of military production:** aerial bombs.

**Alternative production**:
- household equipment;
- small capacity, internal-combustion engines;
- cooperation services in the sphere of welding and pressing.

4. **Company**: NIEWIADÓW Zaklady Sprzetu Precyzyjnego (precision equipment works), Niewiadów.

**Type of military production:** ammunition, grenades, mines.

**Alternative production:**
- household equipment;
- caravans;
- mobile kiosks.

5. **Company:** TARNÒW Zaklady Metalowe (metal works), Tarnów.

**Type of military production:** small arms, anti-aircraft guns, aircraft guns.

**Alternative production:**
- cooling appliances;
- tooling machines;
- technological services and overhauling.

6. **Company:** PRESSTA Tlocznia Metali metal pressing plant,
Bolechowo, near Poznan

**Type of military production:** shells and missile components.

**Alternative production:**
- equipment for restaurants;
- gas bottles;
- components (die stampings and molds).

7. **Company:** BELMA Bydgoskie Zaklady Elektroniczne (electronic plant)
Bydgoszcz.

**Type of military production:** mines, detonators.

**Alternative production:**
- anti-explosive electric equipment for mines;
- sound-signaling equipment for vehicles;
- technological services for such treatments as temperature and thermo-chemical of plastic in low temperature;
- processing of heat-hardened or thermoplastic chemical fibers;
- production of equipment, control instruments and molds.

8. **Company:**PZL Warszaw II Wytwórnia Sprzetu Komunikacyjnego
(communication equipment plant), Warsaw.

**Type of military production:** components for missiles.

**Alternative production:**
- resilient elements;
- electromagnetic valves;
- energy equipment;
- electronic elements for defense.

## *II. OPTICAL ELECTRONICS*

9. **Company:**PCO Przemyslowe Centrum Optyki (industrial optics center),
Warsaw.

**Type of military production:** fire control systems, telemeters.

**Alternative production:**
- electronic cash desks
- laser control systems for construction equipment;
- sight systems for sport and hunting equipment;
- thermal diagnostic systems.

10. **Company:** RADMOR Zaklady Radiowe (radio equipment works), Gdynia.

**Type of military production:** radio stations, echo-sound equipment

**Alternative production:**
- radio-telephones;
- systems for rural telecommunication;
- radio-stereo equipment.

11. **Company:** WAREL Zaklady Elektroniczne (electronic plant), Warsaw.

**Type of military production:** radio-stations, radio-telephones.

**Alternative production:**
- transmitters for civilian radio-stations;
- control systems for machine-tools;
- kitchen assemblies;
- measuring equipment used for automatic traffic control.

12. **Company:** RADWAR Centrum Naukowo-Produkcyjne Elektroniki Profesjonalnej (research and production center of professional electronics), Warsaw.

**Type of military production:** radio-location stations, enemy identification systems

**Alternative production:**
- radio-location stations for civilian aircraft;
- control equipment for machine-tools;
- measuring equipment.

13. **Company:** UNIMOR Gdanskie Zaklady Elektroniczne (Gdansk electronic plant), Gdansk.

**Type of military production:** radio-stations of different types and capacity.

**Alternative production:** color television sets.

## *III. ARMORED VEHICLES*

14. **Company:** BUMAR-LABEDY Zaklady Mechaniczne (mechanical engineering plant), Labedy near Gliwice.

**Type of military production:** main battle tanks, artillery, caterpillar vehicles.

**Alternative production:**
- hydraulic excavators;
- telescopic cranes for roads;
- telescopic cranes for fields;
- mechanical shovels;
- saddle tractors.

15. **Company:** STALOWA-WOLA Huta (steel-mill).

**Type of military production:** 152-mm self-propelled armored personnel carriers.

**Alternative production:**
- chain bulldozers;
- chain shovels;
- pipe layers;
- articulated cranes;
- metallurgical products.

16. **Company:** PZL-WOLA Zaklady Mechaniczne (mechanical engineering plant) Warsaw.

**Type of military production:** engines for military vehicles.

**Alternative production:**
- industrial engines, 150–600 h.p.;
- energy-producing systems.

17. **Company:** KRASNIK Fabryka lozysk Tocznych (roller bearing factory), Krasnik.

**Type of military production:** bearings of various types

**Alternative production:** none.

18. **Company:** STOMIL-POZNAN Poznanskie Zaklady Opon Samochodowych (car tire plant), Poznan.

**Type of military production:** tires.

**Alternative production:**
- diagonal tires for trucks, buses, trailers, earth-moving equipment and lifting vehicles, light road vehicles, delivery vehicles, solid tires;
- tires filled with sponge rubber; goods reinforced with fabric and metal;
- tires for aircraft, helicopters and glider planes;
- tires for agricultural machinery.

19. **Company:** STOMIL Grudziadzkie Zaklady Przemyslu Gumowego (rubber plant), Grudziadz.

**Type of military production:** life-rafts, diving suits, anti-chemical protection suits, some components of pilots' suits.

**Alternative production:**
- rubber-coated textiles for the health service, mining, construction and food industries;
- special shoes for fire-fighters and fishermen;
- sport shoes;
- pneumatic machines;
- protective clothing;
- glues and self-adhesive tape.

## *IV. AIRCRAFT*

20. **Company:** PZL-MIELEC Wytwórnia Sprzetu Komunikacyjnego (transport equipment plant), Mielec.

**Type of military production:** light-weight aircraft (training, training/combat, transportation).

**Alternative production:**
- transport and agriculture planes (for transporting containers);
- golf carts;
- high-pressure engines;
- fuel systems.

21. **Company:** PZL-SWIDNIK Wytwórnia Sprzetu Komunikacyjnego (transport equipment plant), Swidnik.

**Type of military production:** helicopters.

**Alternative production:**
- civilian helicopters;
- gliders;
- clutches;
- vehicles for the disabled;
- car trailers;
- objects made of colored metals.

22. **Company:** PZL-RZESZÒW Wytwórnia. Sprezetu Komunikacyjnego (transport equipment plant), Rzeszów.

**Type of military production:** aircraft and helicopter engines.

**Alternative production:**
- cog-wheels of all types;
- transmissions;
- turbo-compressors;
- shock-absorbers.

23. **Company:** WARSZAWA-OKECIE Panstwowe Zaklady Lotnicze (state aviation plant), Warsaw.

**Type of military production:** training aircraft.

**Alternative production:**
- planes for sport and agricultural purposes;
- sub-assemblies for aircraft and helicopters;
- aviation propellers.

24. **Company:** PZL-HYDRAL Kombinat Typowych Elementów Hydrauliki Silowej (hydraulic equipment complex), Wroclaw.

**Type of military production:** fuel systems for planes and helicopters, hydraulic elements for armored vehicles.

**Alternative production:**
- various types of pumps: gear systems, metering systems and distributer valves;
- motor-hydraulic products;
- aluminum casts.

## *V. CHEMICAL*

25. **Company:** GAMRAT Zaklady Tworzyw Sztucznych (synthetic fibers plant), Jaslo.

**Type of military production:** sub-assemblies for explosives.

**Alternative production:**
- PVC compression pipes;
- reinforced PVC tube;
- polystyrene foam;
- household equipment made of chemical fibers;
- glues for construction;
- floor coverings (liners).

26. **Company:** NITRON-ERG Zaklady Tworzyw Sztucznych (synthetic fibers plant), Krupski Mlyn.

**Type of military production:** explosives, detonators.

**Alternative production:**
- sport ammunition;
- polystyrene foil;
- sheets of polystyrene foam;
- chemical fiber packaging.

27. **Company:** ERG Zaklady Tworzyw Sztucznych (chemical plant), Bierun Stary, near Tychy.

**Type of military production:** sub-assemblies for ammunition, explosives, detonators.

**Alternative production:**
- construction and agricultural foils;
- wrapping and packaging;
- mining explosives;
- household equipment made of plastic fiber;
- protective helmets
- PVC.

28. **Company:** NITROCHEM Zaklady Chemiczne (chemical plant) Bydgoszcz.

**Type of military production:** sub-assemblies for ammunition and bombs

**Alternative production:**
- mining explosives;
- pharmacological products;
- unfinished products of organic character.

29. **Company:** PRONIT Zaklady Tworzyw Sztucznych (synthetic fibers plant), Pionki

**Type of military production:** ammunition.

**Alternative production:**
- hunting and sport ammunition;
- music discs;
- glues;
- synthetic leather;
- synthetic fibers.

## *VI. LOGISTIC EQUIPMENT*

30. **Company:** PROGAZ Zaklady Sprzetu Przeciwpozarowego (fire-fighting equipment factory), Lódz.

**Type of military production:** fire-fighting equipment for caterpillar vehicles and other military vehicles and vessels; small-scale fire-fighting equipment.

**Alternative production:**
- fire-extinguishers;
- household equipment (gas cookers).

31. **Company:** MASKPOL Przedsiebiorstwo Sprzetu Ochronnego (protective equipment plant), Panki near Czestochowa.

**Type of military production:** gas masks, disinfecting equipment, some elements of logistical equipment.

**Alternative production:**
- recreational and tourist equipment;
- filtration aggregates;
- ventilating fans and exhausters

***Source:*** *List prepared according to the information from the Military Department of the MIT and specialized newspapers such as* Polska Zbrojna *and the monthly* Zolnierz Polski, *both published by the MoD.*

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As an independent non-profit organization, the Bonn International Center for Conversion (BICC) supports and promotes the processes by which people, skills, technology, equipment, financial and economic resources are shifted from the military or defense sector towards alternative, civilian purposes.The establishment of BICC in April 1994 resulted from the initiative of the German state government of North-Rhine Westphalia (NRW), in cooperation with the Investitions-Bank and the Landesentwicklungsgesellschaft (both of NRW), the state of Brandenburg, Germany, and the assistance of the United Nations.

Working as a worldwide clearinghouse on practical conversion experiences and projects, BICC provides documentation, research, information and consulting services and facilities for governmental and non-governmental organizations, companies, and individuals involved in conversion.

BICC's activities focus primarily on the following six areas of conversion:

- Analysis of the means and methods of reallocating the financial resources of the military sector to non-military purposes.
- Reorientation of military research and development (R&D) facilities and provision of this R&D knowledge and creativity for non-military purposes.
- Opportunities for and barriers to conversion of the arms industry in down-sizing its overcapacities and in reducing its dependence on arms production.
- Programs for the demobilization of military personnel and civilian personnel employed by the armed forces and their reintegration into non-military employment.
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