

DEFENCE R&D POTENTIAL IN BULGARIA AFTER 1989

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"...A strategic goal for the next decade: to become the most dynamic and competitive knowledge based economy in the world"

(Lisbon 2000 EU Council Strategy objective)

Development and maintenance of defence R&D potential is a challenge before actors engaged with defence R&D, such as government institutions, scientific and academia organizations, other NGOs – foundations, independent institutes and business sector. All of them have a specific role. The government has to give strategic direction, prioritizing R&D and defence R&D in the country and creating suitable internal environment. It includes allocation of enough money and its well management, enact of proper legislation, establishment of good communications with all other organizations and among them, establishment of useful contacts with foreign structures as well. Business sector plays a dual role. In the first place it is end user of the results of R&D activity. That is why it is the driving force of the researches. In the second place it carries out R&D activity, maintaining its own potential. This is so called "applied science". In both cases private companies invest money. Academies, universities and all other NGOs are directly involved in R&D. Their activity is the base of "fundamental science".

This paper presents the development of defence R&D potential in Bulgaria after 1989. It has mainly informative goal. Some ideas of the future of the defence R&D potential are presented and analyzed as well.

Defence R&D potential 1989 - 1999

A well developed system of scientific entities in defence, including Military Industrial Complex /MIC/, existed until 1989. A lot of highly qualified specialists worked there. They were perfect in the implementation of Soviet licenses and technologies, and the start of special production.⁴² In the beginning of the 90-s the main scientific institutes working for the needs of defence were: Military scientific and technical institute, Military institute of design and technology, Rear institute, Navy scientific and technical institute in MoD and Military research institute of the General Staff. All of them had well build laboratories, research and production base, libraries and technical archive, keeping all documentation of the research projects.⁴³

Besides, almost every bigger producer from the MIC had own scientific institute – e.g. NITI – Kazanlak, the institute of “Arcus” – Lyaskovetz, the institute of VMZ – Sopot, the institute of “Dunarit” – Ruse, Elektron Progress – Sofia etc.

The R&D activity in defence sector was seriously affected by the political changes and the economic reforms after 1989. In the beginning of the 90-s, more than 1000 highly qualified researchers worked at the Bulgarian military institutes. Between 1992 and 1996 the first reorganization was conducted. The number of working specialists in the system of military science was reduced to about 600.

The reforms of the science in defence sector run most intensively after 1997. In this period the modernization and reorganization of the BAF started. Unfortunately the R&D activity was ignored and the financial resources for it were considerably diminished. Even more, in 1998 and 1999 no money was allotted for R&D in defence sector. The standpoint of the MoD leadership was that in the future the defence could relay on civilian research organizations.⁴⁴

⁴² Radev, V. “Economic aspects of the management of defence R&D resources and the reform of the BAF”, collection with reports from workshop in Economics of Defence and Security “Balkan Security and Reform of the Armed Forces: Economic aspects”, p. 141, Sofia, 1999

⁴³ Pashev, G., “The lack of R&D strategy and priorities was a shortcoming”, interview with Col. Dr. M. Patechkov, Bulgarian army, 29.03.2006

⁴⁴ The same source, 23.03.2006

According to the Concept for reduction and consolidation of the scientific institutes in defence, based on the Plan 2004 for modernization and reorganization of the BAF, a Defence Advanced Research Institute /DARI/ had to be created. It would include all other institutes of MoD and General Staff. At the beginning of the reform about 350 researchers had to work for it. Their number would be reduced to 150 in 2004.

In 1999 DARI was established but according to government decree it became a part of “G.S.Rakovski” Defence and Staff College /“G.S.Rakovski” Military Academy since 2009/. Their staffs have been 25 researchers for a long period of time since its establishment.⁴⁵

The lack of money constrained the producers from MIC to restrict or totally liquidate their R&D activity. Many highly qualified specialized were dismissed, some of them relinquished because they could not accept the low payment. /Fig. 1/

In 1999-2001, the R&D activity of MoD was administered by Defence Planning Directorate of MoD and was carried out by some institutes of Bulgarian Academy of Sciences /BAS/, Technical University – Sofia, University of Chemical Technology and Metallurgy – Sofia, University of National and World Economy /UNWE/ – Sofia.

According to V. Radev the administration of defence R&D from 1990 to 1999 was chaotic, without national strategy and if there was a successes, it was due to a remained past potential and good management of the leaders of particular scientific teams.⁴⁶

Defence R&D potential after 2001

After 2001 the defence R&D continued to be carried out by state scientific and academic entities but a lot of non-government organizations /NGOs/, established during the government of the United Democratic Forces and in the beginning of the government of the royal party – National Movement Simeon II, successfully found their niche. The activity of these organizations in support of defence R&D, mainly

⁴⁵ The same source, 23.03.2006

⁴⁶ The same source, p. 146, Sofia 1999

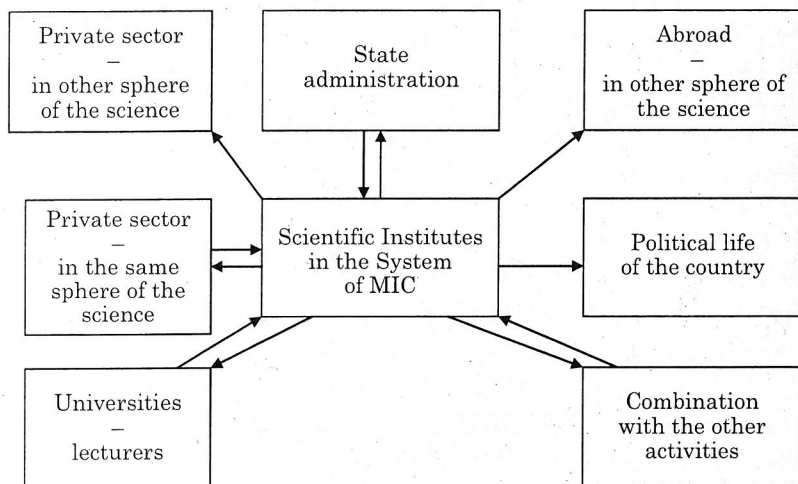


Figure 1. Movement of scientific specialists from the defence industry after 1989⁴⁷

with expertise and development of different projects funded by foreign donors – NATO, EU, UN and some western governments, was positively accepted by the society as a symbol of its democratization. Most of played a significant role on Bulgaria's road to NATO and EU membership. Despite that fact their contribution for the development of the fundamental science was not big.

Studying the security sector reform /SSR/ in Bulgaria in the beginning of 21st century and the role of the institutions of the civil society, N. Pavlov points out that there is an extensive wider "security community" in Bulgaria. In fact there are a number of NGOs active in the security area. Some of them are an individual, business card and

⁴⁷ Radev, V. "Economic aspects of the management of defence R&D resources and the reform of the BAF", collection with reports from workshop in Economics of Defence and Security "Balkan Security and Reform of the Armed Forces: Economic aspects", p. 143, Sofia 1999

notepaper. A few, though, do substantial work – NGOs such as:

- The Atlantic Club of Bulgaria,
- Centre for the Study of Democracy,
- "George C. Marshall" Association – Bulgaria,
- "Democracy and Security" Foundation,
- Centre for South-East European Studies,
- Institute for Security and International Studies,
- Institute for Regional and International Studies.

Considerable work regarding SSR in Bulgaria has been done by academic institutions such as the Centre for National Security and Defence Research at the BAS and the Department National and Regional Security at the UNWE.⁴⁸

In the beginning of that period the state did not have clear concept about national R&D policy and national defence R&D policy. These were the last years of Bulgarian political and economic transition in which the science was put in the background. The business, striving for making bigger profits, demonstrated weak interest in development of applied science. It was not interested in development of fundamental science by the academic and scientific institutions as well. Most of Bulgarian defence industrial companies /some of them privatized/ were not able to start any R&D activity. It did not make sense for many of them. The number of innovative companies was small. /Table 1/

In the context of Bulgaria's membership in NATO and EU the national government started paying more attention to the scientific and technological development in the country. Two very important documents were adopted Innovation Strategy of the Republic of Bulgaria and Measures for Its Implementation in August 2004 which is modified in 2006 and R&D Stimulation Act in October 2003. Ministry of Economy, Enterprise Policy Directorate and Ministry of Education, especially National Council of Scientific Researches and "Scientific Researches" Fund had to pursue the national scientific and innova-

⁴⁸ Pavlov, N., "Democratic control of the security sector as an informal condition for Bulgaria's EU membership", December 2006

tion policy.

After Bulgaria becoming member of NATO in 2004 and in the context of transformation processes of the Bulgarian Armed Forces /BAF/, MoD also activated its R&D policy. Some documents were adopted, such as: Regulations for R&D activity in MoD and BAF in 2004, Regulations for management of the life cycle of the product in MoD and BAF in 2004, etc. According these documents, several directorates from MoD special administration and expert committees /e.g. - Defence Acquisition Council, R&D Consultative Council etc./ are in charge with formulation and realization of the defence R&D policy.

In 2006-2009, the period of SfP-982063 project, the situation regarding defence R&D did not change significantly. It looks as follows:

- The states has declared scientific and technological development as priority for all spheres of the social life;
- Several institutions are responsible for R&D activity and defence R&D activity in particular, such as Ministry of Education, Ministry of Economy and Energy, Ministry of Defence. Sometimes the coordination between their actions is not good enough;
- Several scientific and academic organizations – civilian and military once carried out research activity for the needs of defence. Unfortunately the results of their work most often do not find practical implementation. There are some NGOs having potential to fulfil particular projects;
- Bulgarian research institutions look for partners from other European countries for short or long term cooperation;
- Few companies carry out R&D activity and few of them are interested in keeping potential for such activity /Table 1/. The business demonstrates weak interest in the implementation of scientific products.

Having in mind this situation the future of defence R&D have to be oriented to more cooperation between actors in the country and cooperation between national entities and foreign institutions. The state has to continue stimulating R&D activity. Clear government R&D policy need to be elaborated and implemented. The results of SfP Projects could be very useful in this context.

Table 1

**Bulgarian Defence Industry Producers, Property,
Activity/Products
and
Market Segmentation - 2006**

THE NAME OF THE PRODUCER	PROPERTY	ACTIVITY / PRODUCTION	MARKET SEGMENTATION
AVIOTEHNIKA	Private Property	Design and production of gliders - targets and aviation services.	-
ARCUS	Private property	Production and trade with military and civilian articles, such as: pistol 9x19 mm, grenadier 40x46 mm, fuzes etc.	Special production: - 10% national market; - 90 % foreign market. Civilian production: - 20 % national market - 80% foreign market
ARMITEH	Private Property	Electronics	Special production: - 100% national market; Civilian production: - 100 % national market
ARSENAL	36 % - State Property 64 % - Private Property	Development, production and trade with light and artillery weaponry, ammunition, gunpowder, caps etc. Among the most popular products of "Arsenal" are: Submachine-gun "Kalashnikov"; Pistol "Makarov"; Machine-Pistol "Shipka"	Special production: - 7 % national market; - 93 % foreign market. Civilian production: - 9 % national market - 91% foreign market

THE NAME OF THE PRODUCER	PROPERTY	ACTIVITY / PRODUCTION	MARKET SEGMENTATION
BESTTEHNIKA-TM-RADOMIR	Private Property	Metallurgic activity	-
BETA INDUSTRIES CORPORATION AD	Private Property	Machine-building	Special production: - 0 % Civilian production: - 70 % national market - 30% foreign market
BITOVA ELEKTRONIKA	Private Property	Electronics	Special production: - 20% national market; - 80 % foreign market. Civilian production: - 100 % national market - 0 % foreign market
VIDEKS LTD	Private Property	Development and production of explosive products - hand grenade and engineering ammunitions;	-
VMZ	State Property	Production of special and civilian products - artillery ammunitions, anti-tank unguided missiles, anti-tank guided missiles, fuzes etc.	Special production: - 3,89 % national market; - 96,11 % foreign market. Civilian production: - 98 % national market - 2 % foreign market
GAMA PROEKT AD	Private Property	Manufacturing of specialized machines and equipment, Production of medical apparatuses	Special production: - 100 % national market; - 0 % foreign market. Civilian production: - 90 % national market - 10 % foreign market

THE NAME OF THE PRODUCER	PROPERTY	ACTIVITY / PRODUCTION	MARKET SEGMENTATION
DUNARIT AD	8 % State Property 92% Private Property	Production of anti-fire equipment, industrial explosive substances and blasting system, plastic and elastic explosive materials etc.	Special production: - 0 % national market; - 100 % foreign market. Civilian production: - 90 % national market - 10 % foreign market
ELECTRON PROGRESS AD	Private Property	Electronics	Special production: - 100 % national market
ELOVITZA AD	-	Production of hand grenades and ammunitions	-
ZEBRA AD	-	Production of protective clothing, gas masks and filters, rubberized rollers etc.	- 70 % foreign market - 30 % national market
INSTITUTE OF METAL SCIENCE AND TECHNOLOGY OF METALS - BAS	Private Property	R&D	Special production: - 5 % national market; - 95 % foreign market. Civilian production: - 80 % national market - 20 % foreign market
IMPULS AD	Private Property	Production, R&D activity, Trade Electronics	Special production: - 0 % Civilian production: - 24 % national market - 76 % foreign market
METALIC BCP	Private Property	Metal casting	Civilian production: - 71 % national market - 29 % foreign market
MIHAN AD	Private Property	Electronics and Communication Systems	Civilian production: - 90 % national market - 10 % foreign market

THE NAME OF THE PRODUCER	PROP-ERTY	ACTIVITY / PRODUCTION	MARKET SEGMENTA-TION
MONBAT AD	-	Production of accumulators	Civilian production: - 35 % national market - 65 % foreign market
MUSALA AD	-	Production of accumulator batteries	-
NITI	State Property	R&D and production of ammunitions	Special production: - 78%. Civilian production: - 22%
OMZ	0,7% State Property 99,3 % Private Property	Production of optic sight	Special production: - 0 % national market; - 100 % foreign market. Civilian production: - 73 % national market - 27 % foreign market
OPTICOELEKTRON GROUP AD	Private Property	Production of optic system and products	Special production: - 24 % national market; - 76 % foreign market. Civilian production: - 4 % national market - 96 % foreign market
OPTICS AD	Private Property	Production of optic system and products	Special production: - 63 % national market; - 37 % foreign market. Civilian production: - 8 % national market - 92 % foreign market
RADOMIR METAL AD	Private Property	Metallurgic activity	Special production: - 15 % Civilian production: - 85 %
SAMEL 90 AD	Private Property	Electronics and Communication Systems	Special production: - 25 % Civilian production: - 75 %

THE NAME OF THE PRODUCER	PROP-ERTY	ACTIVITY / PRODUCTION	MARKET SEGMENTA-TION
TEREM	State Property	Repair of all kind of land forces vehicles, naval ships and aircrafts	Special production: - 60 % national market; - 40 % foreign market. Civilian production: - 55 % national market - 45 % foreign market
CHERNO MORE	State Property	Electronics and Communication Systems	Special production: - 47% national market; - 53 % foreign market Civilian production: - 14 % national market - 86 % foreign market

Source: MoD issue - "Defence Industrial Policy of the Ministry of Defence of the Republic of Bulgaria", 2006

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