

NATIONAL PLAN OF RESEARCHES AND DEVELOPMENTS FOR OBJECTS SECURITY AND PROTECTION

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INTRODUCTION

„More and more Bulgarians are becoming members of Al-Qaida“, Europol claims in the beginning of May 2008. A fact, which together with many other problems accompanying the struggle against terrorism, provides the occasion for meditation, „What are we doing to reduce the potential risks of terrorist threats?“.

After the 11 of September 2001 much was done in the world and many measures were taken in order to create conditions such tragedies not to happen any more. Our country did not remain isolated from these processes. At many forums (conferences, seminars, etc. specialized events) different aspects of the problem were discussed in pure theoretical perspective. However, the practical beginning was included in a few cases. We are not speaking of the theorization concerning the high technologies and engineering solutions directed against the terrorism threat but of identification and realization of key organizational procedures and priorities which should underlie in the base of the successful results from the struggle against the “plague” of the century. Only the marking of means and mechanisms that could be used or the transfer of other’s experience is not sufficient initiatives that could prevent the threat or provide us reliable protection. We have heard enough modern terminology about the asymmetric threats and how unpredictable the terrorist acts are. However, wide-ranging, concrete steps in depth in all directions we did not made. We are still following the proverb that as long as our yard is not on fire everything is all right, the fire is in Vute’s yard, isn’t it.

On the other hand, in the mass medias this issue is treated very simply. That is understandable; the subject-matter is sensitive and connected in many cases with classified information. It is precisely here the place to note that the reasonable balance should be found between the risk to supply by debates in the medias information to the terrorists which could help them in their activity and the necessity of daily presenting new ideas and discussing key issues that are urgent and whose resolving shall contribute to creation of more reliable protection and less risky environment.

1. Policy for research and development activities to the interest of the defense and the country national security

One of the main lines in the struggle against the terrorism is the Policy in the field of the research and development activities (R&D) in the interest of the defense and the country national security. The formation of purposive, **united**, practice-applied and financially grounded Policy of R&D, engaged with this issue is a guarantee for success and prevention of losses of any nature which on its part is a prerequisite for realization of continuous and consistent social and economical progress of the state.

Somebody may say that there is such Policy and many results are apparent. The truth is that there are different aspects of the research and development activities realized in interest of the national security and defense by the bodies that have constitutional obligations in this line. However, there is no Policy of R&D, a united policy at that (still more, directed against terrorism). I am convinced, that in some cases many of the subject-matters of the different departments overlap while in many cases there is a huge thematic gap in the field of the antiterrorism.

In NATO and EC, in order to avoid this problem, overlapping of the national efforts in certain fields with the activities in the Organization or Community or absence of such in key lines both at national and allied level, special bodies are formed at the highest level.

But before commenting the expedient organizational approach it is necessary to remind of the problem essence.

First of all, should we separate R&D for struggle against terrorism from the other R&D lines? The first to come answer is NO. We should not piece out R&D because its components are mutually related. That is true and not true. In order to confirm the negatives of R&D for antiterrorism staying in the general frame of R&D for defense and national security it is good to look around and use the available data from the foreign press about the expenditures in lines in this field of NATO member countries (for Bulgaria similar statistics is out of the question - for many reasons). Certainly, Bulgaria cannot be compared to USA at all, but if we take their expenditure structure as a criterion and model for assessment of the situation in our country we shall not be far from the truth about the present problems. Thus for instance, USA allocate to the R&D field ten times more finances than any other NATO or EC country and 30 times more than Russia. Colossal difference. But not that is important. The important thing is that in this state also the expenditure structure till 2001 was completely to the detriment of R&D for antiterrorism compared to the other expenditures. However, after 2001 the things change with positive sign (Table 1).

Table 1

Distribution of expenditures for R&D for defense - 2001-2003 (thousand USD)			
Category	2001	2002	2003
Large weapon systems	10,752,781	11,911,890	13,805,069
Ballistic missiles	4,302,183	7,039,441	6,848,958
Reconnaissance	2,953,072	3,378,629	4,490,930
Antiterrorism	754,140	902,937	1,394,472
Others	16,604,535	18,110,700	18,585,278
Total	35,366,710	41,343,596	45,124,706
Total budget for Ministry of Defense		330 600 000	369 000 000

The ratio R&D/ Total budget for Ministry of Defense is 1,25 % for 2002 and 1,22 % for 2003. The descending trend is due to only the increased expenditures for Iraq and not because the trend of expenditures for R&D is to be descending. After 2003 the rate of rise of the expenditures for R&D for antiterrorism grows compared to the growth of the rest of the structure items of the program. I.e. there is a purposive restructuring of these expenditures in direction of development of the Policy of R&D for struggle against terrorism.

What is the situation in our country? Here it should be noted that **main NATO requirement** is the size of R&D financing in the member countries to be not less than **1% of the budget of the respective defense department**. Till 2003 we were practically close to this percent. The budget for research and development activity varied between **3 and 4 million lev**. However, after 2004 the finances for supporting this activity dropped down dramatically. In the **Act for the State Budget of Republic of Bulgaria for 2008** the financing of the Ministry of Defense is as follows:

Structure of financing	Thousand lev
- expenditures for current support	865 686.0
- investment expenditures for new arms and machinery, major repairs and modernization of the available arms and machinery and other capital investments in the field of defense	251 479.0
- expenditures for research and development activity in the field of defense	2 230.0

In this way the expenditures for R&D compared to the entire budget of the Ministry of Defense are **0,19 %**, and the **trend in the years is this percent to go down** (for 2009 official information for R&D from the state budget is impossible to be obtained legally). I.e. not only the expenditures for R&D/total budget of MD ratio decreases but also the net annual sum for R&D decreases as a whole.

The difference in the manner of thinking and acting in both presented cases is obvious. I have to note again that it is not a question of quantitative but

of structural approach. This forces us to provide for our needs of antiterrorist equipment by purchasing it from abroad almost 100%. If somebody says that this is logical I shall simply not believe. Have I to remind the law in USA and many other European countries „Purchase only native production“. It concerns the means for defense and national security. Why that is so, I think the answer is evident.

There are two main lines in the Policy of R&D related to the consolidation and development of the antiterrorist activity: **struggle against the source of threat;** and **protection of the individuals and the infrastructure.** These two branches could be characterized in the following way:

First, the struggle against the prime source is function of the reconnaissance bodies, which in organizational and technical aspect have rich experience and capabilities (not only on national but also on international level) to receive the necessary for them information and to undertake timely and adequate outstripping actions. The basic characteristic of their activity is the struggle against the „uncertainty“. Uncertainty from the view point of the circumstance that it is necessary to identify very clearly and accurately three major parameters - where, when and how the terrorist attack shall take place. The degree of this uncertainty significantly affects the economical expenditures, psychological costs and leads to painful changes in the established standards of behavior and manner of living.

Second, the protection of the individuals and the infrastructure is a social product and as such it is a function of the state bodies of the highest level. In this case the struggle against terrorism, the protection, should be a priority and responsibility of the Council of Ministers. The main characteristic here is the limited possibilities of adequate repulse, which becomes a fact if the first level of counteraction does not operate - the struggle against the prime source.

After 2004 in the context of the struggle against the international terrorism the policy of the European Union for the critical infrastructure protection (including the strategic objects) is developing very dynamically. In November 2005 the European Commission adopted the so called Green Book for European Programme for Critical Infrastructure Protection. On that basis, in 2006 the EC started European Programme for Critical Infrastructure Protection (EPCIP) and in process of development is also Critical Infrastructure Warning Information System (CIWIN). On the other hand, in process of approval is Directive of the Council from December 2006 concerning the identification and securing of the European critical infrastructure and assessment of the necessity for its protection improvement.

Why this issue stands even more urgently in the agenda now? Because on the background of the dynamically developing environment and the attempt of the legislation to regulate the parameters of its functioning Republic of Bulgaria becomes a key factor for building and maintaining, in national, regional and international aspect, strategic power and transportation objects. The increase of their quantity, the diversification of their type and the extension of the territorial areas in which they are located, in combination with the growing risks of terrorist acts imposes to undertake synchronized measures for their protection, not only concerning the use of systems for observation, early warning and announcement but also means of adequate reaction. In practice, there is a necessity to elaborate **National strategic objects protection system.**

Here precisely is the fundamental role of the native Bulgarian science and production enterprises which have to create by their capacity the so needed capabilities for timely and reliable protection of people and infrastructure in compliance with the requirements of the above said documents. Why the native science and producers? Very simple, because the most important factor guaranteeing successful protection is the know-how for its building and providing independent national support of its functioning (the law „Purchase only native production“), ensuring national autonomy. Otherwise, the dominating use of technologies and equipment developed outside the country for the purposes of object protection in Bulgaria (regardless of the producer) increases the risk of breakthrough in the built protection system.

2. National plan of researches and developments for objects security and protection

But which exactly technologies should we use, which of them should be obligatory home production and for which we should not allocate resources because they are available or there are countries that have capacity and know-how in these fields and it is more expedient to use their achievements? The state has to answer these and other questions. And not only to answer but also to create the necessary organization for their realization. The normal states have elaborated normal procedures in this line, that is to say plans of R&D in the field of antiterrorism.

First of all, when we talk of planning, this is a function of the requirements of a document of higher rank; in this case it is a formulated Policy or Strategy. But let us suppose that this requirement is fulfilled, i.e. the Policy and Strategy are available. What should be the purposes of such plan?

In the first place, **the main purpose is achievement of national general operative picture of the critical infrastructure.** For the moment this is not available as ability of our country. Why it is necessary? The answer is unambiguous, because it is not possible to create adequate acts and reactions against potential terrorist threats if there is no such possibility, simply all the rest is „piece-work“.

In the second place, **creation of new protection systems,** of new generation, having integrated in them not only the capabilities for detection, identification, timely reaction and successful counteraction but also qualities such as flexibility, capability of self-diagnosis and self-recovery not only of the communication-information systems but of the physical ones, too.

Certainly, the formulation of the purposes of a National Plan is a matter of collective efforts, but the presented here „mile-stones“ should find their determinative place in it.

Why such plan has to be Plan for R&D? Because: in the research and applied activity the ability for generation and realization of qualitatively new possibilities is imperatively engaged. And in the formulation of a systematized approach for object security and protection it is required the presence first of all of new ideas and sophisticated thinking. Currently there is no such plan. Probably there are plans for action in case of terrorist threat for the respective state and many nongovernmental organizations. There is even Plan for management in crises as a result of terrorist activity, adopted by government decree N 572/02.09.2008 which describes the order and manner of interaction between the bodies, engagement with the activities related to counteraction against the terrorism. But both this plan and the rest of them for the departments describe only and solely the reaction manner. They do not put the milestones for development of the security and protection systems for the population and objects, they note the status quo. That is a passive and not interactive approach. However, unfortunately the possibilities for terrorist acts grow in direct proportion to the development of the technologies (a well-known fact). Exactly for that reason it is necessary to be ready for the future, which requires undertaking actions for the development and preparation of adequate reply to the new threats.

And these threats could be directed towards a large number and different in their specificity objects in: agriculture and food production; water sources (lakes and reservoirs); health services; defense industrial base; information technologies; telecommunications; energetics; transport systems; banks and the financial sector; chemical production, distribution network; national monuments; governmental buildings; commercial centers; nuclear reactors; materials, etc.

All this diversity requires consistent and systematic approach from all bodies and organizations engaged with the issues of antiterrorism. Not one of the state structures is in condition to coop with the accompanying problematic issues alone. Therefore, it is necessary to combine the efforts not only of the security and law enforcement bodies but first of all of our native science. Because, as above said, if we do not create conditions for development of our

abilities to reply to the newly appearing and more and more complex threats of terrorism sooner or later we will not be able to adequately counteract.

The structure and content of the National Plan of R&D for object security and protection could and have to be a result of the joint work of all interested. Here we shall make an attempt to give just an example in this direction, that is to say the structure of such plan could be:

- Detection systems and sensor systems;
- Systems for analysis and decision making;
- Prevention and protection systems;
- Systems for threat counteraction, restoration and reconstruction;
- New threats and weak points of the objects;
- Advanced infrastructure architectures and system design;
- Humanitarian and social issues;
- Others.

From another point of view the subject-matter of each one of the sub-sections is also an object of discussion and identification of priorities. But in the long run the joint work of the integrated teams of specialists should give answer to the following two questions: first, in which areas we can and have to improve the available and develop new technologies; and second, in which areas we shall use the already available at the international market engineering solutions. The vacillation in any area is not a reasonable solution. Because: the formation of ability for building modern, high technological and developing autonomous security and protection systems in our country should be our major priority. The adoption of such an approach will mean that we have nationally responsible policy in the field of the antiterrorism.

3. Center of Excellence "Antiterrorist advanced systems".

In order to meet these demands (top technologies for struggle against terrorism) in 2008 the Institute of Metal Science together with the Academy of Ministry of Interior and Plovdiv University "Paisiy Hilendarski" founded Center of Excellence "Antiterrorist Advanced Systems" (CEAAS).

Somebody reasonably may put the question why the Institute of Metal Science. The answer is very simple, because the Institute is the only research and production organization in Bulgaria that participates in the NATO antiterrorist program (DAT). And not only this. The Institute is leader of the projects: „Improvement of the helicopter protection against RPG“, the third of the ten DAT projects, and an alternative of the antipersonnel mines, and actively participates in the second project of the program "Harbor protection".

On the basis of the long-term, more than 30 years, experience in the field of security and defense the Institute together with its partners founded NCAAS.

The main purposes of the Center are the following:

- Researches and developments of engineering and operative conceptions for advanced projects and technologies against the terrorism. Carrying out researches, development and experimenting of new technologies;
- Ensuring adequate participation in:
 - National programs and projects for struggle against the terrorism;
 - NATO program for struggle against the terrorism;
 - Meeting the requirements of the European Strategy for struggle against the terrorism; and
 - The initiatives of the international network of centers of excellence in the field of antiterrorism.
- Ensuring synergy from the expertise and results obtained as a consequence of the participation in NATO projects from the program for struggle against the terrorism:
 - Improvement of the helicopter protection against RPG;
 - Harbor protection;
 - Critical infrastructure protection;

o Development of non-lethal impact capabilities.

- Training of operative and technical personnel, at national level, and specialists taking part in NATO missions.

On the basis of these purposes the Center shall pursue resolving of two major tasks:

- To create the much needed conditions and to participate actively in the formulation of National Plan for object security and protection; and
- To become a well-deserved partner of the international network of Centers of excellence and 18th NATO Center of excellence in the struggle against the terrorism.

In conclusion it is necessary to answer the question „Have we to do something more?“. The reply goes without saying, it is necessary. And the faster it is realized the greater guarantee will be at hand for the reliable protection of the population and infrastructure.

First of all, united and purposive policy of R&D in the field of the struggle against terrorism (combining the efforts of all state bodies engaged with this problem) should be formulated and it should be followed by financially ensured National Program for struggle against terrorism under the leadership of the Council of Ministers.

In the next place, as a logical result of the above said, it is necessary the Bulgarian scientific organizations and production companies to be involved in the creation of **National System for Strategic Objects Protection (NSSOP)**. However, before the realization of this it is necessary to elaborate **National Plan for objects security and protection**, which shall delineate the basic accents of **NSSOP**.

Last but not least, the accumulated experience of ours and of others in this field should be summarized, systematized and systematically propagated. It is necessary to create a bank of knowledge which shall help us at accelerated rates to stay ahead of the events, not to go after them. That is only possible by establishing a Center of excellence in the field of antiterrorism. Only in this way we shall guarantee that our efforts in the struggle against the terrorism and its threat will be successful.