

RECOMMENDATIONS

for the Participants of the 26th Kyiv Symposium on Science Studies and History of Science

Science, Technology, and Innovation as Key Factors of the National Security during the Formation of New Independent States



The symposium participants have stated that the underestimated importance of science and research for strengthening the national defense, developing the innovative economy, and for improving the moral health of the society is a serious threat to the national security of Ukraine. Unfortunately, the society has not comprehend to the full that the science, research, and engineering generate the intellectual resources for the development and support of all components of the national security, economic prosperity, social and political stability, and defense capacity. This lack of understanding has caused a large gap between the officials responsible for the elaboration and implementation of economic policy and the advanced domestic and foreign science. Consequently, this entails the adoption of inadequate or merely incompetent decisions, the lack of coherent development of science, research, engineering, and innovation policy, and the progressive degradation of the research and engineering capabilities. The crucial importance of space industry for ensuring the national security and speeding up the innovative development of the national economy has been understated so far. A serious threat to the national security is growing bureaucratization of the public administration in the socio-economic sphere, which not only undermines the effectiveness of legislation and practical measures of the government, but also impairs

public confidence in the government and poisons the public consciousness.

Having discussed these and other issues, the scholars who participate in the symposium have developed the following recommendations:

1. To urge the Ukrainian researchers to revitalize studying the problems directly related to the strengthening of national security and defense capability, to widely utilize the available media tools and Internet sites (social and professional networks) for explaining to the general public how important is the science for the sustainable economic growth and the enhancement of national security, as well as to use the results of research on the history of science and the science impact on the technological and industrial development and the advancement of public wealth.

2. To organize a regular and coordinated study of the national security issues. The results thereof should be summarized in the annual government report on the assessment of the national security and on the substantiation of the strategy for its improvement. The report should include:

- ✦ A clear and specific wording of objectives of Ukraine's foreign policy having a vital importance for the security of the country, the society, and the individuals;
- ✦ The vectors of foreign policy, the content of international and interstate obligations of Ukraine and the level of economic, military, diplo-

matic, and other capabilities of the country to prevent and to provide adequate response to any aggression against the state of Ukraine, and to implement the strategy of national security in full and effective manner;

- ✦ Substantiation of specific short-, medium- and long-term measures for utilizing the political, economic, research, engineering, military, and other capabilities to protect the national interests and to achieve the vital objectives of the national security of Ukraine;
- ✦ Problem-oriented and overall assessment of adequate mechanisms for implementing the national security strategy in Ukraine, including the economic, research, engineering, social, political, and military capabilities; and
- ✦ Relevant and prospective information necessary to inform Verkhovna Rada of Ukraine, the President of Ukraine, and the people of Ukraine of the situation and problems in the field of the national security, as well as the efforts required to implement the national security strategy.

In addition to the secret information, the document should contain the open data accessible to the entire population, which is important for involving every citizen into the discussion of issues related to the implementation of national security strategy.

3. To take decisive measures to facilitate the coordination of research aimed at guaranteeing the national security and developing a flexible strategic plan allowing for the existing and potential threats. In order to achieve this it is necessary to establish the national agency for research support of the national security, to charge it with the monitoring of existing and new threats to the national security and the effectiveness of counteractions. To resume the Interagency Commission on Security of Science and Technology under the National Security and Defense Council of Ukraine. To engage highly qualified professionals, to specify more clearly the functions of the Commission as an advisory body, and to charge it with forming the orders for R&D works related to the enhancement of national security and defense.

4. To introduce an express scientific analysis of external and internal threats to the national security of Ukraine. In order to do this it is necessary to restructure the Situation Center of the National Security and Defense Council; to establish in its structure not only the means of ongoing monitoring of the existing threats and the status of research and technological support of the national security, but also the options for automated data processing, mathematical modeling of different scenarios and strategies of the national policy, software, and large-scale involvement of experts using cutting-edge information and communication technologies.

The G.M. Dobrov Center for Research and Technological Capacity and Science History Studies of NASU should initiate the organization of comprehensive research group and implement the project aimed at developing the guidelines as well as the methodological and scientific support of the project implementation (*proposed by Gusev*).

5. In order to harmonize the R&D works carried out at the research institutes of NASU with the actual requirements of the industry and the entire economy with respect to guaranteeing the national security it is necessary to ask the Presidium of the National Academy of Sciences of Ukraine to hold meetings in extended composition of representatives of the departments of mechanics, computer science, physics and material science, power engineering, nuclear physics and energy, economy and others with representatives of *Pivdenne* Design Office in order to discuss the scientific and engineering problems of the national security.

6. To draw attention of the country's leadership towards the necessity of the radical revision of the Ukrainian government policy in the sphere of the development of science and engineering, the real implementation of measures aimed at restructuring the economy, the introduction of state-of-the-art methods of public administration and the utilization of national science capacity to substantiate and to adjust the government policy, in particular, for eliminating and

counteracting the threats to the national security and defense capacity.

7. To put away a policy of neglecting the socio-political and socio-cultural factors of the national security, which are directly linked to the sustainable development of production, as well as with the economic and social stability.

8. To refuse decisively the policy of departure from the program-based approach in governing the research and engineering development consistently implemented by economic bloc of previous governments. To initiate a set of large-scale research, engineering, and innovative programs aimed at modernizing the national defense capacity and speeding up the technological renewal of production.

9. To clearly define the prospects for rising the Ukrainian reality to the European standards for escalating the development of knowledge-intensive economy. For this purpose, it is necessary to plan an increase in the national budget expenditure on research and development to a rate of, at least, 25% annually, starting with 2015. Doing this way, Ukraine will reach a level of 1.5% of GDP by 2020 and, provided the government stimulates investments into the science, it is possible to raise the R&D funding of 3% of GDP in total, as required by the EU. To ensure the government support of Ukrainian researchers who participate in the R&D programs of the European Union and receive grants from international foundations and organizations to perform R&D works aimed at improving the national security of Ukraine.

To implement urgent measures for raising efficiency of the national science and the commercialization of R&D results. In connection therewith, it is necessary to establish an adequate legislative and regulatory environment, to ensure a comprehensive development of research, engineering, and innovation infrastructure, and to implement effective mechanisms of cooperation throughout the chain «*research and development — production*».

10. To enhance radically the transparency of government activities at all levels as effective means

of combatting the bureaucracy and corruption. For this purpose, it is necessary to use widely the opportunities of public supervisory boards under the central government bodies and the interactive capabilities of modern information and communication technologies. To organize mandatory training of public employees of the central and local authorities for schooling them in the fundamentals of innovation culture and innovation management.

11. To develop and to launch a coherent and purposeful implementation of the government program for establishing a knowledge-intensive system of the national security of Ukraine, which provides mechanisms for addressing the logistic framework as well as legislative and tax incentives of the relevant research. To create and to legislate a mechanism for a smooth transfer of dual-use technologies to enable their fullest use for the sake of strengthening the national defense and addressing social and economic problems.

12. Given a strong research and engineering capacity of Ukraine in the field of rocketry, its capabilities to strengthen the national defense and to boost innovative development of many industries and the economy as a whole, it is necessary to ensure a priority government support of this industry as a key vector of the national security enhancement. To this end, it is necessary to establish, at the legislative level, a maximally effective assistance for research, design, and production corporations working in this area, to organize the coordination of their activities, as well as to enhance significantly the government support of R&D projects in the field of space science and rocketry.

The symposium participants believe that for driving the economy of Ukraine to a level that ensures the appropriate national security it is necessary:

- ✦ To ensure an annual growth of real GDP of, at least, 7%;
- ✦ To reach an output of USD 12.6 thousand per capita in the country (which corresponds to an increase in GDP of about 2.7 times);
- ✦ To create conditions for decreasing interest rates on the loans to industry down to a level of 5% per annum;

✦ To create a secure economic environment for the transition to floating exchange rate, to ensure the hryvnia exchange rate at which the balance of payments would be positive or neutral.

13. To pay much more attention to popularization of history of Ukrainian science. The scholars dealing with history of science should focus their research activities on studying history of rocketry and space science and engineering in Ukraine, unique scientific and engineering schools, leading scientists and engineers who played a key role in enhancing the national defense capacity.

14. To draw attention of the media to the fact that the strengthening of their impact on the public consciousness and adequate understanding of the importance of science and R&D results un-

derlying the innovative economic development is of utmost importance for raising the living standards and the national security, as well as for assuring its very survival as an independent and sovereign state in the world.

15. To publish immediately the abstracts of symposium participants on the site of the G.M. Dobrov Center for Scientific and Technological Capacity and Science History Studies, and, in the next two weeks, the texts of reports; to prepare memoranda to the government and Verkhovna Rada of Ukraine of the most pressing issues discussed at the symposium. To prepare and to publish the symposium proceedings and reports in the following journals: *Science and Innovation*, *Science and Science Studies*, and *Problems of Science*.