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AGENCY FOR SOCIAL AND POLITICAL EXPERT APPRAISAL

# Belarusian
## YEARBOOK

# 2013

**A survey and analysis of developments in the Republic of Belarus in 2013**

Minsk
I. P. Logvinov
2014

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*The yearbook is published with support*
*of The German Marshall Fund of the United States*



ISSN 1822-4091

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# ‘CATCHING UP’ IMPROVEMENT STRATEGY FOR SCIENCE AND INNOVATION

**Andrei Laurukhin**

**Summary**

In the first two months of 2014, the State Committee for Science and Technology (SCST) did not submit traditionally optimistic reports on the advancement of science in 2013. The National Academy of Sciences of Belarus (NASB) made even more optimistic one instead. In 2013, a reform of the science sector entered an open phase after the NASB presented a draft *scientific development program*.

The science sector saw a number of staff reductions and reshuffles. Thirty-one legislative acts were issued to regulate scientific and innovative activities. However, taken together, all these measures create an ambivalent impression, showing the problem of coherence of education and science reforms.

**Trends:**

- The regulatory framework gets too complicated, which amplifies excessive regimentation in the area of science, technology and innovation;
- High-tech exports slow down and the proportion of pioneer products is declining;
- The scientific manpower is shrinking and there are little human resources to take over;
- The system of centralized management of the innovation system has been latently eroding against the background of increasing particularism.

2013 was a year of staff reductions and reshuffles in the Belarusian science sector. By the end of the year, the National Academy of Sciences reduced the number of employees engaged in research and development by 12%. On October 15, Alexander Shumilin superseded Igor Voitov as head of the State Committee for Science and Technology, and Vladimir Gusakov took office as the NASB presidium chairman, which had been vacant for a year. Personnel reshuffles zeroed executives’ responsibility and increased their credit of trust in the eyes of the head of state.

## Regulatory framework improvement specificity: create difficulties to successfully overcome them

The year 2013 saw a great number of legislative acts (31), which regulate research and innovation activities, including the law on commercial secrets, *five* presidential decrees, *twelve* resolutions by the Council of Ministers, an order by the Ministry of Finance, a resolution by the National Statistics Committee, a resolution by the Ministry of Health, a resolution by the Ministry of Economy, a resolution by the Ministry of Housing and Communal Services, and eight resolutions by the State Committee for Science and Technology. The House of Representatives of the National Assembly passed the bill on amendments to the law on patents for plant cultivars (May 17, 2013) and the law on amendments to some laws of the Republic of Belarus on entrepreneurial activities and tax liabilities (December 16, 2013). Amendments were made to a number of presidential decrees directly or indirectly related to scientific and research-and-technology activities.

The law on commercial secrets, which was passed on January 5 and came into effect on July 11, is worth special attention. It became relevant because the previous law on commercial secrets expired after over 20 years in use (since 1992). The positive aspect of the new law is that it defines trade secrets as information or data, like it is defined by most European legislative instruments. At the same time, the range of secrets is considerably expanded as compared with the version of 1992. Although there are plausible reasons for that given the development of the institutions of patenting, intellectual property rights, etc., making a secret out of some kinds of information (for instance information on salaries, which is in open access in most developed countries) can hardly be justified.

Presidential decree No. 59 of February 4, 2013 on commercialization of scientific and research-and-technology activities funded from the republican budget creates an ambivalent impression. On the one hand, it stimulates these activities by exempting them from VAT and income taxes when it comes to property rights to their results described in a corresponding national registry. On the other hand, according to the decree,

commercialization "of results of scientific and research-and-technology activities fully or partly funded from the national and/or local budgets, including state special-purpose budget funds and state extra-budgetary funds is mandatory." In case the results are not monetized within three years, the provided funds must be "repaid without right of appeal to the budget they were allocated from with interest equal to the refinancing rate established by the National Bank as of the date of collection."

This regulation is absurd and repressive because, in fact, it prohibits unavoidable risks associated with commercialization. The threat of a claim with interest will most likely repel potential researchers from the republican and local budgets and bring on all sorts of imitation of commercialization. It is quite possible that the idea of the decree is to save state funds and reduce their proportion in the cost of research. Then what is the purpose of presidential decree No. 229 of May 20, 2013 on stimulation of innovative projects, Council of Ministers' resolution No. 423 of May 29, 2013 on creation of pilot innovative facilities at the National Academy of Sciences and a number of other regulations specifically targeted at financial support for individuals and legal entities engaged in implementation of innovative projects?

It should be noted, though, that Council of Ministers' resolution No.680 on the list of significant external circumstances, which make it impossible for a public sector customer to secure mandatory commercialization of scientific and research-and-technology activities within the established deadline issued on August 2, 2013 mitigates the repressive nature of decree No. 59 to a certain extent.

## Science sector reform: a dissonance between progressive plans and regressive methods of their implementation

A draft *program on the science sector improvement* was presented at a general assembly of the National Academy of Sciences on December 12. The program was incomplete and only described development options as the academicians saw them, but, nonetheless, the document shows where and how far the Academy can go with this reform.

The *program* is based on five conceptual components and suggests three phases: short-term (2014–2015), medium-term (2016–2020) and long term (2021–2025) ones. Fundamentally, the *program* addresses key problems of Belarusian science, i.e. (1) demotivation of scientists, the negative image and low social status of science; (2) proficiency and age imbalances with the risk to face the lack of next-generation human resources; (3–4) ineffectiveness of the institutional and management structure, and the system of expert evaluation of achieved results, and (5) the anachronistic funding model.

The very fact that the acute problems, which the scientific community and independent experts had been pointing at many times in recent years, were officially recognized means that there is an adequate and quite sober assessment of the situation. On the other hand, the 'therapeutic' part of the *program* displays the retrograde mentality dominating in the scientific community of Belarus, which totally depends on decisions made by influential political actors. This dissonance between progressive plans and regressive methods of their implementation will inevitably affect the depth, innovativeness and comprehensiveness of the planned reforms.

In this respect, the idea of integration of education and science by creation of an 'academic university' is indicative. Being adequate to modern trends in education and science, the idea is however retrograde when it comes to the ways of its actualization. The anachronistic name, which brings to mind the time of Tsar Peter I, is not as important as the suggested political establishment's headship ("the most eminent statespersons of our country will be rectors") and the example to be followed (the Russian Federation[1]). Russia can afford impressive financing, and human resources are incomparable with those in Belarus, yet innovative scientific, educational and economic projects leave much to be desired there. Besides, the Belarusian copy will certainly be a pale imitation of the Russian original, primarily because the available amounts of funding differ immensely.

[1] See: Laurukhin A. *Academic University of Belarus: Pale Copy of Poor Experience?* // [Electronic resource] Mode of access: http://nmnby.eu/news/analytics/5435.html.

The funding is a determining factor here because much depends on whether big-name professors will come to teach, and whether the new establishment will be of interest to the world's leading universities in terms of real inter-institutional cooperation. All hopes that the financial deficit may be compensated by certain non-material benefits like good management or strong motivation are deflated by the "political establishment's headship." Judging by the announced plans, the new university will suffer from the same management model, which actually caused the current problems and made the reform necessary. The recent criminal case against professors[2] thus shows that the centralized management model has been gradually turning ineffective being eroded by growing self-interest aspirations and strong lobby groups.

## Funding for science and innovation: modest but unsafe

In 2013, the proportion of republican budget expenditure for scientific, research-and-technology and innovation activities in GDP slightly increased from 0.26 to 0.29%, which is still very moderate not only in comparison with the members of the Organization for Economic Cooperation and Development, but also with Belarus' neighbors in the CIS. Alongside with Malta and Macedonia, this proportion in Belarus is one of the smallest in Europe[3] (for comparison, it is at 1.4% in Russia and 1.2% in Ukraine). But even these moderate funds are not fully spent.

Most of the unspent money is reported regarding the material and technical base update, training and appraisal of personnel, and development of the State System of Scientific and Technical Information (as it was in 2012). The attempt to modernize and expand the funding of science and innovation that followed presidential decree No.425 on grants of the president of the Republic of Belarus for science, education, health, and culture

[2] Three professors of the Belarusian National Technical University at once are under criminal investigation; see http://news.tut.by/society/371977.html.

[3] *Science and Innovation in the Republic of Belarus*. Statistics digest, Minsk, 2013. pp. 114–116.

of September 9, 2013 was torpedoed by the professors' case and, wider, the repressed motivation of scientists.

As concerns the Internal expenditure on R&D, spending from budget and off-budget sources is going down from 58.0% in 2005 to 43.6% in 2012 (budget) and from 5.% to 0.3% (off-budget)[4]. Commercial R&D expenditure remains low in percentage of GDP (0.46% at the end of 2012). The tiny proportion of small and medium enterprises contributing to joint innovation projects (0.69% of surveyed organizations in total)[5] dashes the hope for alternative sources of funding for innovative projects.

## Research-and-technology and innovation activities: inhibitory reality and reassuring plans

Regretfully, in 2013, the main indicators of innovative achievements in Belarus were not very encouraging. The proportion of shipped innovative products slightly increased. At the same time, high-tech exports slowed down significantly. At the end of 2012, high-tech exports increased by USD 7.6 billion year-on-year from USD 3.2 billion to 10.8 billion. At the end of 2013, only a 0.2 billion increase to 11 billion was reported. The proportion of shipped innovative products in the total output went up, but new products constituted a smaller part: 15% for the domestic market and 0.5% for the world market. The coefficient has not changed since 2011, remaining at 1.8[6].

A slight increase in the proportion of innovatively active organizations has not resulted in appreciable improvements in the slow-moving process of creation of a new segment of the national economy, i.e. high-tech enterprises and Mode 5 and 6 industries. At the same time, more and more organizations are being established to engage in research and development. The number of R&D personnel is thus decreasing. Around 1,000 people lost their jobs in the government, commercial, and higher education sectors (almost evenly in absolute terms)[7]: from 94

4 *Science and Innovation in the Republic of Belarus*, ref. art., p. 9.
5 Ibid, p. 11.
6 Ibid, p. 10.
7 Ibid, p. 18.

in 2005 to 57 in 2012 per organization, and from 68.5 to 66.6 people per 10,000 employed in the economy[8].

Only plans are sounding encouraging. BelBioGrad Science & Technology Park is supposed to open by 2020. It is meant to bring high-yielding and rapidly developing 21st century technologies to Belarus, including the pharmaceutical industry with a 5% annual growth and USD 1 trillion in global revenues, biotechnology with over USD 400 billion, and nanotechnology with over USD 1 trillion worldwide, to breathe new life into institutions of the National Academy of Sciences and significantly promote the research intensity.

## Conclusion

Although the planned 'major domestic indicators' of scientific and innovative development have been achieved, Belarus still remains an outsider on a world-wide scale and a pretty average player among developing nations. At the same time, one should still appreciate certain achievements of Belarusian scientists. There are more links to articles in international databases than in 2012 (up 68.2% in *Web of Science* and 70.6% in *Scopus*); Belarus retains its international ratings assigned in 2012 (45th in the Knowledge Index, 59th in the Knowledge Economy Index, and 6th with respect to the number of applications for inventions). The High-Tech Park's sales proceeds have doubled since 2012. The plans to improve the research and innovation sectors are quite ambitious.

The government innovative development program for 2015 is coming to an end, so the new management is already looking at new ones. The question is how the innovations brought by new managers to old institutions will meet present-day challenges. Reforming of science should obviously be comprehensive, which will inevitably require adequate changes to the higher education system. Improvements depend on how the reforms in education and science will accord with each other.

The aspiration to follow in Russia's tracks means that Belarusian managers are unable to come out with their own innova-

[8] *Science and Innovation in the Republic of Belarus*, ref. art., p. 9.

tive solutions based on international experience. Therefore, the risk of creation of ineffective institutions, which will reproduce all defects and weaknesses of the existing scientific, educational and innovation infrastructure, is very high.

Science and innovation development encounters serious obstacles, such as an increase in the number of innovation entities alongside stronger spontaneous particularism and underdeveloped horizontal ties on the one hand, and preservation of the top-down management system, which gets less and less effective on the other.

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