

Scientific Personnel

The federal targeted program (FTP) Scientific and Science-Oriented Educational Personnel started out in 2009. One of its projects was meant to support scientific research conducted by educational scientific centers (ESC). We decided to ask some questions that are regularly of interest to ESC groups applying for grants with the program, and Head of the Department of Programs and Projects at Rosnauka Gennadiy Shepelev agreed to answer them.

Gennadiy Vasilievich, what was the idea behind creating a grant competition for educational scientific centers under the “Personnel” FTP? What were the aims? How would you describe the educational side of these projects?

On the history of the subject, attempts to create ESC were made under the federal targeted scientific and technical program Research and Development in the Priority Fields of Science and Technology in 2005-2006. The results of these attempts showed that training of scientific personnel is in itself an important and difficult endeavor, and the federal targeted program Scientific and Science-Oriented Educational Personnel of Innovational Russia is one of the instruments designed to solve this problem.

Educational scientific centers are a part of the network of training institutions for scientific personnel; it is one of the instruments that allow to fuse scientific research and education. One of the tasks of ESCs is to involve scientists in the training of young specialists. ESCs train young specialists through direct practice by involving them in scientific research. This allows to supplement the theoretical base with practical skills, which are learned during experimental research.

In turn, the educational activities of an ESC are aimed at incorporating the new knowledge learned during research into the educational process, such as educational programs, lectures, practical courses, and seminars.

It is obvious that modern education must be based not only on classical knowledge, but also on novel discoveries. For example, we can look into discussions in the IT industry on whether textbooks and educational programs should contain obsolete information.

This kind of information does not seem to spur a student’s interest in science, since in their life outside education young people most often find themselves face to face with new technologies and knowledge which have not been covered in their education. Obsolete textbooks provide a skewed view of the level of scientific knowledge in a certain field. ESCs are supposed to solve these problems as well.

A new wave of projects were launched in 2010. Does the level of the applications differ from that of last year? We are asking because last year more projects were funded then was planned, do you see fewer good projects this year?

Last year the program planned to fund 450 projects, each receiving up to 15 million rubles during the course of 3 years. Since the budget of the “Personnel” FTP was cut by 15%, we could only fund 383 projects. However, since the average size of a contract turned out to be lower than planned, we managed to sign 502 contracts.

Despite the fact that more projects than was planned received support, there is no sign that researchers are running out of good projects. This year there were more applications in the competition. The first 8 stages of the competition received more than 2,800 applications, and we expect more than 5,000 by the end of the year. However, we must remember that some applications are repeated – the losers in one stage take part in the next stages. Thus, the number of first-time applications will be lower than the overall number of applications.

How much was the average amount in a contract reduced compared to the initial estimate? Could this influence the quality of the projects and the list of winners in the competition?



Gennadiy Shepelev

One opinion is that reduction of the amount on the contract is a negative factor, but we must remember that the number of competitors increased, and we managed to fund more scientific groups, which is likely a positive outcome. On the subject of the amount, the initial amount of a contract was 15 million rubles or approximately 500,000 US dollars. Last year the average amount on a contract was approximately 11.4 million rubles, this year the first stages show an average of 8.6 million rubles. We can compare this to the average size of an NSF (National Science Foundation) grant in the USA, which is about 300-350,000 US dollars during the course of 3 years. This is about the same range that we are seeing in our program. We must also keep in mind the difference in average salaries in the U.S. and in Russia. This means that

the value of our contract is in line with world standards.

Of course some applications were cheaper, but then again, others were more expensive. There is no single “correct” amount to allocate for every project. Some projects use expensive materials, others use cheaper ones. Also, the amount on a contract must be weighed against the results that can be obtained. There is a possibility for two errors here; one is when a project is overfunded, and another is when it is underfunded, because competitors in one competition state a lower price in order to win. As we know, the Federal Law on Government Purchases № 94 prohibits the buyer to ask for an itemized cost sheet, which means that in this case the legislation prevents us from obtaining this information.

On the subject of whether the list of winners was substantially influenced by the amounts allocated and terms, the Russian Institute of Economics, Politics and Law has analyzed whether the 2009 winner list was to change if the amount on a contract and the term of the project were not taken into account (Recently, the term parameter has been practically removed, since a serious advantage in score can only be achieved by reducing the duration by 25%, which will have an obvious negative effect on the work. Because of this, the role of the amount of funds allocated has increased even more). The conclusion was that the list of winners would experience a 15% change. Whether this is a significant change or not is debatable. However, the difference between the scoring by different experts varies in about the same range. In other words, there are other comparable factors except from the completion dates and size of grants which have the same relevance and have a similar effect on the final results of the competition.

With all this in mind, is there a way to prevent weak, “price dumping” applications from winning the competition?

Once again, the question assumes that “price dumping” applications are bad. Price and quality are two different parameters which are both weighed during expert assessment. We try not to accept bad applications, and there is a mechanism for achieving this. For instance, each project has indicators of

whether young specialists will be involved, and meeting these criteria requires that a salary be paid to the appropriate number of employees. Thus, based on the minimum wage we can see that the minimum size of a contract in which these indicators are met is 7–9 million rubles. If the amount is lower, then we understand that some indicators are poor, and thus the project does not conform to competition rules and will not be funded. We are trying to make sure that the quality of projects is the most important factor; however, we cannot completely ignore the size of grants since the Federal Law № 94 is a law, and breaking it results in administrative punishment.

There is another problem here: the number of specialists required for a project can be overestimated, meaning that the project in fact needs less people than are listed in the application. However, it would be a negative trend if we were only aiming at saving money. Moreover, one of our goals is to attract young people into research. Thus, we are actually stimulating groups to inflate their requests by including less qualified personnel into the project. Also, we must keep in mind that research groups often do not conduct work exclusively on the terms in the contract, as science often takes the researcher beyond the boundaries of the technical specifications of the contract. This will of course take up money from the project and human resources. This could be interpreted as a misuse of funds; however, the general logic of science is that this is precisely the way it should be. Scientific groups should have enough room for men in their research.

One of the indicators of ESC projects is the involvement of younger personnel. During the project these people will work in the applying organization, what happens after the contract is over? Is there any mechanism for keeping these specialists after the project ends?

There are no projects in the world that can guarantee lifetime funding. Keeping scientific personnel in institutions is achieved by permanent slots, which are limited in number. However, there are positions under temporary economic contracts. In order for them to be maintained after the project is fin-

ished, the researchers must receive new grants and contracts. Another untapped resource is cooperation with business and industry. In our country approximately 65% of all research is funded by the government and the remaining 35% receive non-budgetary funding. In foreign countries, this ratio is exactly the reverse. However, there are examples when a Russian college receives 50% of its funds from businesses. Currently, the government is pressuring businesses to direct a certain percentage of their income towards scientific research, especially those companies that are partially owned by the government. Moreover, Decree 218 for the support of cooperation between colleges and industrial companies has recently come into force, and it is also a resource that can provide additional funding for scientific groups.

What if an organization attracts young specialists without aiming to keep them in the organization after the ESC funding runs out and gets rid of them after the completion of the project?

Of course some organizations will choose this route, get rid of the personnel after the project is completed. But administrative regulation of these processes would be outside the priorities supported by the FTPs. The projects under the ECS program are a chance for young specialists to test their abilities, not a ploy to keep them working at a certain ESC for the rest of their lives. In the latter case, the centers should not have been called “educational.” Some of the involved specialists will leave, but we cannot really say that this is either good or bad. We assume that the people involved in the project have received higher qualification and will use these new skills and knowledge in some other organization (not necessarily the same ESC or an ESC at all). If the economy gets a better trained specialist, then this is a good outcome, irrespective of whether or not this specialist continues to work in the organization that trained him.

In some cases a research group uses a paper that was in press before the start of a project as an indicator of a project’s progress in their report. What is your opinion of this practice?

Again, there is no “black or white” answer here. If an ESC is there for

work, not to write a report, then it must have a head start in research which began before the start of a contract – this is one of the criteria for selecting the best ESCs. If one adopts this point of view, it does not really matter when the article was planned. Delaying articles so as to send them to a journal during the course of the project is of course nonsense. Of course if there are no other articles during the course of the project then this is another matter, but this has to be controlled by the authority that oversees progress in the project.

Can you comment on the overall situation with scientific personnel turnover in Russia?

No serious studies of the scientific personnel process have been conducted as of now. There is only general statistical data which lack details. This leads to speculation and pessimistic prognoses and various interpretations of the situation with varying comments depending on the position of the commenting party.

The following example illustrates this point. The drain of scientific per-

sonnel was at its highest in the relatively prosperous year of 2008, the reduction in scientific personnel was 5%, even though the overall number of people involved in science increased in 2007. The reduction was spread out fairly evenly among all organizations, both governmental and non-governmental. However, the proportion of research scientists involved in science has increased. Possibly people moved over to the realm of business, which promised a considerable increase in income at the time, some role might have been played by the cutbacks because of the crisis near the end of the year. This is the most we can say on the issue, because no more specific information is available.

But, as I have said earlier, these facts cannot be interpreted in terms of good or bad; there are different facets to every problem. We need to ask ourselves several questions – how many people are needed in the scientific field? What do we want from them? Just scientific papers? Of course not. One of the reasons for personnel leaving the scientific sector may be increased competi-

tion from industry; production requires technologies as well as qualified specialists.

Let me give an example. In the Soviet Union I worked at an institute which was among other things involved in the development of laser crystals. When the technology was transferred from the developing institute to the manufacturing plant, the quality of the crystals was considerably worse. Why did this happen? One of the possible reasons is the human factor, which in this case was the lower qualification of the manufacturing plant's personnel as compared to the staff at the research facility.

What can ESCs expect in the following year?

This year there will be approximately 300 more contracts for ECSs in addition to the contracts that are currently running. The plans for next year will be formulated after the program's budget for next year is set. We hope to sign no less than 500 contracts. ●

Interview by Ivan Ohapkin