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ISEDT RAS Research and Education Centre – a focal point for the growth of the region’s science and technology potential



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During the years of market transformation Russia witnessed significant reduction in the share of science-intensive sector in the national and regional economy (there has been a decrease in the demand for the results of R&D; the real wages of researchers declined; the value of professional research activity decreased in the eyes of the public; the inflow of young people in science reduced as well). Overcoming these negative trends requires new approaches to the formation of the country’s research potential. The integration of education and science is the most important of these approaches.

The article covers the experience in this area, gained at the Institute of Socio-Economic Development of Territories of RAS through the establishment and organization of the work of the Research and Education Centre (REC) for Economics and Information Technologies, which has been functioning for ten years already.

The article presents certain conceptual and methodological approaches to the formation of REC, the teaching methods used for educating young people in the chain “school – university – postgraduate studies – research activity”. The article shows the performance and efficiency of the work of REC in the development of regional scientific and technological potential. The article emphasizes the importance of joint work of school education, higher education, science, regional and municipal authorities.

The article provides the assessments of young people, who study at the Research and Education Centre, regarding their opinions on the forms and methods of teaching and on the efficiency of studying for the choice of profession.

Based on the accumulated practice and performance of the Research and Education Centre, the authors substantiate the prospects of its development as an educational institution of a new type that implements the full cycle of training of highly qualified personnel in the field of economy, management, and information technologies.

Science and technology potential of the region, training of researchers, ISEDT RAS Research and Education Centre, talented youth, organization of research activities.

Transition to innovation economy

Innovation-driven development is the key trend in modern economies. Over 80% of the GDP growth in the states that follow this path is provided at the expense of high technology products and services, and the supply of innovation developments exceeds the demand for them¹. Currently this process is called *knowledge economy*.

In Russia the movement toward knowledge economy as the strategic pattern of development took shape only in the beginning of this century. However, due to a number of objective and subjective reasons, the Russian science and high-tech industries found themselves in a difficult situation in the period of transformations. First, science-intensive space has narrowed sharply. Currently, Russia accounts for less than 0.3% in the world markets of high technologies. Over the past two decades, the number of people employed in high-tech production and innovation sphere in Russia has decreased twofold. It

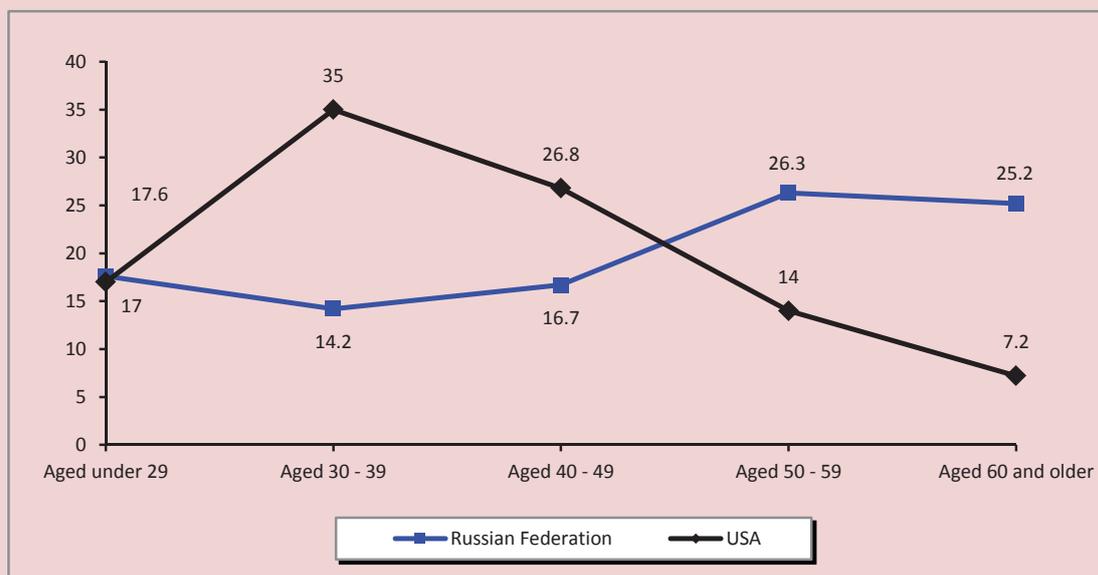
¹ Innovation policy: Russia and the world: 2002–2010. Under the general editorship of N.I. Ivanova and V.V. Ivanov; Russian Academy of Sciences. Moscow: Nauka, 2011.

goes against the worldwide trend of increase in the share of researchers in all the G-8 countries and in Asian countries², especially China, where the number of researchers per 10 thousand inhabitants increased from 5.5 to 10.7 people (twofold) in 2000–2007. The reproduction of research personnel in Russia witnessed a great demographic failure in the generation of people aged 30–49, i.e. in the age that is the most effective for engaging in research. In the USA, for example, this age group of researchers is 64%, and in Russia – only 32% (*fig. 1*).

The outflow of young researchers from R&D is directly associated with the lack of funding of this sector. The amount of R&D expenses in the Russian Federation (as a percentage of GDP) leaves much to be desired in comparison with foreign countries (*fig. 2*).

² Ilyin V.A., Gulin K.A., Leonidova G.V. The extended reproduction of research staff as the key link in the progressive development of territories. Priorities of scientific and technological development of the North-West of Russia. Materials of the session of the Inter-Agency Northwestern Coordination Council under RAS on fundamental and applied research. Under general editorship of V.V. Okrepilov. Saint Petersburg: SUAI, 2011. P. 144–161.

Figure 1. Distribution of researchers (%) by age groups in Russia (2008) and USA (2004)



Source: Indicators of science. 2009. Statistical digest. Moscow: SU–HSE, 2009. P. 34.

Figure 2. Domestic expenditures on research and development (as a percentage of GDP), 2011*



* Or the nearest years for which the data is available.

Source: Indicators of science: 2013: statistical digest. Moscow: NRU HSE, 2013. P. 349.

Although the share of R&D funding in Russia has increased slightly since 2000 (by 0.2%), this indicator is still much lower (in 2 times) than in the countries leading in research and technological development. For this reason, the wages of people employed in Russian science lags significantly behind foreign indicators. The value of professional research activity is declining, which is aggravated by the overall lack of demand for science in most spheres of national economy.

Strategic goals of Russia's socio-economic development define the need to change the immediate situation. Russia should, as quickly as possible, become a country "...the wellbeing of which is provided by intellectual resources...".³ The implementation of "innovation breakthrough" requires human resources, in which the key element is the highly qualified specialist, who possesses systems thinking, the required volume of complex specialized knowledge and, simultaneously, sensitive to the challenges of accelerating scientific and technological progress. Such specialists are necessary as a whole generation, emerging from the school years and further on developing continuously and actively throughout life.

According to the majority of Russian scientists and renowned workers of education, these issues can be handled most efficiently by creating a system, in which students (schoolchildren, university students) would be included in scientific research and practical innovation activities during the process of education. This goal can be achieved by using integration mechanisms that envisage participation of not only research teams and education workers, but also business structures in educational process. We mean, essentially, that educational process should be embedded

³ Verbatim report of the meeting of the Presidium of the State Council, the Council for Culture and Arts and the Council for Science, Technologies and Education. April 22, 2010. Available at: <http://www.kremlin.ru/transcripts/7530>. Retrieved May 12, 2010.

in the innovation chain, facilitating the modernization of domestic socio-economic system in a short term.

Interaction of research and educational structures in the country was officially stipulated by the federal target programme "State support to the integration of higher education and fundamental science in 1997–2006"⁴, which was followed by the programme "Integration of science and higher education for 2002–2006"⁵ adopted in 2001. The implementation of these programmes facilitated the creation of integrated research and education structures in the form of departments and laboratories; intensified the involvement of research staff of the Academy of Sciences in educational process, etc. However, it was not possible to validate the established mechanisms of interaction during the implementation of the programmes⁶. And when the term of their action expired, the pace of integration processes has slowed down considerably, though these issues were not left unnoticed by the scientific community and the country's leadership. For instance, in 2007, the issues concerning the flaws in the legislative framework of integration processes were handled to a certain extent, which was reflected in the changes in the then effective laws⁷ "On education" and "On science and on state policy in the sphere of science and technology". In 2009 the federal target programme "Research and scientific-pedagogical personnel of innovation Russia" was adopted; after that, the definition of research and education centres appeared,

⁴ Approved by the Resolution of the RF Government No.1062 dated September 9, 1996.

⁵ Approved by the Resolution of the RF Government No.660 dated September 05, 2001.

⁶ Innovation policy: Russia and the world: 2002–2010. Under the general editorship of N.I. Ivanova and V.V. Ivanov; Russian Academy of Sciences. Moscow: Nauka, 2011.

⁷ Federal Law No.308-FL dated December 1, 2007 "On the introduction of amendments in separate legal acts of the Russian Federation on the issues of integration of science and education".

they were seen as “structural units (or part of structural unit, or set of structural units) of a research or educational organization that conduct scientific research by the general research direction, and that are engaged in the training of personnel of the highest qualification”.

A number of research institutions under RAS and universities continued developing cooperation. An example can be found in the union of the Russian Academy of Sciences and Lomonosov Moscow State University. Moscow Institute of Physics and Technology (MIPT) was the first higher education institution that implemented the system “school – university – graduate school”. It was established on the basis of the special faculty at Moscow State University, and it developed a special training system, now known as “Phystech system”. It includes three fundamental and inextricably linked components:

- targeted selection of talented school-children in all the regions of the country for admission in MIPT through an extensive system of pre-university training (correspondence physics and technology school, olympiads, off-site admission committees, etc.);

- fundamental character of general education in natural science and humanities in the first, second and third years;

- in-depth professional training in the second and up to the sixth year in the framework of specialized faculty courses and directly at the basic departments of MIPT under the institutes and scientific centres of RAS and also in several leading joint-stock companies and holding companies of high-tech sector.

The research and education complex at Ioffe Physical-Technical Institute (founder of the institute – Nobel laureate Zh.I. Alferov) in Saint Petersburg was established in 1998, and it is another telling example of integration cooperation. Currently it functions as Saint Petersburg Academic University – nanotechnology research and education centre under RAS (the Academic University).

In short, integration of research and education activity has been moving forward step by step, becoming more and more advanced, making samples for creative replication.

Prerequisites and ideas for the establishment of the regional research and education centre

The history of establishing the research and education centre under ISED T RAS has a number of significant features. One of them is that there were no institutions of academic science in the Vologda Oblast till the end of 1990, despite the rapid development in 1960–1980 of ferrous metallurgy and chemical production in Cherepovets, mechanical engineering in Vologda, and also the growth of production in the timber complex. A small department of the Institute of Economic Problems of Kola Scientific Centre was established in Vologda only in the end of 1990. With the support from RAS, the department expanded and obtained the status of the CEMI RAS Vologda Scientific Coordination Centre (VSCC) to the mid-1990s. Further development of the young academic unit faced great difficulties in recruiting qualified personnel. The establishment of graduate school did not contribute to the development for the same reason.

Then the leadership of the Vologda State Technical University was involved in handling those issues. The basic section of regional economics was established at the Chair of Economics and Management of the Economics Faculty headed by Doctor of Economics, Professor A.P. Dorogovtsev. The VSCC academic staff with degrees started teaching students of the basic section in economic disciplines on a part-time basis, and the leading professors of the Chair supervised the dissertation research of graduate students at the Centre. The integration process was developed also by the joint implementation of research based on

federal grants and programmes. But still the scale of joint activities increased slowly. There was an increasing necessity for creating an organization that would enhance the interest of school graduates in research in the sphere of economics.

In this period, the idea of establishing the regional research and education centre under VSCC took shape on the basis of the existing experience in the country. Practical implementation of the idea was viewed in the comprehensive chain of professional training according to the algorithm “school – university – graduate school” by pooling the efforts of research and education institutions, regional and municipal authorities.

And it became possible to put this idea into practice, first of all, due to the fact that government authorities and heads of education institutions not just supported the idea, but also took an active part in its implementation: the major contributors include the City Department of Education (in particular, Deputy Head O.Yu. Linkov), Vologda City Administration (Head of the City A.S. Yakunichev), school principals (Principal of the Vologda secondary school No.32 G.A. Manicheva), Vologda State Technical University (Rector, Doctor of Economics, Professor R.V. Deryagin), Saint Petersburg State University of Engineering and Economics (Rector, Doctor of Economics, Professor A.I. Mikhailushkin) and its Vologda branch. The Governor of the Vologda Oblast provided crucial support as well. Of special importance was the contribution of the leadership of the Russian Academy of Sciences, represented by its Vice-Presidents V.V. Kozlov and A.D. Nekipelov.

The joint written petition of RAS President Yu.S. Osipov and the Vologda Oblast Governor V.Ye. Pozgalev to the president of Russia V.V. Putin was also very important, because after that the President ordered the RF Government to work out the issues concerning

the development of REC in cooperation with the Vologda Oblast authorities. This resulted in the fact that the construction of facilities and infrastructure for REC was included in the RAS investment programme, in particular: construction of the building for education and research, a dormitory for young scientists, provision of modern technological equipment for educational laboratories, etc. In addition, the support provided by the Academy of Sciences in the framework of target financing under the programme “Support to young researchers” promoted the formation of skilled teaching staff at REC and also facilitated the development of education programmes, expanded the number students (for ten years, the number of REC students has increased 17-fold (from 34 to 590 persons), the number of university students – 8-fold (from 97 to 650 persons). Support from RAS also contributed to the increase in the range of academic disciplines, to the expansion of the REC activities to the interregional level, and to the elaboration of methods of work with talented children and young people.

Today, the ISEDT RAS Research and Education Centre is a multi-stage system of training and retraining of highly qualified specialists for science, business entities and regional authorities. The main mission of the centre is to create the conditions for revealing and developing the abilities of talented youth in the region and involving it in research sphere, and to recreate the environment for scientific search. The latter is the main priority in the activities of REC, as, on the one hand, it enhances the efficiency of acquiring knowledge, abilities and skills complying to educational standards and the efficiency of their further generation, i.e. the path of knowledge increment; on the other hand, it is a way of initial professional training for young researchers. This very context, in our opinion, sets children’s motivation to work in high-technology industries.

Introduction of modern forms and methods of education at REC

Young people studying at REC are schoolchildren, university students and graduate students, that corresponds to the logic of integration cooperation between science and education, in the framework of which the Institute provides education activities (excluding graduate school) jointly with education authorities and education institutions. Cooperation geography is presented by the Vologda Oblast, and nine regions of Russia (Rostov, Murmansk, Leningrad, Yaroslavl, Ivanovo, Kostroma, Novgorod oblasts, Perm Krai, Republic of Karelia, Saint Petersburg). The last years witness the development of active cooperation with the Republic of Belarus (distance learning).

The organization of research activity in the REC ISEDT RAS school subsystem is aimed at the acquirement of research competences and is carried out in the following areas:

- elective course “Fundamentals of research activities” in the 5–11 grades in the framework of elective course in Economics;
- involvement of schoolchildren in the contests of research works and essays at REC ISEDT RAS, followed by a report at the conference “Economy of the region through the eyes of senior high school students”;
- participation of REC students in external competitions, conferences and olympiads.

Along with traditional forms that promote the comprehensive development of the students' abilities (elective courses in Economics for schoolchildren from 5 to 11 grades, etc.), the Research and Education Centre uses various, first of all, creative forms of work with young people (Economic Internet School, scientific seminars and discussions; olympiads; discussion clubs, business role-playing games, summer research schools, etc.). That is, the priority role in the activities

of REC belongs to the implementation of technologies that develop thinking and creative abilities. The share of active forms of education is 50% [11, p. 30].

Special importance in the activities of REC is attached to the organization of educational work at all the levels of educational chain; it is implemented in such main forms as discussion clubs, intellectual and business games, summer schools during vacation (in the framework of “economic” sessions in children's recreation camps), activities devoted to initiation into students and graduate students, etc. Practice has shown that discussions, for example, encourage students to express and defend their point of view; they also help develop tolerance, civility, ability to listen to other people – the qualities that are important for the development of civil society; that is, discussions create an environment for civilized communication. In the 2006–2013 period more than 800 people participated in the meetings of the Discussion Club (on average 4 meetings are held per year, each is attended by approximately 30 people) [3].

One of the innovation directions of the Research and Education Centre for Economics and Information Technologies is the organization of Economic Internet School. It was established after the two years of distance learning courses in Economics for the 10–11 grades schoolchildren from the towns of Sokol and Gryazovets, and the rural settlement of Ustye-Kubenskoye, all located in the Vologda Oblast. Since 2010, the internet school has successfully trained more than one hundred schoolchildren [3]; furthermore, since the project was launched, the number of distance learning students has increased more than twice (from 72 to 160), the geographic distribution of its participants has extended: 120 schoolchildren represent educational institutions of 11 regions of Russia, 40 schoolchildren represent the Republic of Belarus. It should be noted that the experience

of distance learning proved not only useful, but also efficient: for the three years of the school's functioning, the share of participants of competitions and olympiads among the distance learning students has increased in 2.7 times, while the number of prize-winning places according to their results has increased in 7.5 times [11].

Other forms of work are being developed in the framework of extracurricular activities at the Research and Education Centre: for example, open days are being held, the celebration of REC birthday is organized. The experience of educational work, accumulated at REC, the results of the analysis of events confirm the necessity to continue search for the most efficient forms of involvement of the youth in science.

Still, the involvement of talented youth in scientific search remains a priority direction of activity of educational chain of REC. REC has a continuously operating system of internal contests of research works in the field of Economics for schoolchildren and young scientists (university students and graduate students) of the Institute.

The principal (innovative) point of systemic work for engaging schoolchildren in research consists in the fact that this process actively involves graduate students, who are assigned to a group of schoolchildren as academic advisers during their education at REC. In the period of active preparation of research works for contests, graduate students meet with schoolchildren twice a week. They help students to choose the topic for research, to determine the object and the subject of analysis, etc. It increases the time of research activities of young researchers (up to two hours per week). Thus, the above methodological approach to the involvement of schoolchildren in research activity comprehensively affects the formation of environment for the development of scientific interest and realization of the practical importance of the activity.

Such practice is useful for young scientists as well, because it makes it possible to acquire skills in scientific supervision over research activities, since, while teaching others, they themselves are learning.

A more comprehensive studies of methodological and methodical fundamentals of research activity in the framework of the schools of sciences (there are four of them at the Institute) are provided by organizing scientific discussion seminars supervised by the leading researchers of ISEDT RAS. This form of work is very efficient: about 100 of such events are held each year with the participation of university students, REC schoolchildren, employees of Vologda organizations and enterprises. Such events are very important, because graduate students, young scientists acquire public speaking skills, the ability to put forward and substantiate scientific hypotheses, ask questions, find right answers, etc.

Main results of the ten-year work of REC

REC ISEDT RAS has developed a specific system of organizing research work of the students. Here an important role belongs to the joint activity of the research institution, universities and schools, to the unity of teaching and research work.

REC is an open rather than self-contained structure. Its openness, on the one hand, is projected on the established organizational forms of education activities (schools, universities, supplementary education institutions, which actively cooperate with REC). On the other hand, the project is open for integration with other structures, both within the Russian Academy of Sciences and in geographical terms (with institutions and business organizations of the region).

Today one can confidently say that the Research and Education Centre provides all of its participants with ample opportunities for intellectual, professional and personal development.

A large-scale social importance of REC is obvious, since it creates a favorable environment for revealing creativity and personal development of talented youth.

For ten years, nearly 500 students educated at REC have been involved in research activities. The growth in the number of school research demonstrates the efficiency of the project. The practical role of ISEDТ RAS Research and Education Centre in the generation of knowledge of the region's talented youth is proved by the annual assessment of professional abilities of its students⁸ and their leadership activity. The research shows that over the period of study at REC, communication skills are increasing significantly (for example, in 1.4 times from the 2008 to 2013 academic year), and a very high level of their development was demonstrated by almost 4 times more people (from 11.1 to 42.8%). The level of organizing skills increases significantly as well: according to estimates, 2.5 times more children demonstrated their high level during the study period (from 28.2 to 71.5%), and 1.5 times more children showed a very high level (from 14.2 to 21.4%). The developed skills help students in their vocational choices, in implementing their opportunities in various spheres, in particular, in research, which meets both the requirement of contemporary society and the goals of REC. For instance, from 410 students educated at REC in the period from 2003 to 2013, 90% (368 people) enrolled in universities, 33% (135 people) – majoring in Economics⁹.

⁸ A set of diagnostic methods in psychological testing involves the methodology developed by V.V. Sinyavskiy and B.A. Fedorishin "Communication and organizational inclinations"; the test of intellectual and professional abilities "TIPA-5" by R. Amthauer; test for assessing the degree of tolerance by V.V. Boyko, etc.

⁹ Ilyin V. A., Shabunova A. A., Popova V.I., Leonidova G.V., Garmanova O.Yu., Yegorikhina S.Yu., Koroleva I.A., Kulakova A.B., Fomina Zh.V. "ISEDТ RAS Research and Education Centre: 10 years. From inception to implementation". Book 1: Subsystem of additional education. Vologda: ISEDТ RAS, 2013. P. 78.

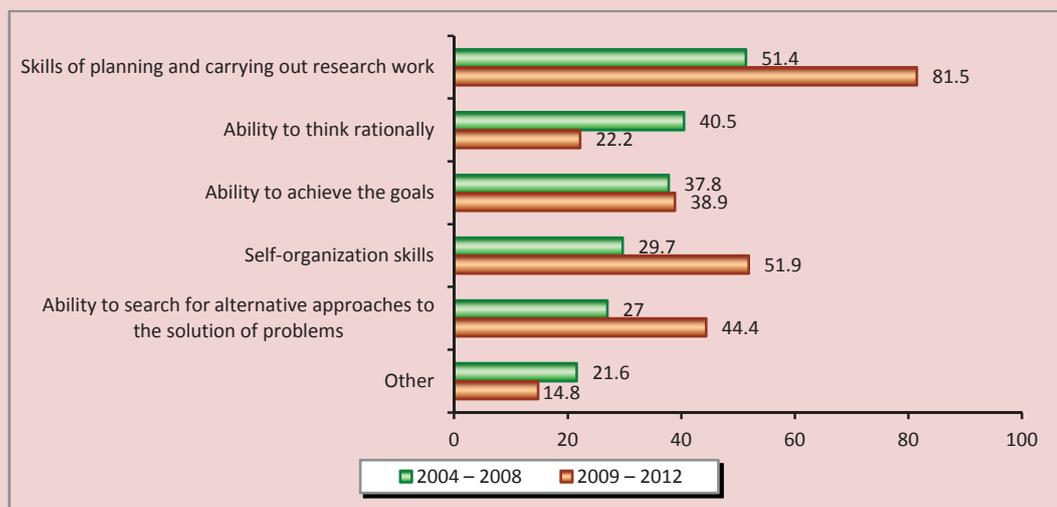
The REC graduates point out that the development of research skills is one of the most important opportunities that were provided to them during their training at the Research and Education Centre. So, according to the graduates of 2004–2008, their education in economics, first of all, gave them the skills of planning and carrying out research work (51%; 19 people), the ability to think rationally (41%; 15 persons). The graduates of 2009–2012 mentioned more frequently the skills in planning and carrying out research work (82%; 44 people); *fig. 3*).

Assessments that schoolchildren give to the opportunities offered by the Research and Education Centre show that for the majority of children from 6–7th grades (86%) the most important is participation in public events held by REC (excursions, exhibitions, intellectual games). The opportunity to use Internet resources (84%) is also noted by schoolchildren as one of the most demanded resources of REC. Pupils of 8–9th grades are mostly interested in such resources as computer class (80%) and Internet access (93%), and students of 10–11th grades are interested in access to Internet resources and in public events (86% and 83%, respectively).

Practical significance of the work with students lies in the fact that they are directly involved in scientific research of the Institute already from the beginning; they analyze economic information on the most relevant problems of regional development, which forms the basis for their future graduation projects. This form of work is important, because the next stage of education for part of them is graduate school (in the period from 2008 to 2013, 21 graduates of the Vologda branch of Saint-Petersburg State University of Engineering and Economics enrolled in ISEDТ RAS graduate school).

The most important indicator of performance of the graduate school is the number of completed dissertations in Economics.

Figure 3. Distribution of answers to the question “What did education in REC ISEDT RAS give to you?”, %



The share of graduate students, who defended their dissertations, in the total number of those who completed their graduate programme, is 41% (for 1998–2012), which is quite high compared with the national data (26%).

The employment of students who completed their graduate degrees is an important indicator for the task of enhancing the region’s intellectual potential. It should be noted that 39% of graduate students after completing their graduate programmes at ISEDT RAS continued their research activities at the Institute (21 people from 2000 to 2012).

For 10 years, more than 29% of REC graduates (28 people) have joined the academic staff of ISEDT RAS, 5% (5 people) were transferred to the government authorities (Vologda Oblast Government, Vologda City Administration, etc.), 20% (19 people) are engaged in teaching at the region’s universities. As a result, the number of research staff in the region has increased by 12% (52 people).

The project is significant for the region, because it promotes the following:

- harmonious (intellectual, moral, and social) development of talented pupils and students;

- provision of support to young scientists, development of innovation projects in various sectors of regional economy, transfer of their research and experimental developments in practice;

- enhancement of the level of fundamental research in the region.

The efforts of REC concerning the creation of its own system of competitions in the region, and their dissemination to neighboring regions, including the Republic of Belarus, were noted at the federal level. For instance, in 2013 REC ISEDT RAS became a participant of one of the elite Russian competitions for schoolchildren – N.D. Kondratieff Interregional Economic Olympiad (starting next year, REC will be a member of the contest’s jury).

Tasks for the future

Summing up, we should note that the model of research and education integration created by the Institute of Socio-Economic Development of Territories of RAS at the regional level takes into account both economic and administrative tools of influence on the goal-oriented reproduction of population’s intellectual potential by boosting research

and education environment of the territory, and it finds a solution to the social task of overcoming technological backwardness of the region in the medium term. Over time, REC may turn into a kind of “Tsarskoe Selo Lyceum”, which would educate, in competitive environment, the children not only from Vologda, but also from the whole oblast and neighboring regions. Thus, REC will be able to replenish the region's research personnel and become one of the mechanisms and sources of formation of modern managerial elite. At that, another major demand of the time will be fulfilled: the lifelong continuity of professional knowledge.

The Institute is ready for a more active work to create integrated structures providing the link between economic needs and the level of the latest achievements in domestic and world science (a kind of “synergetic centres for innovation growth”). The Centre for Cluster Development is one of the ongoing projects of the Institute that has received federal grant support. For the near future, the Institute is also developing the centre for collective access to high-tech equipment that will be established on the basis of the Innovation Economics Department of ISEDT RAS. Back in 2005 the Centre for Technology Transfer (CTT), as an associated member of the Russian network, was established at the Institute. In 2008–2010 alone, CTT attracted 12.5 million rubles of investments into the development of innovation projects of enterprises and organizations of the region.

It should be noted that REC makes practical contribution to the development of research and technology potential of the region. 52 graduates of REC have joined the region's research team, which is 12.2% of the total number of researches (424 people in 2012). We can confidently say that the development of integration structures according to the model of REC in the

universities of the Vologda Oblast is a way to build science and technology potential, its intellectual component. Besides, it would be possible to enhance the efficiency of regional research and education space, and establish an additional basis for dynamic development of the region's science and technology potential if the following activities were implemented: the realization of the standard model of research and education centres at all the region's universities (in different specializations: Physics and Mathematics, Natural Science, etc.), their provision with the necessary level of material and technology base with the support from the regional authorities, the development of common methodological and methodical approaches to searching for and identifying the most capable schoolchildren, young people and bringing them in accordance with the level of requirements of innovation economy.

Such mechanism of interaction between research and education institutions, business and authorities in the research and educational space makes it possible to draw some conclusions as to its applicability in other regions. It appears that in the next 2–3 years the development of the country's socio-economic system will have significant positive dynamics which will promote further development of REC. This will make it possible to achieve the level of development of international educational programmes with all necessary Russian and international certificates.

The achievement of this target will be promoted also by an agreement concluded in December 2013 between REC ISEDT RAS and Moscow School of Economics under Lomonosov Moscow State University, (the School is headed by Academician A.D. Nekipelov). The aim of the School is to provide fundamental economic education to students, their training in research activities and professional communication with foreign

colleagues. The leadership of MSE intends to make the school a leader in Russia and worldwide.

In conclusion, we point out that the results of the ten-year work of ISEDT RAS Research and Education Centre are presented

in the monographs “ISEDT RAS Research and Education Centre: the first 10 years” and “ISEDT RAS Research and Education Centre: 10 years. From inception to implementation” (in two books), which have been prepared for the anniversary.

References

1. Science and Engineering Indicators: 2012. Available at: <http://www.nsf.gov/statistics/seind12/c3/c3h.htm>
2. Garmanova O.Yu. The role and place of distance learning in the system of schoolchildren economic education. Territorial development issues. 2013. No.2. Available at: <http://vtr.isert-ran.ru/file.php?module=-Articles&action=view&file=article&aid=2698>
3. Garmanova O.Yu. Organizational and methodical support of distance education (the case of economic internet-school at ISEDT RAS Science and education centre). Problems of development of territories. 2012. No.5(61).
4. Science indicators: 2013: statistical digest. Moscow: NRU HSE, 2013.
5. Innovation policy: Russia and the world: 2002–2010. Under the general editorship of N.I. Ivanova and V.V. Ivanov; Russian Academy of Sciences. Moscow: Nauka, 2011.
6. Concept 2020.
7. Leonidova G.V., Kulikova A.V., Kukushkina M.V. Research and Education Centre: systemic approach to the work with talented youth. Vologda: VSCC CEMI RAS, 2008.
8. Leonidova G.V. Regional research and education centre. Vologda: VSCC CEMI RAS, 2007.
9. Terebova S.V., Vyacheslavov A.M. Modernization of the system for the regional research and innovation sphere development management: final report on R&D. Vologda, 2013.
10. Science. Innovation. Information society: 2012: concise statistical digest. Moscow: NRU HSE, 2012.
11. Ilyin V. A., Shabunova A. A., Popova V.I., Leonidova G.V., Garmanova O.Yu., Yegorikhina S.Yu., Koroleva I.A., Kulakova A.B., Fomina Zh.V. “ISEDT RAS Research and Education Centre: 10 years. From inception to implementation”. Book 1: Subsystem of additional education. Vologda: ISEDT RAS, 2013.
12. Popova V.I., Yegorikhina S.Yu., Zhdanova L.V., Koroleva I.A., Kulakova A.B. “ISEDT RAS Research and Education Centre: 10 years. From inception to implementation”. Book 2: Subsystem of postgraduate studies. Vologda: ISEDT RAS, 2013.
13. Ilyin V.A., Gulin K.A., Leonidova G.V. The extended reproduction of research staff as the key link in the progressive development of territories. Priorities of scientific and technological development of the North-West of Russia. Materials of the session of the Inter-Agency Northwestern Coordination Council under RAS on fundamental and applied research. Under general editorship of V.V. Okrepilov. Saint Petersburg: SUAI, 2011. P. 144-161.
14. Verbatim report of the meeting of the Presidium of the State Council, the Council for Culture and Arts and the Council for Science, Technologies and Education. April 22, 2010. Available at: <http://www.kremlin.ru/transcripts/7530>. Retrieved May 12, 2010.
15. Fomina Zh.V. Students’ research activity as a component of the competency building approach in education (in the case of ISEDT RAS Scientific and educational centre). Problems of development of territories. 2013. No.2(64). P. 113-123.