Research in non-metropolitan universities as a new stage of science development in Russia

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The tremendous social and political changes that culminated in the Soviet Union’s dissolution had a great impact on the Russian science community. Due to the Russian transformation to a market economy a new model of R&D emerged on the basis of the higher education system (R&D in universities). This paper is part of a project, the main goals of which were to analyse the impact of competitive funding on R&D in provincial universities, the distribution of funding by the Russian Foundation for Basic Research, and the level of cross-sectoral and international collaboration. This paper gives a descriptive overview of R&D conducted at the 380 provincial universities, looking at 9,800 applications, 1,950 research projects, 19,981 individuals, and more than 29,600 publications for the period 1996–2001. Our data demonstrated a positive tendency in demographic statistics in the provinces. A map of intra-national collaboration taking place in 1995–2002 in provincial universities situated in different economic regions was designed. Our data show a strong collaboration within the regions, which is an important factor of sustainability. Publication output grew by a factor two or two-and half in six years. The share in output on mathematics was the highest at about 45%, physics and chemistry had equal shares of about 20% each. Researchers from the Ural and Povolzh’e regions were more active in knowledge dissemination than their colleagues from the other nine economic-geographic regions. Bibliometric analysis of more than 1,450 international collaborative publications for 1999–2001 demonstrated a strong shift in collaboration partners from Former East Block and former USSR countries to Western Europe, USA and Japan. Among the regions, Povolzh’e, Ural, Volgo-Vyat sky and Central Chernozem’e demonstrated a stronger tendency to collaborate. This collaboration depends heavily on financial support from foreign countries.

Introduction

Russian science has an excellent track record for world-class scientific research, which was conducted in the research institutes under the umbrella of the Academy of Science of the USSR (now the Russian Academy of Sciences). Universities and higher
education institutes were involved in teaching students and played an insignificant role
in basic research (exceptions were Moscow State University and St-Petersburg State
University).

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dissolution had a great impact on the Russian science community. Due to the Russian
transformation to a market economy a new model of R&D emerged within the higher
education system (R&D in universities). There are three kinds of agencies involved in
the higher education system in Russia: universities, higher education institutes and
academies (not to be confused with the Russian Academy of Sciences). To facilitate the
reading, we call all of them “universities”. Recently published results of comprehensive
research devoted to R&D in post-Soviet Russia (RADOCEVIC, 2003) emphasised that the
restructuring process of R&D is slow. The role of provincial universities (PU) in R&D
and the changes taking place were completely neglected. However, it is impossible to
evaluate new trends in R&D in Russia without tracing changes in higher education
institutions. The development of research in higher education institutions and the
involvement of the young generation are very important factors for the future prosperity
in the provinces as well as in Russia as a whole. As the higher education system is
going through speedy changes, it attracts financial resources for its transformation from
the population. In 1993 the Russian government started to co-fund regionally oriented
programs, which currently amount to 0.3% of the federal R&D budget*. In 2002, an
additional sum of more than $1.7 million (about 50 million rubles) was assigned to
support basic research in the regions. In addition, the Russian Foundation for Basic
Research (RFBR) and the governments of 41 regions funded these programs (there are
89 geographic regions in Russia, not to be confused with the 12 economic regions).
These joint programs focused on research subjects, which could be important for the
local economy. As a consequence of the new government funding policy, particularly
the multi-channel system of competitive funding, the provincial universities became
serious players and partners of academic institutions and industry inside of Russia as
much as outside.

Moreover, in the provinces the new local elite became aware of the necessity of
science for stability and prosperity in the region. Life in the provinces is much harder
and local universities face more financial problems than their colleagues in megapolis.
Today, government support covers only office expenses (including utilities) and a part
of salary costs. Salaries of scientists are low and grant money is essential for the support
of scientists’ families. Another observation concerns the growing interest in regional
collaboration. In 1995, less than one-quarter of all academic papers involved cross-
sectorial collaboration in the USA (Science & Technology Indicators, 1998). A
preliminary analysis of selected data from the RFBR database has shown a similar

* The RFBR budget is usually between 5-7% of the total federal R&D budget.