

A.Nekipelov

Modernization of Basic Research in
Russia: Russian Academy of
Sciences (RAS) Vision



Joint Session of Russian Academy of
Sciences, Institute of France Academy of
Sciences and Academy of Technology of
France

Paris, 2010, September 28

RAS in Russian Basic Science Potential (per cent, 2008)

	Russian Federation	RAS
Research Organizations	100,0	12,7
Overall Personnel	100,0	12,3
Researchers	100,0	14,6
Candidates of Science (% of researchers)	20,2	43,0
Doctors of Science (% of researchers)	6,7	19

Distribution of RAS Researchers by Fields of Science (per cent, 2008)

Natural Science	72,6
Technical Science	12,8
Medical Science	0,4
Agricultural Science	0,5
Social Science	6,0
Humanities	7,6



Self-Governance as a Major Principle

- ◆ Autonomy in setting research priorities and funds distribution
- ◆ Autonomy in property use
- ◆ Autonomy in foundation, transformation and liquidation of RAS organizations
- ◆ Autonomy in promoting researchers and electing RAS officials (secret ballot at each level)




What is Discussion About?

- ◆ What kind of basic science does Russia need?
- ◆ What are the optimum relations between high education and research spheres?
- ◆ Who is the main actor in research: an institute or a laboratory?
- ◆ What is the role of formal indicators in estimation of basic research efficiency?
- ◆ How to finance basic research: on the basis of financial estimates for research institutes or through grants extended to individual laboratories?



Our Opponents View

- ◆ Russian Federation cannot afford a multilaterally directed basic research; limited funds should be allocated to a small number of efficient basic research areas
- ◆ Russian Federation does not have enough potential for multilaterally directed basic research
- ◆ Laboratory should be a basic unit in research
- ◆ Number of publications along with impact factors of magazines are major indicators of efficiency
- ◆ Financing should be limited to grants extended to laboratories
- ◆ Basic research should be step by step shifted to high school institutions; RAS is intrinsically inefficient bureaucratic organization



RAS Efficiency (calculations by prof. A.Varshavsky – CEMI RAS - on the basis of Essential Science Indicators data)

	Russia	RAS
Number of publications for \$1 mln. financing (ppp)	16,6	70,7
Place	22	1
Number of quotations for \$1 mln. Financing (ppp)	58,1	269,5
Place	33	4
Dinamics of quotations: 1997-2007 number compared to 1998-2008 number	+7%	+16%



On the Optimum Size and Configuration of Basic Science

- ◆ The optimum size depends on the strategic goals of Russia:
 - If the country's aim is to become one of those states, which determine the path of mankind's development, then multilaterally developed scientific potential is an important asset;
 - If the aim is just to maximize income from utilization of rich natural resources, then it is a burden
- ◆ The assertion that Russian science lacks necessary personnel of researchers does not comply with the reality



Research Institutes or Laboratories?

- ◆ Research institute is not just a superstructure upon autonomous laboratories aimed to make economy on some common costs
- ◆ RAS research institute is an important scientific unit which deals with major scientific problems, formulating research directions and providing for internal (between its own laboratories) and external co-operation



Financing

- ◆ The problem is not in efficiency or inefficiency of this or that way of financing; the crucial issue is how research topics are selected – in a bureaucratic way or on a basis of competition
- ◆ We have never denied utility of grant financing, but we believe that, in our case, it is especially useful for screening new ideas proposed by individual scientists and their small groups
- ◆ Financial estimates are good when direction of research has been chosen and stability becomes essential. They create adequate conditions for the development of scientific schools



Research and Education

- ◆ Research in high school should be step by step restored. But it should not be done at the expense of the RAS
- ◆ Balanced development of science in academic and high school spheres, maintenance of different channels and mechanisms of financing is the best strategy
- ◆ Policy aiming to shift all basic research in Universities will produce much turbulence and will lead to huge losses



RAS Problem No One

Distribution of Researchers by age (end of 2008)

	Share of the Total
Up to 29	13,5
30-39	14,8
40-49	15,5
50-59	24,1
More than 60	32



Research Equipment

Value of Research Tools and Instruments for a Researcher (Thousand rubles, end of 2008)

Russian Federation	40,0
RAS	52,3



Internal Improvements

- ◆ Searching for balance between stability and flexibility in the organizational structure
- ◆ Raising competition in research topics selection
- ◆ Better quality of internal expertise
- ◆ Using formal indicators for better estimation of the quality of research



Commercialization of Applied Research Results

- ◆ The problem of separating budget and commercial financial flows directions of use within RAS research institutes
- ◆ Creating State holding company to manage the problem of realization (together with business) of innovative projects based on applied research results obtained by RAS institutes



International Co-Operation

- ◆ Is RAS really a scientific organization, which is afraid of international competition?
- ◆ The prospects of boosting co-operation in research between European units and RAS laboratories and institutes



Merci Beaucoup!