

Moscow State University: Problems and Objectives

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A Special Responsibility

The unique situation developing in Russia and in the other former Soviet states demands a non-traditional approach to solving everything that, only yesterday, was accepted as ordinary, obvious and natural. Similarly, the current processes and transformations are irreversibly changing the face of the country—processes which are hard to grasp with an established mindset.

Moscow State University (MGU) is an example of an institution which finds these transformations hard to accept quickly. In this article, I attempt to communicate to the American reader what my vision is of MGU and of its role within these changing times. I believe this vision is of interest because Russia's revival cannot be separated from the future of its oldest and most prestigious university.

During this revival in Russia, no one questions that MGU has a special role to play. Yet at the same time, it is a great responsibility that no one else can manage. Setting aside false modesty, MGU has always been and will remain the symbol of hope and mainstay of Russian statehood because of the “university centrism” which is Russia's national feature and value. In this vein, let me point out that only universities are capable of preserving a constant growth of the nation's intellectual potential as well as guaranteeing a sustained development of democratic institutions in a civilized society.

Moscow State University: A Portrait of Today

Moscow State University, founded in 1755 by the great Russian scientist M.V. Lomonosov, is now the leading educational and scientific center used for the training of highly skilled specialists and the implementation of fundamental and applied research in various fields of knowledge.

Today, MGU has over 25,000 students. More than 5,000 of them are post-graduates who receive their education in 45 disciplines at 16 natural-science and humanities colleges (“faculties” in Russian), which include: Mechanics and Mathematics, Computer Mathematics and Cybernetics, Physics, Chemistry, Biology, Social Sciences, Geology, Geography, History, Philology, Philosophy, Economy, Law, Journalism, Psychology and Sociology, as well as the Institute of Asian and African Countries.

The colleges comprise about 300 chairs and over 400 laboratories. MGU

also has research institutes for: nuclear physics, astronomy, mechanics, chemical physics, biology, anthropology and microcosm physics. In addition, there is a research computing center, a museum of geography, an international training and research laser center, a center for new information technologies, a higher college of material sciences, centers for social sciences and humanities, and training centers in the field of ecology and the rational use of natural resources. The availability of a solid scientific basis enables MGU to enhance the educational process by combining undergraduate and post-graduate students in research activities.

Many renowned scientific schools have been created in MGU. Studies are being conducted in various directions, covering nearly the whole spectrum of modern fundamental problems of mathematics, mathematical modeling in scientific and technical systems, control of non-linear dynamic objects, fine organic syntheses, development of new methods and instruments for high-efficiency analysis of substances and materials, low temperature superconductivity, ecology and the development of biological systems, comprehensive studies of irregularities in the Earth's structure and evolution, ecogeochemistry, mechanics of strained bodies, key problems of modern astronomy, studies of new regularities in nuclear interactions, laser systems, and other modern sciences. Such a wide range of fields can be covered comprehensively and adequately only by a team with a strong scientific potential (more than 1,200 doctoral scientists and 5,000 masters of sciences work at MGU).

The Nation's Turning Point: Difficult Times for Universities

Could anyone five to ten years ago have seriously predicted the landslide disintegration of the USSR, in which all Russians were both eye-witnesses and accomplices? Can anyone make a perspicuous statement about the global implications which this sudden change will hold for us, the former Soviet people, and the future of the world as a whole? The upheaval was too sudden, and perhaps even more devastating than some geological cataclysms. However, this may not be the end of the story. Even the most sophisticated minds fail to imagine what will occur if Russia itself collapses.

Instability is everywhere and in everything—these are our living standards of today. Under the conditions of the country's economic crisis, Russian higher education, along with other socio-cultural areas, finds itself in an extremely vulnerable position. Even leading universities face serious financial problems. The existing level of financing is not enough to pay salaries and scholarships, let alone ensure minimal operating costs. There are practically no funds for updating the material base, developing international connections and bridging the present gigantic gap between the developed countries and Russia in information, communications and the support of research.

Inflation alone is not responsible for the financial difficulties of higher

education. The conditions of the crisis create inappropriate competition between mainly different budgets such as education, health care and culture. The unstable economic situation also limits the inflow of extra-budgetary funds, because of the reduced incentives for enterprises to invest in science, capital modernization and the retraining of personnel. To make things worse, there is no due awareness in society concerning the importance of long-term investments in education and the fundamental sciences as a precondition for sustained economic growth and renovation.

Brain Drain

In recent years, Russia's brain drain, which presents a great danger for our society, has gained a new momentum and has even assumed hurricane proportions. This phenomenon is of a dual character—external and internal. The external brain drain is the massive emigration of many able researchers, scientists, teachers and post-graduate students, sometimes even resulting in the “depopulation” of an entire scientific field.

Every day I see on my desk more and more messages from eminent professors or young talented people: “. . . it is a great pain for me to leave,

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but here in the Motherland my cause, my science do not stand high any more, my family is on the brink of poverty . . . I resign.” According to the news agency France Presse, about 1.5 million Russian scientists will go abroad in the near future. Those who leave are mainly professors and teachers of the most prom-

ising age of 25 to 35 years.

The internal brain drain, which by its scale and long-term implications is no less dangerous for society than the external one, is when young talented specialists in the sphere of science and education change their careers for that of crude commerce. The reason for this phenomenon is the serious deterioration of living and working conditions for scientists and teachers, and a sharp fall in the prestige of intellectual work. Today, even a professor's salary (about the equivalent of \$18 a month) is less than that of many workers in the public sector, and virtually incomparable with the income gained in commercial activities.

The University and State Authorities

To be frank, relations between the government and the institutions of higher learning in Russia were not always bright and cordial.

The history of Russian universities shows that for more than two centuries the state authorities often hindered the development of university education,

when they were unable to benefit from it directly and immediately. All attempts to put the development of universities on a priority basis and to gain recognition of their leading role in the life of society, ran against enormous difficulties. The extent of social, economic and political confidence in higher education, and universities in particular, greatly varied. The extreme cases were the dark years of 1848, 1905 and 1918, when the Russian professorate was virtually thrown out of the country.

The situation becomes even more disturbing when considering the social view of education and science in general—namely, the belief that society lives in the present and at best, in the immediate future. But science in their eyes is a matter of the distant future. Therefore, science and higher education can wait. Is this where the concept of the so-called “redundancy of science in Russia” comes from? Actually, in Russia redundancy is not found in science or in higher education, but in the bureaucratic structures that were built over them through the years. This mess of local, municipal, regional, and other officials muffles and distorts the voices of true scientists and eventually seems capable of bringing to nought governmental decisions as well.

It has been calculated that throughout the history of mankind, there have been 31 civilizations on Earth. Twenty of them have died away because their spiritual forces were exhausted. Is it possible that the Russian civilization will be the 21st in the list as a result of its attitude towards higher education and science?

Survival and Development of MGU

At present, Russia is experiencing hard times, and this makes very urgent the problem of Moscow State's survival.

For the first time, the existing revenues are just enough to maintain the present precarious balance. There is enough only for paying salaries and covering fixed operating costs. Such a situation may lead in the nearest future to the degradation of research departments, which will be deprived of even minimal possibilities to update their material base, threatening the country with an irreversible decline in parity with world science.

Taking into account its role and responsibility towards the future of the nation, MGU has all the reasons to expect from the government a due awareness of science and education priorities. Besides financing of the basic fixed budget, we are hoping to obtain extra funds by bidding for the implementation of various research and educational programs.

To keep its role and its standing, MGU should evolve. My credo is stability through innovation and renovation—which can be achieved only by a continuous acceleration and by a continuous search of new opportunities and approaches. What conditions are there for the university's development and what guidelines should be adopted during these hard times?

Autonomy

By the Russian presidential decree “on M.V. Lomonosov, Moscow State University” of 24 January 1992, MGU received the status of a self-governed state institution of higher learning, acting on the basis of Russian Federation legislation and on its own statutes.

The status granted to MGU stipulates the extent of its independence not from the Russian state, as many think, but from government bureaucrats. I am a supporter of active cooperation with the government, and MGU’s destiny is not to stand apart from state affairs, to just “stand idly by” and refuse to have its own opinion and strategies. It would be contrary to the interests of Russia, and would cause irreparable damage since MGU is a force of national magnitude. But at the same time, the definition of “state” needs a new interpretation, taking into account the radical revision of state

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foundations, and the movement to privatization and market relations. In fact, the content of autonomy should accumulate and reflect the individual character of MGU as an institution responsible to Russia, but not subjugated to any of its governmental structures.

Autonomy should help MGU protect first of all, its professional standing, its reputed “trademark” in Russia and abroad. MGU cannot

afford, out of simple feelings of “equality and brotherhood,” intentionally to reduce its prestige and academic weight. It must attract the best minds on the basis of intellectual capacity and nothing else.

Autonomy should also protect MGU economically, first of all from the onslaught of the “wild market.” Here we find a crucial problem with the right to property, both movable and immovable. The rejection of the archaic interpretation of the term “state,” as mentioned earlier, is a necessary, although insufficient, precondition for the economic stability of MGU. But such a step is inevitable and must not be delayed.

Democratization of Management

A new impetus for the development of MGU rests on the success of the ongoing reorganization of its management system.

The rector’s office should cease to be a bureaucratic superstructure engaged in micromanaging—a practice which only bred misunderstanding with the rest of the university staff. Instead, it should be a focal point, a generator of ideas for the benefit and overall integrity of MGU and of its colleges.

This is closely related to the principles of management and development of democratic standards in intra-university relations. All pertinent matters of MGU life, including the election of the rector, should be solved by the Academic Council. I welcome that not-so-distant future when the actions of the rector will no longer be a surprise for the staff, and when an atmosphere of mutual trust is maintained through a permanent dialogue between the colleges, institutions, researchers and teachers.

Scientific Policy

Insofar as a modern university is concerned, fundamental research is a basis and a guarantee of high-level performance. In the organization of research work, MGU focuses on creating the necessary conditions so that every research team and every scientist will have all available possibilities for self-development and wide interaction with other scientific schools and disciplines, as well as the maximum utilization of the results obtained. Such results, including late-breaking achievements, should be reflected in the educational process. In order to achieve its mission, MGU must have up-to-date laboratories, instruments and computer equipment, with an adequate engineering and technical staff support. We would like to see MGU, while maintaining its individuality, be integrated into the international sphere of science and rank high among its counterparts.

A matter of priority for us is the development of a more effective library service. Since the construction of a new library will take several years, the main tasks for us now are to introduce new information technologies, organize efficient and quick access to book depositories and modernize existing libraries. MGU is capable and prepared to become the center of a library computer network for the entire Russian Federation higher education system. The relevant modern software has already been developed and successfully operated in the University Library for two years. If created, this would be the first library computer network in Russia, and soon after that it should quickly become international as we shall be organizing access to library computer networks of foreign universities. By the way, the world's first similar network was set up in the U.S. also by universities. It would be possible to reduce initial operating and setup costs by integrating MGU to international educational programs, for instance, those of UNESCO.

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Training of Specialists

The most important part of the university's work is training specialists. First of all, we wish and expect that specialists trained at MGU will form the

intellectual elite of Russian society. Be they graduates who enter science, or those who take practical jobs—all should contribute to upgrading the intellectual level of society. Consequently, we focus our attention on the quality of training.

The educational process as such should provide for a synthesis of learning and research, as well as an inflow of new ideas, in order to bring undergraduate and post-graduate students to the frontline of science, to the boundaries of the unknown. We would like every researcher at MGU to be a teacher, and every teacher—a researcher.

One of our main priorities now is to integrate MGU into the world educational system, while preserving the traditions and experiences gained by many generations of our predecessors.

Such integration in the world educational system requires the convertibility of the MGU diploma. To achieve this, MGU is implementing some standards at the university level, though most colleges or faculties within the university are charting courses of their own. At some MGU colleges—for instance, the economic ones—the first steps have been made to introduce a two-stage system of education. The College of Economics now is more and more engaged in training specialists for state administration and private business. The three-year experience of the Management School, functioning on the basis of this college, foreshadows the planning of a Business School—which soon could be a practical reality. Under a four-year bachelors' program and a two-year masters', this School will be able to train managers for all types of economic activities.

However, the very character of university education—broad, fundamental, interdisciplinary—necessitates the formulation of a general concept of multi-stage education for MGU as a whole. Such a concept should consolidate inter-faculty relations, ensure the constant fluidity of ideas and methods between disciplines, and make appropriate use of each college's potential in the interests of the university as a whole.

Development of International Contacts

As mentioned earlier, the integration of MGU into an international system of education and large scientific-educational programs (International University Association, Conference of European Rectors, educational and research programs of the European Community, NATO, UNESCO and others), is a top priority for the present university administration. It is clear, however, that such large-scale participation in international scientific projects cannot be achieved without the professional employment of our researchers in foreign countries. For that, necessary conditions should be created so that researchers from MGU can work on a temporary basis in various foreign scientific centers and, at the same time, ensure that the scientific exchange would not become a one-way export of knowledge and a brain drain.

We must widely use modern systems of international communications —telex, telefax, electronic mail, as well as direct access to telephone and other communication lines to our foreign colleagues, in order to access their data banks and data bases through satellite stations.

New Colleges

The development of new scientific trends, especially interdisciplinary ones, is in harmony with MGU's mission as an innovator and a pioneer in scientific thinking and research. One such trend is the complex of problems related to the study of man.

Last year we opened the College of Fundamental Medicine, which will train not practical physicians (this task is successfully carried out by the existing medical institutes and academies), but medical researchers with a broad university background. These specialists are to fill the still-empty niche between practical physicians and researchers in various fields whose works may be used in medicine and pharmacology. This college will be the focal point of the fundamental research being carried out in various colleges of MGU: Biology, Chemistry, Physics, Psychology, the Institute of Mechanics and others.

In many developed universities, having medical faculties and university clinics is an important economic and social factor. Implementation of this project will require minimal start-up financing. Moreover, the investments very quickly will be repaid because, as known, developments in medicine and pharmacology are valued extremely high and bring large profits. The College of Fundamental Medicine, if its future is as successful as I predict, could become the nucleus of a future College of Man, a phenomenon already appearing in some leading universities of the world.

The purpose of this new College of Man would be to start fundamental research in key problems of national and world culture, as well as the training of specialists needed for the organization of modern sciences. By setting up this College, MGU lives up to the standards and legacies established by several illustrious Russian personalities of science and culture: academicians Ivanov, Likhachev, Raushenbakh, Tolstoy, Averintsev.

MGU also lays great hopes on the development project in its new territory across Lomonosov Avenue. The necessity of new construction has been clear for a long time already. Today, the working area per staff member is three times less than stipulated by standards; we still need a building for the Fundamental Library, as well as more dormitories, sport facilities, canteens, etc.

The development of the new territory, with the construction of, first of all, the Fundamental Library building, classroom blocks, sports grounds, recreational centers and socio-cultural facilities will permit us to solve a double problem: first, create necessary facilities for MGU and, second,

remove from this part of south-east Moscow old factories and dumps, thus improving the environmental condition of the area.

The University in Market Conditions: Science Park

The further development of MGU under the present market conditions is inconceivable without creating new structures, such as the futuristic Science Park.

At present, the traditional forms of organizing innovative processes are being replaced by new methods and schemes which have the market and business opportunities as their nucleus. So in order to adapt itself to modern times, MGU is using the market to promote science, a practice already working well in most developed countries, namely with the use of science and technology “parks.”

As a rule, they appear near large universities or scientific centers, and their purpose is to improve the transfer of research findings into applied sciences or commercial production—a sorely needed process in Russia. To function usefully, science and technology parks should have not only a “brain center” and skilled personnel, but also a developed servicing, technical, economic and social infrastructure. Already today, the MGU complex on Sparrow Hills adequately meets all of the above requirements.

All these promising considerations led to the decision to establish the Moscow State University Science Park—the first of its kind in Russia. In this case (and unlike the traditional model), the MGU Science Park is intended to be not only an incubator for young hi-tech firms, but also a testing ground for advanced applied technologies and implementation of large-scale programs in such areas as telecommunication, biotechnology, laser technology and environmental monitoring. In brief, the MGU Science Park is an innovative structure for Russia, whose purpose is to maintain and improve information, technological and human interaction between university science and industry.

In the Science Park, situated in a picturesque landscape near the University Botanical Garden, there are eight laboratory buildings with a total area of 4,000 square meters, and an antenna site with two satellite communication antennas operating in INTELSAT and EUTELSAT systems, a hotel, storage facilities, various auxiliary structures, and a garage and parking lot.

The experience of other countries shows that science and technology parks involve in the sphere of their activity universities and industries, and also allow an integrated approach to problems of innovation, including wide possibilities to enlist extra-budgetary financing.

On 29 May 1992, the first stage of the MGU Science Park was inaugurated. The second stage may be constructed in the new territory, where it will be possible to host a business center and research laboratories, and organize hi-tech production (thus permitting to add the word “technological” to the name

of the Park). These are our plans to develop the Science Park and the university as a whole.

Free Education

A few words should be said about the idea of paid education, an idea voiced more and more often these days. One should not cherish illusions that taking money for education would greatly improve the financial situation of universities. As a matter of comparison, I may note that in U.S. state universities the share of education fees in the total volume of financing is less than 15 percent. Certainly, universities should widen the range of paid educational services. However, in the existing economic conditions in Russia, talented young people must have the possibility to get higher education free of charge.

Today, the cost of a university education may reach hundreds of thousands of rubles. Who in Russia can afford to pay such money? Perhaps, we should agree that in our country MGU has a special role to play. It is a national center, where every talent should be protected and supported, irrespective of financial means. Therefore, we use and must continue to use as the main admission criterium talent as opposed to financial standing.

Russia Benefits from Supporting Universities

In conclusion, I would like to recall a well-known truth: the path to a country's future is paved with prosperity for its universities. Economizing in science and education now leads to a competitive loss in many vital directions, and later on even multi-billion dollar expenses may not make a dent for the better. No country could ever build an efficient economic system without continuously increasing allocations for development of its universities. Most developed countries support and take care of universities not because they are too rich—on the contrary, they are rich because they do so.

Funds allocated to universities will be used by them with maximum efficiency and high returns. The guaranteed result is a high intellectual potential of the university staff; their receptivity to scientific innovations, including international ones; rapid dissemination of scientific information; the possibility of research in all fields of knowledge, including interdisciplinary research; the implementation of new discoveries into industrial production; as well as the possibility to involve talented young people in scientific work.

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Summarizing, I would like to stress once again: it is necessary to save universities, and as quickly as possible. This is the only way to preserve the potential for the future cultural, intellectual and economic revival of Russia.

Even a short (one or two years) break in the research momentum of university specialists may turn into irreparable losses for many future generations.

MGU has no other goal except to serve mankind. All of its activity is directed to gaining, transferring and disseminating new knowledge, which is an indispensable precondition for the development of human civilization.

Today, the fulfillment of this noble mission is endangered. To save the university, a special Moscow University Fund was set up, which is a charitable public organization. This Fund** receives grants from organizations and citizens wishing to help MGU in these hard times. The management of the Fund is carried out by the Fund's Supervisory Board, whose members are independent eminent scientists.

MGU greatly appreciates this help and support, and will keep those who perform such noble deeds in the memory of the many generations of people who have built our university into what it is today.

** Editor's note: The Moscow University Fund receives contributions via its account, No. 700322, Lenin District branch of the Moscow Business Bank, MAO 201188.