

advantage for the country, including agriculture, and oil and gas sector. Educational and research grants provided by the Ministry of Education, as well as international training and experience provided within the Presidential Bolashak scholarship, are allocated in accordance with the strategic areas identified in the industrial-innovation policy and clearly favor hard sciences. For example, our analysis of the official statistics for the grant period of 2013–2014 shows that only 14% (320 out of 2,273) grants for research projects were allocated to humanities and social sciences. All other things equal, a researcher or student from social sciences or humanities has much fewer chances of being supported with government funding than a natural scientist or a researcher in engineering due to their minor strategic relevance.

The social sciences which do get support from the government of Kazakhstan are essentially the same as in the Soviet times for — ultimately — the same reason: their importance in formulating official ethnical policy and ideology. The only difference is that researchers in the fields are now pre-occupied with re-interpreting the past story of the cultural, political, and economic development of Kazakhstan to provide evidence of greater importance of the Kazakh ethnos and its culture and history than previously argued. In addition to that, linguistics is actively supported too as it plays tremendous role in the present-day language policy aimed at increased use of the Kazakh language in the country.

Finally, two areas of applied research in social sciences are becoming more important in Kazakhstan due to their importance for reforms success. One area is business administration and management, which was non-existent in the Soviet Union and which has, as a result, become highly influenced by and quickly integrated into the international research agenda. An analysis of Web of Science publications in Kazakhstan during the period 1999–2011 shows that business and economics research occupies the fifteenth place (86 out of the total of 4,612 journal publications) in terms of publication count, following a number of historically highly productive disciplines in natural sciences. They are published in both Russian and international business and economics journals. Another area is public policy and political science, capacity building in which was supported by both the government and donor agencies in order to assure basic evaluation of the conducted reforms and to inform subsequent initiatives.



## The Plod of Sectorial Higher Education? The Case of Agricultural Universities in Russia

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### Sectoral Approach to State Education Policy to Be Revised

The focus on engineering education has become locus communis and subject of special attention on behalf of the state in many countries. In the case of Russia, this trend has its specific features in the context of transformation of the Soviet quasi-corporate model of cadre production for industries.<sup>1</sup> Russia still has a lot of universities aimed at training specialized personnel for particular sectors of the economy that are subordinate to sectoral ministries. Recently there have been a lot of discussions around the new role of sectoral ministries in higher education. Do higher education sectors previously aligned to industries still need some specific state regulation in terms of subordination to corresponding ministries, particular resource management and curriculum? Does sectoral approach have a right to exist in the new social reality and market-shaped economy, and what are the limits and constraints?

This essay addresses the issue as regards to agricultural higher education. We think that our findings might have significance for other sectors of higher education as well.

### Machine for Cadre Production: Historical Context

One should understand the history of agricultural education in Russia. The Soviet system of higher education addressed the needs of a centrally planned economy. It was characterized by disciplinary separation, and universities were controlled by sector ministries.

Each ministry had a number of universities that covered rather narrow, fragmented and industry-oriented fields of study, enclosing students into narrow professional framework. By 1990, 896 higher educational institutions (HEI) of the Soviet Union fell under 70 state agencies and organizations. The main role of the state in the economic sphere was planning production volumes through a sophisticated system of calculating input-output intersectoral and interregional balances. This was also relevant to the higher education sector as a sort of industry that produced workforce. The number of students, range of specialization and programs for each institution were planned in accordance with the prescheduled needs of various industries.

The network of agricultural universities had dozens of educational institutions located in all the Soviet republics. According to the Great Soviet Encyclopedia, in 1940, there were 67 agricultural universities (with 52 000 students) and 256 colleges (115 000 students), and by 1975 the number of universities and colleges had increased to 100 and 621 respectively, with the total enrolment of more than 1 mln (including 430 000 in universities). Now agricultural education is provided by 59 universities and 43 branches in 58 regions. All of them are subordinate to the Ministry of Agriculture. Besides, there are 27 agricultural departments in the universities under the Ministry of Education, and more than 270 vocational colleges, mostly governed by regional authorities.

Many organizational features have changed since Soviet times: mandatory job placement has disappeared, private higher education and fee-paying education have emerged, state-imposed curriculum has become more flexible. However, the most important features of sectoral higher education remain rather rigid and stable. It can be explained by the fact that the set of these higher education institutions remained under the Ministry of Agriculture that preserved their identity.

### **Low Competition, Poor Output**

Agricultural universities have been affected by declining enrolments and lack of popularity among school graduates. According to recent data (FIS Priem), agricultural HEIs attract comparatively the lowest share of school-leavers from outer regions. Most agricultural universities host less prepared school graduates. The average Unified State Exam (USE) score for full-time students of agricultural universities is 53 out of 100 among state-financed students and 52 out of 100 among self-financed students (the lowest score across all HEI types). None of the agricultural universities has USE average above 70. Thus, the main factor of competition seems to be lowering entrance barriers and attracting local high school graduates who do aren't aiming for better education but rather looking for the safest way to get a higher education diploma.

Agricultural universities attract students with poor STEM background. Only 13% of them score well in math during USE (above 63 points). About 50% of them score below 40. In addition, there are virtually no students with math score above 80. Over 80% of the students score less than 50 in physics. Chemistry exam scores are similarly low among agriculture students: only slightly more than 10% of them get more than 70; about half of them students passed the exam with less than 50 points. Therefore the freshmen of agricultural universities are poorly prepared for the mastering courses in agroengineering and agrobiological.

Poor input leads to low demand from employers and low return on education. There is relatively high unemployment rate among graduates of agricultural majors. More than half of them earn less than 20 000 rubles per month (less than 300 USD), the worst rate among young specialists.

At the same time the question is, does Russian economy need so many specialists in agriculture? According to federal statistics, the average number of the people employed in the agricultural sector in Russia decreased from 7.5 mln to 6.5 mln in 2005–2014, while the number of agriculture students remained stable. Every tenth student in Russia now studies at an agricultural university.

### **Curriculum and Internal Differentiation**

Educational programs in both agricultural colleges and universities still are highly specialized. Specialized training programs usually are rather isolated and inflexible within one university, so the students of different programs get different diplomas. It is common that students cannot take classes outside their departments and are destined to graduate in a pre-determined field of study with specific skills without any options to modify the course of their education. Interdisciplinary courses are still rare. Teaching objectives stated in the curriculum stress the importance of increasing output, with little regard to economic efficiency, product quality, environmental consequences, and technologies of the so-called post-harvesting era.

We see that one of the reasons for this outdated curriculum is the current structure of the industry. Marketization and land privatization have not yet created a large array of private farms (such hold only 7% of agro-production turnover) to boost demand for agricultural specialists trained to face the challenges of private farming.

More and more courses on social sciences and humanities have been appearing in agricultural universities since the 1990s when the process of higher education massification began. A shift towards more managers and economists tend to push out traditional, engineering-related fields of study. According to university efficiency survey by the Ministry of Education, the share of agriculture students at agricultural HEIs under the Ministry of Agriculture (as classified by UNESCO) is about 48%. Almost one-third of the students of agricultural universities are now studying social sciences.

Such disciplines as economics, law and management (mostly reserved for self-financed students) have become one of the few sources of funding for agricultural universities facing underinvestment. The social sciences programs could also become a source of multidisciplinary approach in these specialized universities. However, the major problem is that they have rather few linkages with the engineering and agronomy programs or with the best practices in the industry. There is lack of knowledge on new technologies and scientific achievements, on the one hand, and economic literacy to tackle the problems of private agricultural companies on the other. Finally, contemporary agro enterprises need more multidisciplinary skills and knowledge rather than fragmented specialized competences.

### Underfunding

As indicated earlier, higher education in agriculture used to be fully state-owned and funded. Now sectoral education has few sources of funding. It has almost lost any financial inflow from the industry. R&D market for the private sector is insignificant. At the same time, unlike many HEIs subordinate to the Ministry of Education, HEIs under other sectoral ministries (e.g., transport or agriculture) have relatively fewer resources and funding as they are, in fact, not included into state programs on education development and research funding (such as the 5/100 excellence initiative, federal and national research universities programs, etc). Even if sectoral ministries understand the importance of education, they usually don't have enough resources.

### Conclusion

Sectoral approach to higher education needs revision. Universities, previously attached to plan-driven industries, have become less popular, and are forced to compete for the least prepared high school graduates to maintain their capacity, which exceeds the industry's needs. The problem is deepened by and interrelated with low labor market demand for agricultural specialist. HEIs have failed to adjust to the new economic reality and haven't established links with their new counterparts. At the same time, sectoral ministries have lost their power, opportunities and responsibility over sectoral education. Their underfunded mandates and absence of R&D market alongside with massification process caused a shift to making on-demand social sciences and humanities programs one of the main sources of cross-funding. Thus, agricultural HEIs now often serve to separate segments: 1) state funded and highly specialized engineering programs of low demand and outdated curriculum; 2) more popular but industry-irrelevant, completely student-paid programs in social science. Agricultural HEIs are forced to seek resources to survive. One way of doing that would be to try match industry needs better. The state should step up as the higher edu-

cation sector still hasn't accustomed to new market economy. The connection with the sectoral ministry could help build stronger linkages with the industry. The state could introduce some specifically sector-oriented interventions like excellence initiatives and resource concentration, provision of up-to-date research in post-harvesting context, change of curriculum, providing students with the skills that would increase their employability.

### References

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## The Dominance of Social Sciences in English-Medium Instruction Universities in Central Asia

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This brief analysis of course offerings at three Central Asian universities that teach almost exclusively in English (known as English-Medium Instruction, or EMI) – Westminster International University Tashkent (WIUT) in Uzbekistan, the American University of Central Asia (AUCA) in Kyrgyzstan and KIMEP<sup>1</sup> University in Kazakhstan – identifies a strong trend towards social sciences, driven both by the universities themselves and by the context in which they operate. I do not attempt to unpack the role of EMI as part of the process of internationalization in higher education (see e.g. Doiz et al. 2013) but use this elite sub-set of Central Asian universities to demonstrate a remarkably clear disciplinary trend, one that would not be found in other institutional groupings in the region but which may have greater similarity with EMI universities around the world.