BULGARIA

'BRAIN DRAIN' IN TRANSITION OF SCIENCE

Summary of results

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Bulgaria is one of the specific cases of science development and 'Brain Drain'. Comparing with the other Central and Eastern European countries Bulgaria boasts highest numbers of students per thousand 24, (Estonia-12 per thousand, Slovenia - 20 , Poland - 11, the Czech Republic - 11). Bulgaria is one of the countries with the largest share of unemployed with higher education - 17% of all unemployed. The unemployment promotes the emigration attidues among scientist. The data indicates that the Bulgarian science personnel is ageing. Less and less young people work in the research institutions. Special measures are needed in this respect on the part of the government for encouraging young people. Before the reforms Bulgaria used to have a highest standard by the indicator "employed in science per capita" .Bulgaria comes second after the Czech Republic in loss of scientific staff during the transition. By the end of 1993 the number of scientists had dropped abruptly down to a lowest 5 per thousand within Central and Eastern Europe.The reductions of the personnel have been greatest for the scientists in technical and agricultural fields. Social and natural sciences did reduce, but not too considerably their number of scientists. And the medical sciences saw higher employment. Most importantly the most significant reductions in all countries of transition have been not anywhere else but in the technical sciences. Approximate calculations demonstrate that the monthly average wage of scientists in Bulgaria is among the lowest in Central and Eastern Europe.

Official statistics evidence mass emigration of people with higher education from Bulgaria in the first two years of the reforms, while their share in the overall outflow gradually diminishes. Is There Brain Drain from Bulgaria? It is definitely there if by brain-drain in the period of transition to democratic society and market economy we understand scientists leaving the country for periods longer than one year with the purpose of a long-term stay or settling down in the other country, where the scientist is professionally engaged in scientific work - yes, such a process is observable in Bulgaria. **The real brain-drain outflow is estimated at about 11.5% of the scientists who left the research institutes. The process is slowing down in terms of numbers of people after year 1992, yet a permanent outflow of scientists to foreign countries is recognizable.**

This process can hardly be formally expressed in quantitative terms, but of all scientists left for abroad only 13% are not engaged in scientific activities professionally - that is in its best part the emigration of scientists is virtually a brain-drain process. Conserning the qualitative characteristics of scientists who left the science definitely those with most favorable professional and demographic characteristics have gone abroad. Along these lines qualified specialists being lost by our science is a serious problem. Only 11% scientists who have emigrated abroad have returned. Public perception om brain drain was quite negative. The opposit is the opinion of scientists, deans and directors in science. The brain drain process is viewed as a period which is over and also as a kind of "price" which science is paying in exchange for its sociability.

The data indicates active scientific exchange at the present moment. While 576 people from the 106 institutes have emigrated, 530 are abroad under some kind of scientific exchange - that equals the number of people who left for the whole period after the changes. The scientific exchange is oriented mainly towards European countries, while the brain drain flow was directed mainly towards the USA.

Theleaving status of Bulgarian scientists, despite certain material acquisitions growing in quantitative terms, does not yet guarantee the stability of scientific personnel. These constitute an environment quite favourable for high internal and external migration attitudes. In this respect the relative drops of potential and real migration are rather illusive of stabilizing scientific personnel. As against the other countries Bulgarian scientists can be said to be more motivated in terms of their material condition to leave the country, much more so than the scientists in the Czech republic, Slovenia, Poland and Hungary.

As it became clear in the analysis of the brain-exchange processes, although in-between in this respect Bulgaria should be encouraged to participate in this process and the involvement of Bulgarian scientists in European programmes for scientific exchange should become one of the major paths of strategic scientific development of the country.

One of the most unexpected and essential results from the study of the potential migration of scientists from Central and Eastern Europe is the fact that according to the prevailing part of them foreign institutions look more for scientific product - much more than even the biggest domestic consumer - the state. This holds true for Romania, Hungary, Slovakia and Bulgaria. It can be assumed that among other factors this particular one plays immense a part for the high potential migration of scientists from these countries, mainly by means of both short-term and long-term forms of scientific exchange. The study confirmed the hypothesis that the countries more

demanding of scientific results create lower potential migration among their scientists.
Under the joint research methodology three groups of potential migrants were formed according to the readiness for migration abroad: firm migrants, hesitant migrants and firm non-migrants. The survey on potential migration of scientists indicated the following tendencies:

* No significant variation can be observed in the distributions of the factors impact on the refraining from migration intentions in the different CEECs.

* On the whole **the survey did not provide enough evidence of expected mass migration of scientists from Bulgaria**. At the same time, however, as was proved about the real migration of scientists it is expected representatives of the most highly qualified and professional group of scientists to leave the country for longer than one year, which itself should pose a problem. Besides as the study has shown potential migrants would very easily make emigration decisions. It would not have been grounded to assert that potential migration of scientists is solely conditioned by motives to do with their material status. Essential as these factors can be, our research has supplied evidence to the effects of the dissatisfaction with the role and place of scientist, the career opportunities, which remain important factors in the making of emigration decisions among scientists. The determined migrants qualify very high professionally, which might only mean that the migration of these scientists could not be but estimated as actual loss suffered by science and entire society.
The research showed considerable difference of direction of migration movements between determined and hesitating migrants. Whereas 24.5% of the determined potential migrants intend to emigrate to USA and 14.3% - to Germany; with the potential 20% are bound for Germany and 22.9% - to USA. With the determined migrants England comes third in their preference /13.6% of the sample/, and France - fourth /10.2%/. With potential emigrants these two countries present similar patterns. Still immensely attractive remains Canada as scientist migration destination, which is explicable in terms of the mass emigration movements of highly educated young Bulgarians there.

In evaluating the factors preventing scientists to leave the country the three groups show considerable diversity. Determined migrants take impediments as generally inessential, as long as they have already made up their minds managing to overcome some of those 'disconcerting' factors. Only 4.6% of the determined migrants have their stay funded by their present institute, 12.2% - by other organization in the country /foundation, fund, etc./, and in 89.9% of the cases by the receiving institute. This comes demonstrative of

The data show that almost one-fourth of the interviewed scientists participate in a joint research project with western research institutes. In this respect Bulgarian scientists are ahead only compared with the scientists from Romania and Lithuania. Involving Bulgarian scientists and institutes in joint research projects is a problem on the level of the integration of Bulgarian with world science, and encouraging Bulgarian scientists to participate in such projects should be a major goal of the management of Bulgarian science. On the other hand that participation depends on the opportunities presented by the European integration and international organisations. In this respect it is necessary that the respective bodies should seek for additional help from different countries and determine new ways for the involvement of Bulgarian scientists in international projects. It turns out that finding the information for such opportunities is a problem. Of course, good science marketing is not enough for the participation in an international project, it also depends on the personal approach of scientists themselves. The research shows that in some countries financing a research project (an example is the presented project) is an instrument for the increase of the budget of the whole institute, and the personal support, participation and financial benefit for the scientist who has contributed for attracting the project, is quite unsatisfactory. That leads to the conclusion that participation in international projects should be managed properly and on the basis of personal interest. Specific mechanisms should be established for these needs.