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Bulgaria

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Bulgaria¹**Introduction**

The problem of brain-drain has been one of the main concerns of Bulgarian society since 1990. The lack of clear strategy for transformation of the society and its S&T sector has affected the most adversely higher educated and skilled personnel. According to the recent evaluations each year the country losses 55-60 000 of its higher educated and skilled population².

The aim of this report is to identify sources for data concerning brain drain, to carry out short analysis, based on the data available on inflow and outflow processes in Bulgaria, and to draw some conclusions and policy recommendations.

I. Emigrant population

Emigration is a process, which follows each big transformation of any society. But there are some obstacles to identify its characteristics in Bulgaria for the period after 1989, connected with absence of enough statistical data. That is why our approach was to collect all possible sources of data and on this base to make some assumptions.

The major source of reliable data on emigrant population is the National Statistical Institute. It has organized some periodical (spots) surveys of Bulgarians, who leave the country on the national borders. These surveys are representative for Bulgarian qualified scientists and engineers.

The recent survey was organized in 1995-1996³. The used definitions for migration are UN ones.

The main findings of this survey would be summarized as follows:

- Emigrant population:

Aproximately 1/5 of total emigrants are higher educated population. The same is the result from the survey in 1991 –24,1% of total emigrants. 11.5% of the outflow from science in Bulgaria during 1989 – 1995 emigrated abroad, and more than 87% of those HIE population worked as researchers.

-Main destinations of scientists emigration:

The major part of Bulgarian scientists emigrates in USA. On the second place is Germany, then Canada. More concretely directions and percentage of total emigrated higher educated Bulgaria population is as follows:

USA – 28%,

Canada – 9.9%,

¹ This paper was prepared by Dr. Rossitsa Chobanova, co-ordinated by IKU. We are thankful for the technical support of Dr. Pavlinka Ileva – Naidenova.

² Data presented by Dr. I. Kalchev, Chief of the Department “Demography” at the National Statistical institute during the working meeting on 19.11.2002 of the State Agency of Bulgarians abroad, and cited in: Science, 2003/1, p.22

³ Its results are published in the framework of COST project “Brain drain from Central and Eastern Europe”, 1997 and in the Ph.D. thesis of Mr. Kalchev “Foreign migration of Bulgarian population”, 2000.

Germany – 16.6%,
 UK – 5.7%,
 The Scandinavian countries – 8%.

- Brain drain by sectors.

The scientists from chemistry, biology, medicine, physics were main group of scientific part of Bulgarian emigration.

- Potential emigrants.

The survey says that about 50% of the students above 18 in Bulgaria are potential emigrants. The recent publications in the newspapers confirm that this potential has become reality. For example, the daily newspaper “24 hours”, 19/11/2000, p.5 says, that Bulgarian students in USA universities have been increased: in 1993 they were 898, and in 2001 they are 3 270.

The comparison with the results of the previous survey of the National Statistical Institute shows that after the bum of 1989 the scope and intensity of the emigration as total have dropped down. More concretely the results are as follows:

- ❖ The number of total emigration in the period 1990 – 1991 is 134.4 thousand. But the High educated personnel (ISCED, classes 5B and 5A) were not well presented.
- ❖ The number of total emigration in the period 1992 – 1993 is 136 thousand. The statistical emigrants (for more then 1 year, but the purpose is not to stay forever) are mainly high-educated persons.
- ❖ about 20% of all emigrants are High educated personnel ISCED, classes 5a and 5b, and 63% - ISCED – 3a. The direction of emigration is mainly Germany – 20%, Austria – 12%, 10% of emigrants are directed outside Europe – USA, Canada, South Africa.
- ❖ Another tendency, which appears from the data from the National Statistical Institute, is of the return of Bulgarian emigrants. In 1996 19 thousand persons have returned back in Bulgaria.
- ❖ Potential HE BG emigrants (ISCED class 5a) are 17% of total emigrants and 50% of total number of students above 18.

Factors, which affect Bulgarian emigration are as follows:

- age,
- education possibilities,
- employment possibilities,
- relatives and colleagues in the country of visit.

One of the major sources for data concerning Bulgarian emigration population is the report of the Bulgarian Academy of Sciences - the main research centre in the country. The Table bellow provides information about numbers of personnel, left the country by institutes:

Institute	Emigrants
<i>Natural sciences</i>	232
Institute of mathematics and informatics	59
Institute of mechanics	6
Central Laboratory of parallel processing of information	13
National laboratory of computer virology	1

Institute of nuclear investigations	30
Institute of physics	19
Institute of electronics	19
Institute of astronomy	2
Central laboratory of solar energy and new sources of energy	2
Central laboratory for optical information	3
Institute of no organic chemistry	6
Institute for organic chemistry & Centre of fito chemistry	8
Institute of catalyse	5
Central laboratory of electrochemical sources of electricity	2
Institute of engineering chemistry	6
Institute of polymers	3
Institute of physics & chemistry	5
Institute of molecular biology	3
Institute of genetics	1
Institute of physiology	3
Institute of physiology of plants	4
Institute of microbiology	1
Institute of zoology	1
Institute of forest	4
Institute of experimental pathology and parasitology	2
Institute of experimental morphology and anthropology	2
Institute of biophysics	9
Institute of biology and immunology of reproduction	2
Central laboratory of biomedical engineering	1
Central laboratory of ecology	1
Institute of oceanology – Varna	3
Central laboratory of minerals and crystals	3
Central laboratory of high geodesy	1
Institute of space research	2
<i>Engineering science</i>	23
Institute of metals	6
I-te of informational technologies	10
I-te of management and system investigations	4
Central laboratory of mechatronics and tools	3
<i>Humanities</i>	9
I-te of Bulgarian language	3
I-te of Balkanistics	2
I-te of history	1
Institute of arts	2
Cyril and Methodius center	1
<i>Social science</i>	8
Institute of philosophy	3
I-te of sociology	1
I-te of psychology	1
Center of science for science and history of science	1
Central library	2
<i>Source: Annual report of the BAS, 2000*</i>	
<i>Note: *This data is not available yearly. Year 2000 is the first one, when this data appear in the annual report of the BAS. There is not data available for agricultural and medical science. The are not a subject of the Bulgarian Academy of Sciences, but of other institutions.</i>	

The major part of scientists left the Bulgarian academy of sciences is from natural sciences – 232. The most of them belonged to the Institute of mathematics and informatics -59, and to the Institute for nuclear investigations - 30. Significant part of the staff of the Institutes of physics and electronics has left as well. Comparatively less is the emigration from engineering science, humanities and social science.

The State Agency for Bulgarians abroad has started to collect data about Bulgarians abroad. One of the sources is the every year meetings of Bulgarians, who live abroad in Bulgaria, which has taken place since 2000 (so called Bulgarian Velikden – Easter. The data is not publicly available.

At the end we may assume, that there is no enough data to make conclusion how many of total Bulgarian R&D personnel is leaving abroad now. A special survey would be organized in order to identify not only the number but another characteristics of HE Bulgarian emigrant population as well.

II. Immigrant population

The immigration is a characteristics of attraction of the country for R&D personnel.

The official data says that there are 597 permissions for HE immigrants, issued in the period of 01.09.1994-31.10.2000. 479 of them are men and 118 are women. The total number of issued permissions for the period is 1101, which means that 54% of total number of immigrants are HE ones.

Age	20-30	31-40	41-50	51-60	Total
Man	62	192	128	97	479
Women	48	41	24	5	118
Total	110	233	152	102	597

The most of HE immigrants in Bulgaria are from:

- USA - 131,
- Russia - 50,
- GB - 46,
- Greece - 43,
- Germany - 38,
- France - 34,
- Ukraine - 31,
- Italy - 20, and
- Turkey - 20.

Immigrants from Hungary, Holland, Sweden, Austria, Yugoslavia, Australia, etc. are up to 10 numbers.

More concrete data is presented in the table below:

Country	All highly skilled workers	Up to 10
<i>EU Countries</i>		
Austria		V
France	34	
Greece	43	
Netherlands		V
Great-Britain	46	
Germany	38	
Italy	20	
Sweden		V
Turkey	20	
<i>Other Europe</i>		
Ukraine	31	
Russia	50	
USA	131	
<i>Others and Unknown</i>		
Total	413	
TOTAL		597
<i>Note: V=up to 10</i>		

The data presented by the National employment office at the Ministry of Labour and Social Policy in Bulgaria is only for those cases when the local entity registered in Bulgaria requests permission to employ foreign citizen. (Regulations: State Gazette –No/year: 267/92, 120/97, 4/93, 56/94, 43/96, 64/97). For immigrants, who work in foreign companies in Bulgaria permission is not needed, according to the Law on commerce. That is why it is very difficult to assume how many HE immigrants lives Bulgaria.

Another source of information about HE foreigners in Bulgaria is the Ministry of Education and sciences. The table bellow provides some interesting data concerning immigrants by country of origin and purpose of stay for the period 1996 – 2001.

State	Spec 1996/1997	Spe 1997/1998	Spe 1998/1999	Spe 1999/2000	Spe 2000/2001
EU Countries					
Austria					1
Belgium	2	1	2	2	2
Denmark			3	1	1
France	15	17	9	7	7

Greece	5	4	5	5	5
The Netherlands	3	2			
Sweden				2	
Spain	4	4	4	4	4
Italy	8	4	7	4	5
Finland	2		2		
EFTA					
Norway	3	3	2	2	1
Candidates					
Hungary	5	10	14	7	8
Poland	8	6	8	8	4
Slovakia	10	3	4	3	
Romania	1	13	1	1	1
Other Europe					
Russia	9	5	8	3	3
Moldova		8	6	5	0
Belorus	16	1	1	1	1
Asia					
Mongolia	1	2	1	1	1
China	8	6	7	7	9
Japan				3	1
India	2	2	4	2	2
Africa			2		
TOTAL	102	92	95	69	56
<i>Note: MES=... SPEC=... SPE=...</i>					

For the last 5 years 414 HE foreigners, which mobility were made possible by contracts with MES or between governments exchange negotiations / agreements approved Ph.D. students in Bulgaria, have come for specialization from 27 countries.

The annual report 2000 of the Bulgarian Academy of Sciences (BAS) provides data on foreign guest of institutes of the Academy by duration of the stay – up to 3 months and more then 3 months. The field of specialization of guests is assumed that

Table 5: Total numbers of foreign guests of different institutes at the Bulgarian Academy of sciences for a period longer then 3 months for the period in 1990 – 2000*	
Institute	Total numbers of foreign guests for the period longer then 3 months for last 10 years
<i>Natural sciences</i>	516
Institute of mathematics and informatics	30
Institute of mechanics	30
Central Laboratory of parallel processing of information	26
National laboratory of computer virology	56
Institute of nuclear investigations	33
Institute of physics	17
Institute of electronics	23
Institute of astronomy	18
Central laboratory of solar energy and new sources of energy	7
Central laboratory for optical information	1
Institute of no organic chemistry	5
Central laboratory of electrochemical sources of electricity	5
Institute of engineering chemistry	19
Institute of polymers	1
Institute of physics & chemistry	9
Institute of molecular biology	8
Institute of genetics	2
Institute of physiology	2
Institute of physiology of plants	6
Institute of microbiology	13
Institute of botanics	9
Institute of zoology	19
Institute of forest	77
Institute of experimental morphology and anthropology	1
National nature science museum	14
Central laboratory of biomedical engineering	5
Central laboratory of ecology	3
Geophysical institute	10
Institute of ocean – Varna	3
Central laboratory of minerals and crystals	3
Central laboratory of high geodesy	17
Institute of space research	20
Central laboratory of solar – earth interactions	16
Institute of water problems	8
<i>Engineering science</i>	57
Central lab. for seismic mechanics and seismic engineering	2
Institute of metals	13
Lab. Of physics/chemical mechanics	13
I-te of computer and communicational systems	2
I-te of informational technologies	9
I-te of management and system investigations	12
Central laboratory of mechatronics and tools	6
<i>Humanities</i>	103
I-te of Bulgarian language	1
I-te of Literature	2
I-te of Balkanistics	3
I-te of history	9
I-te of thracology	67
Ethnographic institute and museum	8
Archeological institute and museum	4
Institute of arts	9
<i>Social science</i>	49
Institute of philosophy	10
Institute of legal studies	1
I-te of sociology	23

I-te of psychology	3
Central library	12
<i>Note: *This data is not available yearly. Year 2000 is the first one, when this data appear in the annual report of the BAS. There is not data available for agricultural and medical science. The are not a subject of the Bulgarian Academy of Sciences, but of other institutions.</i>	

As the natural sciences are better performed in the Academy, the major part of guests prefers their institutes. The Institute for experimental morphology and antropology has been visited by 77 foreign HE persons, the National institute of computer virusology has been visited by 56 guests, Institute for nuclear investigations – by 33 ones, Institute of mathematics and informatics – by 30, Institute of mechanics – by 30, etc. The major interest in humanities is of tracology. The Institute of tracology had 67 guets.

Agency for Refugees in Bulgaria at the Council of Ministers is another source for information about immigrant population in Bulgaria. The data available is for those who have received the statute of refugee at 16.05.2000. It concerns HE level, and gender of refugees. The total number here means all refugees, registered after the Law came in force, until 16.05.2000.

Table 6: The number of HE refugees received statute in Bulgaria at 16.05.2000

HE level	Men	Women	Total
College	1	-	1
B.A.	7	3	10
M.A.	151	40	191
TOTAL	159	43	202

The best presented professions of HE refugees are doctors, economists, teachers and engineers.

Table 7: Number of HE refugees by better presented professions at 16.05.2000

Profession	Number	% of the total number of refugees
Doctor	36	3.26
Economist	26	2.36
Teacher	26	2.36
Engineer	23	2.08
Agronomist	9	0.81
Journalist	9	0.81
Military specialist	8	0.72
Pedagogue	5	0.45
Philologist	5	0.45

This data does not cover all refugees. The table gives an orientation of the directions, in which the profession of the HE immigrants may affect the internal labour market in Bulgaria.

Conclusions and policy recommendations

The lack of clear strategy for transformation of Bulgarian S&T sector and its European and international integration has affected the most adversely higher educated and skilled personnel.

The share of Bulgarian HE emigration has started to increase since 1992-1993. The major factor motivating this emigration is higher living standard and possibilities for better professional and personal realization abroad. The better social relations are another important factor affecting this tendency.

The first survey, covering the beginning of the transformation period, shows that the main direction of HE Bulgarian emigration is Europe – mainly Germany, but the second one – 95-96 – shows that USA has become the main direction for Bulgarian HE emigration. The increased part of young people is another tendency characterizing Bulgarian emigration.

HE immigration population in Bulgaria is limited. Citizens from less economically and socially developed countries define this immigration. Their presence is motivated by reasons of different character. The main part of them is connected with personal reasons, as the feasibility study says.

It is possible to assume that up to now the immigration in Bulgaria is not a result of participation in international labor market. For some groups of immigrants the immigration is temporary, for other – step to the following emigration.

The immigrant flows are to be neglected comparatively to the emigration in Bulgaria. The country loses one small town of 55-60 000 of its higher educated and skilled population each year during the last decade.

The lack of availability of data is burdening the detailed analysis of this process. In this respect it is extremely important to launch a survey on this topic to collect much more facts on flows.

Conclusions and policy recommendations

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