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The Scientific Diaspora as the Brain Gain Option: Exploring the Case of Bosnia and Herzegovina

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Abstract

In the past decades, many countries around the globe faced the consequences of the brain drain phenomenon. Bosnia and Herzegovina is not an exemption in this regard. As the prospects for mobility change, it is reasonable to expect that this would also affect the movement of highly skilled individuals. Meanwhile, BiH has done very little in terms of responding to these new challenges. In particular, it has thus far not strategically considered the added-value of its numerous highly qualified diaspora for countering these negative trends. By combining primary research results with other available data, this article attempts to delineate the urgent steps BiH has to make in order to take advantage of the development potentials its diaspora presents. We seek to look into the interest and present experience of highly qualified diaspora members in regards to cooperation possibilities with BiH's public and academic institutions. In the case of BiH, some formal and informal highly qualified diaspora networks already exist. Networks of this kind have shown to be an important factor in developing brain gain policies. Presently, the BiH *diaspora option* and strategic planning in this regard is still in what could be denoted as an early phase of articulation, since the only state institution explicitly dealing with the diaspora is a Department within the State Ministry for Human Rights and Refugees. In a more advanced phase, the jurisdiction over brain gain policies needs to be broadened to include an array of state actors working on devising an extensive strategy on how to involve its expatriates into the broader national development plan, not to miss the opportunity to utilize the potential this population has for the development of BiH.

Sažetak

U proteklim decenijama, mnoge su se zemlje suočile sa fenomenom “odliva pameti”(brain drain). U tom slučaju Bosna i Hercegovina nije izuzetak. U skladu sa rastućom mogućnošću kretanja, opravdano je očekivati da će isto uticati i na promjenu dinamike u slučaju visokokvalificiranih pojedinaca. U međuvremenu, Bosna i Hercegovina poduzima vrlo malo da bi se pripremila za dolazeće promjene, posebno u smislu strateškog uključivanja visokokvalificirane dijasporne sa ciljem ublažavanja neželjenih efekata. Kombinujući primarno istraživanje sa drugim dostupnim podacima, ovaj članak nastoji utvrditi koje su mjere neophodne da bi se razvojni potencijal, koji mreže visokokvalificirane dijasporne imaju, stavio u pogon. Uzimajući u obzir eksplicitno izraženu želju za saradnjom, kroz analizu iskustava bosanskohercegovačke visokokvalificirane dijasporne, cilj je utvrditi mogućnosti za produbljivanje i sistematizaciju saradnje sa javnim i akademskim institucijama u Bosni i Hercegovini. Formalne i neformalne mreže dijasporne već postoje, a iskustvo drugih zemalja pokazuje da mreže ove vrste mogu imati snažan *brain gain* (priliv pameti) potencijal. Ono što je posebno indikativno u slučaju Bosne i Hercegovine jeste činjenica da je tzv. *potencijal dijasporne* još uvijek u *ranoj fazi* artikulacije. Ovaj uvid dodatno potvrđuje činjenica da je jedina institucija koja se eksplicitno bavi dijasporom Ministarstvo za ljudska prava i izbjeglice. Ukoliko BiH ne želi da propusti razvojne mogućnosti koje visokokvalificirana dijaspora ima, unaprijeđeni pristup bi morao uključiti veći broj institucija i organa koji bi zajedničkim naporima radili na razvoju sistematskog plana uključivanja dijasporne u širu državnu razvojnu strategiju.

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Introduction

Research on the phenomenon of brain drain and brain gain has evolved extensively in the past four decades. Together with new insights into the nature of this social phenomena, new problems regarding both the definition of the construct, research approaches and possible measures have appeared. At this moment several elements have been confirmed: it is a multidimensional problem requiring a multidisciplinary approach; its defining factors range from the macro (international and national economy and political dynamics) to the micro level (individual motivation and other psychological factors); solutions and policies tackling the issue are far from being straightforwardly effective; finally, action in this domain requires a broad inclusion of various stakeholders – both national and international, governmental and non-governmental actors. A review of the growing bulk of literature on the various dimensions of the problem clearly shows that the analytical take on this issue has to be limited to one or to few manifestations of the phenomena.

A recent theoretical proposal by Daniel Logue attempts to change the fundamental frame through which the entire problem field should be approached, thus also influencing the question of effective solutions to brain drain.¹ Logue argues for re-conceptualizing brain drain as a “wicked problem”- circular and indefinite with different and sometimes conflicting definitions². Borrowing this concept from cultural studies, he argues that it should have positive effects on both the research and policy measures by allowing policy “to move forward by providing actors with space for innovative (and conflicting) policy-making, space to enable actors to collectively ‘agree to disagree’ and explicitly recognize the fundamental and conflicting perspectives inherent in this social problem that cannot be resolved.”³ Given the complexity of the problem and its *inherent antagonisms*⁴, the present article deals with only one of its dimensions – namely through putting focus on analyzing one possible agent of change – the potential effects of ties created with the *highly qualified diaspora*⁵ on brain gain. Under the presumption that modernity showed the only sound development route is that of the so called knowledge economy, with the “underlying assumption [being] that a relatively small group – the scientific elite – is critical to the strength of a nation’s science base,”⁶ the article will attempt to analyze these issues focusing on the specific case of Bosnia and Herzegovina (BiH).

¹ Logue, Daniel. “Moving Policy Forward: brain drain as a wicked problem”; *Globalization, Societies and Education*, Vol.7, No.1, March 2009, 41 - 50

² Logue, Daniel. “Moving Policy Forward: brain drain as a wicked problem”; *Globalization, Societies and Education*, Vol.7, No.1, March 2009p 42.

³ Logue, Daniel. “Moving Policy Forward: brain drain as a wicked problem”; *Globalization, Societies and Education*, Vol.7, No.1, March 200942.

⁴ Logue, Daniel. “Moving Policy Forward: brain drain as a wicked problem”; *Globalization, Societies and Education*, Vol.7, No.1, March 2009, 41 – 50.

⁵ In terms of the terminology used in this article, it has to be accented that although recognizing the fact that some authors find the term *diaspora* problematic, due to its plurality of meanings and interpretations, we decided to use this term for the purpose of simplicity of understanding, interchangeably with the term „*highly qualified diaspora*“, „*scientific diaspora*“ and „*expatriates*“, to characterize a group of people sharing a national identity who are living away from their original homeland.

⁶ Laudel, Grit. „Migration Currents Among The Scientific Elite“, *Minerva* (2005) 43: p 378.

An estimate given by the Ministry for Human Rights and Refugees cites a number of around 1,35 million BiH nationals living in foreign countries, which amounts to around one quarter of country's current population. Besides for the fact that BiH is currently one of the leading migrant "exporters" in the OECD countries, at the same time it is the second largest (Moldova holding the first place) receiver of remittances, with remittances amounting to around 19,7% of the country's GDP.⁷ Migration trends suggest that the intensity of migration could further magnify during the EU accession process.

Existing estimates report around 650.000 persons leaving BiH in the period between 1989 and 1994 with the percentage of highly qualified persons in this migration wave being 28,6.⁸ Although there is no exact data on the size of overall brain drain, according to the UNESCO report entitled „Science, Technology and Economic Development in Southeastern Europe" 79% of researchers, 81% of master's degree holders and 75% PhD holders had left the country since 1995.⁹ Additionally, around 260.000 children in primary and secondary school have also left the country, many of them now having completed tertiary education in the receiving countries.¹⁰ This trend is not only a specific feature of BiH but rather a noticeable regional phenomenon, with an estimated 70% of highly qualified (HQ) individuals leaving their home countries¹¹, thus seriously endangering the prospects for creating knowledge-based economies and for the overall development of the Western Balkan countries.

The present research looks at the possibilities and obstacles for developing more focused, organized, and if possible, institutionalized efforts aimed at strengthening the cooperation between BiH and its highly qualified citizens living abroad with an explorative hypothesis that attempts to provide answers to the following question: *does the BiH highly qualified diaspora present a brain gain potential for their home country?* Analyzing the *brain gain* potential of the BiH scientific diaspora and the existing/plausible methods for establishing viable linkages and cooperation, it is our aim to provide recommendations on ways forward in tackling the brain drain issue in the context of BiH and the region of the Western Balkans.

In discussing the diaspora as a brain gain potential, the first chapter of this analysis provides a short overview of the general concepts used for analyzing the migration currents of highly skilled individuals and offers a brief breakdown of the evolution of measures and

⁷ Dimova, Ralitzia i Wolff François-Charles. *Remittances and Chain Migration: Longitudinal Evidence from Bosnia and Herzegovina*. Institute for the Study of Labor. Bonn: mart 2009. Pristupljeno: 20.05.2010. Available at: <http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1369829> p.3

⁸ Dimova, Ralitzia i Wolff François-Charles. *Remittances and Chain Migration: Longitudinal Evidence from Bosnia and Herzegovina*. Institute for the Study of Labor. Bonn: mart 2009. Pristupljeno: 20.05.2010. Available at: <http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1369829> p.3

⁹ Uvalić, Milica. „Science, technology and economic development in South Eastern Europe.“ *Science Policy. Series NI*. UNESCO. Venice: 2005. Accessed on: 26.06.2010. available at: <http://www.unesco.org/science/psd/publications/s&t_series.pdf>

¹⁰ Ministarstvo za ljudska prava i izbjeglice BiH. “Ko je ko u bh dijaspori, Doktori nauka i istraživači.” 2009. p.7

¹¹ Uvalić, Milica. „Science, technology and economic development in South Eastern Europe.“ *Science Policy. Series NI*. UNESCO. Venice: 2005. Accessed on: 26.06.2010. available at: <http://www.unesco.org/science/psd/publications/s&t_series.pdf>

policy approaches to the brain drain phenomenon. In the second chapter, we turn to one of the previously outlined ways through which countries can work on compensating the undesirable effects of the brain drain – the diaspora option. After shortly introducing the theoretical framework, the chapter proceeds with the examination of existent approaches to establishing effective and development-oriented ties with the highly qualified diaspora, reviewing best practices examples from around the globe. In the third chapter, the previously established framework is applied to examining the current state of affairs in Bosnia and Herzegovina, providing primary insight both into who the BiH scientific diaspora is and reviewing their experiences in establishing professional ties with their country of origin, but also looks at the other side of the coin, exploring the home country perspective and initiatives in creating a space for cooperation. The obstacles as well as possible solutions for establishing functional and effective ties between the highly qualified BiH diaspora (and diaspora networks) and home country stakeholders and institutions will be presented here.

While the discussion in chapter one and two relies primarily on the desk review of secondary data, the third chapter analysis¹² combines different data sources. In addition to primary and secondary document analysis, primary qualitative data on past experiences and future prospects of the HQ diaspora, comes from an on-line survey constructed especially for this research. Additional primary data comes from the interviews conducted with different stakeholders (coming from both the governmental and non-governmental sectors, as well as academia and international organizations). In terms of the demographic analysis provided, we have combined data gathered from the survey with the additional overview of the data on the BiH diaspora that can be found in the Ministry for Human Rights and Refugees (MHRR) Diaspora Department's publications "Who is Who in the BiH Diaspora" – providing a listing of 251 professional biographies of diaspora members. The relevance of the data analyzed here is conditioned by one core problem – the unavailability of official (representative data) when it comes to the BiH citizens living abroad. Though the sample of scientific diaspora members we worked with is not large, it is representative of the data presently available to the Diaspora Department. Compared with empirical evidence from other countries of the brain drain / brain gain phenomenon in the context of the highly qualified diaspora, we find it can effectively provide qualitative evidence of issues at hand for the case of BiH, as well as contribute in outlining questions for further research.

¹² More detailed methodological clarifications together with limitations will be given in the introduction to the third chapter.

1. Setting the Context: Brain Gain, Brain Drain and Brain Circulation in the Context of the Role of the Diaspora

Debate on the phenomenon of brain drain on the international level started in the late 1960s.¹³ *Brain drain* is usually defined as a massive and permanent outflow of highly qualified individuals (researchers, academics and scientists) from home to foreign (or so-called 'receiving') countries.¹⁴ Other authors have also identified brain drain to be predominantly the plight of the developing countries, as Beine et al. states: "The term "brain drain" designates the international transfer of relatively highly educated individuals from developing countries to developed countries."¹⁵ and in order to qualify movements of highly qualified as a brain drain, the size of outflow has to be on the scale which threatens the future prospects of national development.¹⁶ *Brain gain* is a more recent theoretical addition and is used to denote „attempts, efforts, programs and projects aimed to draw scientific workers to a given country."¹⁷ Thus, brain drain is seen as a more or less spontaneous process while brain gain is conceptualized to include concrete actions from related stakeholders. Meanwhile, extensive research on the general migration and on the issue of brain drain differentiated factors influencing the dynamic of the movement of highly qualified individuals. The so called "push" factors associated to the sending country relate to the socio – economic and political climate in the respective country. Political instability, high unemployment rates and in some cases war have also been cited as responsible for the high migration rate in the SEE countries. Similarly, violations of human rights, low level of academic freedoms and bad government also contributed to the migration dynamics.¹⁸ On the other hand, "pull" factors:

¹³ By the formal recognition from United Nations organization.

¹⁴ Horvat, Vedran. "Brain Drain: Threat to Successful Transition in South East Europe?" *South East European Politics*: 5.1 (2004): 76-93. Accessed on 15.07.2010. Available at: <<http://www.seep.ceu.hu/archives/issue51/horvat.pdf>> p.76; Uvalić, Milica. „Science, technology and economic development in South Eastern Europe.“ *Science Policy. Series NI*. UNESCO. Venice: 2005. Accessed on: 26.06.2010. available at: < http://www.unesco.org/science/psd/publications/s&t_series.pdf> ; Chappell, Laura i Alex Glennie. "Show Me the Money (and Opportunity): Why Skilled People Leave Home — and Why They Sometimes Return." *Institute for Public Policy Research*. 2010. Available at: <http://portal.unesco.org/en/ev.php-URL_ID=27009&URL_DO=DO_TOPIC&URL_SECTION=201.html>.

¹⁵ Kale, Dinar, David Wield, and Joanna Chataway. "Diffusion of knowledge through migration of scientific labour in India." *Science & Public Policy (SPP)*; Jul2008, Vol. 35 Issue 6, p417-430,

¹⁶ Jałowiecki, Bohdan, and Grzegorz Jerzy Gorzelak. "Brain drain, brain gain, and mobility: theories and prospective methods." *Higher Education in Europe* 29.3 (2004): 299-308. Academic Search Premier. EBSCO. Web. 7 Oct. 2010. p. 299.

¹⁷ Jałowiecki, Bohdan, and Grzegorz Jerzy Gorzelak. "Brain drain, brain gain, and mobility: theories and prospective methods." *Higher Education in Europe* 29.3 (2004): 299-308. Academic Search Premier. EBSCO. Web. 7 Oct. 2010. p. 299.

¹⁸ Horvat, Vedran. "Brain Drain: Threat to Successful Transition in South East Europe?" *South East European Politics*: 5.1 (2004): 76-93. Accessed on 15.07.2010. Available at: <<http://www.seep.ceu.hu/archives/issue51/horvat.pdf>> p.78-79; Chappell, Laura i Alex Glennie. "Show Me the Money (and Opportunity): Why Skilled People Leave Home — and Why They Sometimes Return." *Institute for Public Policy Research*. 2010. Available at: <http://portal.unesco.org/en/ev.php-URL_ID=27009&URL_DO=DO_TOPIC&URL_SECTION=201.html>; Dimova, Ralitzka i Wolff François-Charles. *Remittances and Chain Migration: Longitudinal Evidence from Bosnia and Herzegovina*. Institute for the Study of Labor. Bonn: mart 2009. Pristupljeno: 20.05.2010. Available at: <http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1369829> . p.7

possibilities for higher wages, employment, prospects for professional development, and a positive socio – economic environment are seen as attracting highly qualified migrants.¹⁹

Not only does the HQ population function as an economically important factor but it also has an important role in the overall democratic consolidation, which is a fact especially informative in the case of transition countries; BiH being one of them. Inclusion of HQ individuals in the democratic processes is seen as an important precondition for the establishment of expert governing bodies, and the lack of qualified persons on these posts can significantly slow down the process of democratic transition.²⁰ Additionally, brain drain can result in the overall decrease in work force and endanger the economic and community development prospects by decreasing human capital competition capacity, thus sending negative signals to potential investors, at the same time affecting the loss of already created research based institutional memory.²¹

Policies dealing with the brain drain issue have evolved during past several decades. In the 70s they were predominantly focused on the actions de-stimulating the movement. In the 80s focus shifted to programs and policies aimed at stimulating return. The 90s brought an increasing awareness of ongoing global processes; rise in cross – border movements of both persons and goods, which all lead to the recognition of the value temporary migrations can have for knowledge exchange and accumulation. Consequently, more attention was to be given to devising policies and mechanisms that stimulate mobility and knowledge flows. These efforts are now usually denoted as *brain circulation*.²² The general idea is that the circularity of skilled workers would allow industrialized countries to fill the labour market gaps, with the simultaneous compensation of possible “brain drain” in developing migrant sending countries, through transfers of know-how and technology.²³ Instead of working directly against brain drain, the focal point is now transferred to the initiatives stimulating positive, temporary migration waves capable of contributing to the development on the regional basis²⁴. Accordingly, by allowing the acquisition of new knowledge, the sending countries benefit from the resulting rise in productivity. “Scientific works point out that brain circulation replaces the concepts of brain drain and brain gain, whereas the migration of highly skilled persons increasingly grows. Consequently, nations create and implement programs and initiatives with the purpose to attract not only their scientists working abroad,

¹⁹ Chappell, Laura i Alex Glennie. “Show Me the Money (and Opportunity): Why Skilled People Leave Home — and Why They Sometimes Return.” *Institute for Public Policy Research*. 2010. Available at: <http://portal.unesco.org/en/ev.php-URL_ID=27009&URL_DO=DO_TOPIC&URL_SECTION=201.html>

²⁰ Horvat, Vedran. “Brain Drain: Threat to Successful Transition in South East Europe?” *South East European Politics*: 5.1 (2004): 76-93. Pristupljeno 15.07.2010. Available at : <<http://www.seep.ceu.hu/archives/issue51/horvat.pdf>> p.88-90.

²¹ Dimova, Ralitzia i Wolff François-Charles. *Remittances and Chain Migration: Longitudinal Evidence from Bosnia and Herzegovina*. 2009. p.14

²² Daugeliene, Rasa i Marcinkeviciene, Rita. “Brain Circulation: Theoretical Considerations”. *Inzinerine Ekonomika-Engineering Economics*(3). Caunas University of Technology. Juni 2009. Accessed on: 01.07.2010. Available at: <<http://www.ktu.lt/lt/mokslas/zurnalai/inzeko/63/1392-2758-2009-3-63-49.pdf>> p.50

²³ Vadean, Florin P. “Circular Migration Or Permanent Return: What Determines Different Forms Of Migration.” *Discussion Papers* University of Kent – Department of Economics. August 2009. p 2

²⁴ Horvat, Vedran. “Brain Drain: Threat to Successful Transition in South East Europe?” *South East European Politics*: 5.1 (2004): 76-93. Pristupljeno 15.07.2010. Available at: <<http://www.seep.ceu.hu/archives/issue51/horvat.pdf>>

but also foreign researchers and thus to develop countries economy as well as competitiveness”²⁵

Brain circulation works in favor of establishing a knowledge-based, interactive system that can have multiply positive effects on the respective country, and is simultaneously improving the general conditions and could eventually lead to the actual brain gain. As Breinbauer suggests brain circulation is considered to be a highly favorable form of mobility and is “presumably a positive form of mobility involving scientists and researchers (as well as other highly skilled professionals) moving in and out of different geographic regions, and hence increasing the diffusion of knowledge”²⁶. The official stand of the European Commission similarly states that the “[m]igrants’ return, even temporary or virtual, can play a useful role in fostering the transfer of skills to the developing world, together with other forms of brain circulation. Facilitating circular migration could also play a key role in this respect.”²⁷ In parallel with the concept of brain circulation, a new approach emerged with a slightly different objective. The so-called *diaspora option* attempts to devise models of including the HQ expatriates in the national development schemes without necessarily bringing them back permanently to their countries of origin.

²⁵ Daugeliene, Rasa i Marcinkeviciene, Rita. “Brain Circulation: Theoretical Considerations”. *Inzinerine Ekonomika-Engineering Economics*(3). Caunas University of Technology. Juni 2009. Accessed on: 01.07.2010. Available at: <<http://www.ktu.lt/lt/mokslas/zurnalai/inzeko/63/1392-2758-2009-3-63-49.pdf>> p 50.

²⁶ Breinbauer, Andreas. „Brains on the Move.“ *Migrations from and to Southeastern Europe*. Ed. Anna Krasteva, Kasabova and Diana Karibinova, Ravenna, Longo editor. 2010. p 96

²⁷European Commission. “Migration and Development: Some concrete orientations.” Communication From The European Commission to The Council of EU, The European Parliament, The European Economic And Social Committee And The Committee Of The Regions COM/2005/0390, Brussels: 01.09.2005. Accessed on 15.10.2010. Available at: <<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:52005DC0390:EN:NOT>> p.7.

2. The Brain Gain Potential of the Highly Qualified Diaspora

It has been widely acknowledged that the pursuit of direct brain gain is, if not futile, than at least an extremely demanding, expensive and slow process. This insight turns the attention to different forms of more immediate and less expensive ways of including the ‘brain drain stock’ (the highly qualified diaspora) of respective countries into the country’s knowledge growth. A turn in theory relates to the way the diaspora is perceived and treated; not any longer as an irreparable loss but possibly a contributing factor capable of inducing indirect gain on various levels. The diaspora option emerged as a new and favorable approach to the growing question of brain drain, particularly complementing the emerging concept of brain circulation - reflecting the newly acquired knowledge on the nature and multifaceted dynamics of mobility among HQ individuals.

The invention and application of various diaspora strategies is a result of a recent “discovery” of the diaspora as a valuable resource for knowledge-based development - as networks or bridging instances capable of connecting global markets and local capabilities of sending countries and performing critical and highly visible role in accelerating technology exchange and foreign direct investment. Wendy Lerner argues that this is an outcome of new global currents, trans-nationality, global flows, and networking.²⁸ To have a diaspora strategy means the country is aware and responsive to the inevitable, ever increasing transnational dynamics in various fields – both social and economic, and aware of the potential that diaspora could have in accelerating positive development processes – the diaspora effect. It reflects the readiness to see the world as fundamentally changed and readiness to deal with consequences of this change. The same author observes another fact; the diaspora strategies were sometimes devised only after the personal and informal efforts already established some sort of *diaspora networks*. In the cases where networks are in a rudimentary form or nonexistent, improvement in this sense should be pre-calculated as one of the desired outcomes of a diaspora strategy implementation. The strategies should aim at achieving know-how and information exchange, as well as using the potential of the networks, among HQ nationals from various geographic locations and in home country. Lerner defines diaspora strategies as:

[A] new way of thinking about populations made manifest in the relatively recent ‘discovery’ of expatriate populations by a range of governments, the development of diaspora strategies as a means of accessing new economic opportunities and skill sets in the context of a knowledge-based economy, the efforts of demographers and other social scientists to identify and count offshore citizens, and the proliferating techniques such as

²⁸ Lerner, Wendy. “Expatriate experts and globalising governmentalities: the New Zealand diaspora strategy.” *Transactions of the Institute of British Geographers* Vol. 32 Issue 3 (Sep2007): , p331-345

web-pages, databases, networking and events through which high-skill expatriates are being mobilised.²⁹

According to Kapur and McHale: “The diaspora effect describes the role that emigrants can continue to play in the development of their former home countries when they sustain connections both with each other and with fellow nationals who remain in their home countries.”³⁰

2.1 The Diaspora Effect(s)

As the appreciation of the diaspora potential was increasing, there was an observable shift in the national approaches towards this community. Initially, though the diaspora was recognized as an effective home country asset, primarily in the process of knowledge and experience transfer and also as a consultative actor, the need didn't yet emerge for the establishment formal cooperation methods with these actors, in the form of networks facilitated and maintained by state institutions. It is the technological advancement and the evolution of communication channels that brought forth an increase in the number of knowledge networks and resulted in growing interconnectedness among expatriates, opening possibilities for joint projects and other collaborative actions.³¹ At the same time, since knowledge and expertise is considered to be a critical tool for development it presented an opportunity for positive contribution from the members of HQ diaspora, especially in specific sectors where the knowledge base was either nonexistent or outdated in the home country.

Once the diaspora was conceptualized in a different way – as a possible more direct development potential that could bring various benefits to the homeland, working as an information source and support network for domestic organizations, companies and individuals seeking to move towards either business or intellectual markets in the countries where networks are established, the strategic approach towards the population has also changed. The focus is now put on a more “active mobilization of expatriates through formal initiatives such as investment conferences, industry and sector – specific web links, creation of expert databases, direct appeals by national leaders, short term visits by academics, mentors and industry specialists, and the explicit targeting of financial, market and technical expertise,”³² which will be tackled more in detail in the following segment. Referring to the already mentioned work of Kapur and McHale:

Diaspora communities are—under the right circumstances—a source of trade, investment, remittances, and knowledge. They can also play a critical role as “reputational

²⁹ Larner, Wendy. “Expatriate experts and globalising governmentalities: the New Zealand diaspora strategy.” *Transactions of the Institute of British Geographers* Vol. 32 Issue 3 (Sep2007): , p331-345

³⁰ Kapur, Devesh, and John McHale. “Should a Cosmopolitan Worry about the “Brain Drain”?.” *Ethics & International Affairs* 20.3 (2006): 305-320. Academic Search Premier. EBSCO. Web. 7 Oct. 2010. p 311.

³¹ Gribble, Cate. “Policy options for managing international student migration: the sending country's perspective.” *Journal of Higher Education Policy & Management* 30.1 (2008): 25-39. Business Source Premier. EBSCO. Web. 7 Oct. 2010, p 34

³² Larner, Wendy. “Expatriate experts and globalising governmentalities: the New Zealand diaspora strategy.” *Transactions of the Institute of British Geographers* Vol. 32 Issue 3 (Sep2007): ,p 337.

intermediaries,” matching potential partners in their present and former homes, leveraging their reputations to facilitate contracting between these partners, or simply changing the priors (or “profiles”) of their compatriots in the minds of residents of their new homes.³³

With all of these factors in mind, it is easy to see how the qualified diaspora communities could play a very important role in countering home country brain drain trends.

Nonetheless, different authors also argued that the connection between scientific diaspora networks, knowledge transfer and development is not a clear – cut relationship, and that there is a need for further research.³⁴ Although there is a wide consensus on the *channelling* function diaspora networks perform, some authors argue that it could also have a significant negative, *drain* effect, by attracting newly established professionals and academics to search for career advancement opportunities outside their countries, stipulated by the already installed and functioning networks.³⁵ This is a fact that has been elaborated extensively in the literature on “general” migrations - how networks are helping new migrants settle in and integrate more easily.³⁶ In the context of HQ migration, the effect could be even more prominent, because of the high value of networking in both academia and business sector. Overall, the impact of knowledge networks remains unclear and makes the establishment of a strategic relationship between the home country and the networks even more important. Strategic state involvement through network facilitation and firm support is required in order to make positive use of the networking capacities and at the same time can significantly control these potentially undesired effects.

On the economic side of things, the development effects related to stimulating business and trade connections that diaspora networks might possess are also not straightforward. Although, many countries (New Zealand, China, India, Taiwan)³⁷ reported significant success in using diaspora communities for entrepreneurship purposes, in terms of export and other forms of cross – border exchange, especially in the IT industry, the conditions in many countries may not be so sympathetic for this kind of initiatives, especially if a respective country is underdeveloped in the respective sectors. Additional factors that might work against the diaspora potential are also contexts of economic and political instability, corruption or lack of an adequate skill base within the home country³⁸. Generally, diaspora involvement in one country’s development, and the outreach and effects of policies

³³ Kapur, Devesh, and John McHale. "Should a Cosmopolitan Worry about the “Brain Drain”?" *Ethics & International Affairs* 20.3 (2006): 305-320. Academic Search Premier. EBSCO. Web. 7 Oct. 2010. p 311.

³⁴ Ackers, Louise. "Moving People and Knowledge: Scientific Mobility in the European Union¹." *International Migration* 43.5 (2005): 99-131. Academic Search Premier. EBSCO. Web. 7 Oct. 2010. p. 120.

³⁵ Ackers, Louise. "Moving People and Knowledge: Scientific Mobility in the European Union¹." *International Migration* 43.5 (2005): 99-131. Academic Search Premier. EBSCO. Web. 7 Oct. 2010. p. 120.

³⁶ Douglas S. Massey et al. "Theories of International Migration: A Review and Appraisal" *Population and Development Review*, Vol. 19, No. 3. (Sep., 1993), pp. 431-466. Available at: <<http://www.scribd.com/doc/20270500/Massey-Et-Al-Theories-of-International-Migration-A-Review-and-Appraisal>>

³⁷ Larner, Wendy. "Expatriate experts and globalising governmentalities: the New Zealand diaspora strategy." *Transactions of the Institute of British Geographers* Vol. 32 Issue 3 (Sep2007): , p331-345

³⁸ Gribble, Cate. "Policy options for managing international student migration: the sending country's perspective." *Journal of Higher Education Policy & Management* 30.1 (2008): 25-39. Business Source Premier. EBSCO. Web. 7 Oct. 2010 p. 33 – 34.

put in place in order to enable this, are inevitably connected to more general social and economic conditions. Policies have to be very narrow and to carefully take into account strengths and weaknesses of domestic economy and knowledge-base, and accordingly strategically plan the way in which networks could be used. However, in light of these arguments, in the so called developing countries and countries in transition, due to their reduced ability to effectively stabilize economic and social environment, the diaspora option should be given even greater importance. Precisely because of the limited domestic development, networks established in the more developed regions could function as both experience, and know-how resources and also as an easier way for domestic companies trying to enter international markets, and thus significantly contribute to the governance and domestic institutional and structural issues, also stimulating economic development by enabling contacts and consultations for export oriented domestic companies and services. Therefore, when looking to create linkages with the HQ diaspora networks, policies have to be country specific and prioritize fields of action complementary to own level of socio-economic development. The following segment takes a look at some of the approaches to engaging the diaspora in more detail.

2.2 Examples of Engaging the Highly Qualified Diaspora

2.2.1 Exploring the Top-down vs. the Bottom-up Approach

Two different approaches to mobilisation of highly skilled diaspora have been observed over time in different countries. Individuals that have migrated temporarily or permanently and which are now part of a country's diaspora often "associate themselves in cultural or professional organisations, usually functioning as networks which include individuals and local organisations that spread through entire countries, continents or even entire world. These networks can have various degrees of diversity, connectivity and density of agenda".³⁹

On that note, it can be said that the first observed benefit from diaspora has risen up from informal networks, initiatives of already established organisations of diaspora abroad and domestic organisations, as well as professional networks that were the first ones to acknowledge the potential that the expatriates carry for the domestic development. This could be denoted as the *bottom up approach* to creating brain gain possibilities. This bottom-up development often receives recognition due to awareness raising initiatives (success stories), and is finally taken into account by home governments and included in different sectoral strategies. New Zealand is an example where „long-standing networks and opportunistic links with expatriate experts are now being institutionalized through government policies and programmes, that are being directly supported by the government“⁴⁰ and participate in setting of strategic goals, mediate linking of domestic institutions and individuals with the networks

³⁹ Ciomasu, Ioan M. "Turning brain drain into brain networking." *Science & Public Policy (SPP)* 37.2 (2010): 135-146. Academic Search Premier. EBSCO. Web. 7 Oct. 2010.

⁴⁰ Larner, Wendy. "Expatriate experts and globalising governmentalities: the New Zealand diasporadiaspora strategy." *Transactions of the Institute of British Geographers* Vol. 32 Issue 3 (Sep2007): p.336.

and individuals abroad and access to foreign markets.⁴¹ This is a way the diaspora approach can be conducive to both brain, as well as economic gain.

The second approach to engaging the diaspora could be called the *top down* approach, where the government, as a reaction to the perceived consequences of brain drain, has come to be the initiator of the coordination on how to devise diaspora strategies/policies, with establishment of diverse arrays of mechanisms to attract the expatriate experts.

The best example of a government's aggressive action in recruitment of expatriates is China, which mobilized official off-shore resources; embassies, consulates, professional associations, and established numerous networks, and information dissemination strategies to mobilize its diaspora. In doing so, it employs an army of people whose job is to identify highly qualified Chinese expatriates and to encourage citizens who have settled abroad to help their homeland. In addition to this, China also created an inviting and attractive atmosphere for experts at home, via investment in research development, as well as into mechanisms for simplifying the process of return.

Various research that has chronologically looked at the emergence of the question of brain drain/gain and brain circulation, with the particular focus on diaspora, tend to show that the former (bottom-up approach), due to the rapid development of communication technologies, has come to motivate the latter observed approach – one stemming from government orchestrated initiative to engage the diaspora. However, examining individual cases, it is often very hard to establish which came first; the bottom-up initiative or the top-down.

Most of the actions in tackling the brain drain present themselves in three major cluster schemes. The first is fore mostly identifying where one's diaspora strengths lie, and with it establishing a system of keeping track of expatriate experts abroad; secondly the turn towards establishment of research institutions and heavier investment in research development and Science sector, which in itself are general policies for creation of conditions for brain gain in general, often with special focus on diaspora attraction; and finally the policies aiming to facilitate return and easy re-acculturation of expatriates back at home.

2.2.2 Exploring the Policy Clusters

Diaspora Identification

Formulating a sound diaspora strategy has to fulfil two general goals. It has to identify the geographical distribution of HQ expatriates and then to identify who they are and what are their fields of expertise. These findings should then be made an integral part of national development strategies. This is especially important for the so called developing countries,

⁴¹ Larner, Wendy. "Expatriate experts and globalising governmentalities: the New Zealand diasporadiaspora strategy." Transactions of the Institute of British Geographers Vol. 32 Issue 3 (Sep2007): p.336.

which are still seeking the best ways to establish ties and motivate the best absorption of diasporas' knowledge and goodwill

Ireland, for example, had long seen its expatriate population as a rich source of international influence and goodwill, but then as the role of expatriate Irish engineers in the software industry was identified and made visible, so too did a more explicitly economic discussion develop. Similarly, the role of Chinese, Taiwanese and Korean diasporas in developing their respective countries' electronics industry was a post facto discovery by the governments involved, which then led to government-sponsored attempts to develop international technology partnerships that would capitalize on links between these courtiers and their highly skilled offshore citizens, particularly those based in the US.⁴²

Governments have employed different models in identifying their HQ citizens that have settled abroad. As mentioned above, China's top down approach involved mobilization of institutions domestically and abroad whose main aim was to recruit Chinese expatriates. These included mobilization of officials in embassies and consulates to organize overseas scholars in 38 countries, setting up 52 educational bureaus in embassies and consulates which helped establishing over 2000 Overseas Student Associations and over 300 Professional associations for overseas scholars. Furthermore, the Ministry of Education set up Service Centres for Overseas Study in most major Chinese cities. These centres in return send out "recruitment delegations" to encourage overseas graduates to return. The central institution in this process that coordinates and ensures sufficient support in this process is the Ministry of Education.⁴³ As a result of this action, China has seen a sharp increase in the student return rates alone since the year 2000, going from cca. 9000 in 2000, and rising to 25 000 in the year 2004.⁴⁴

New Zealand (NZ) on the other hand, has collaboration between different state institutions, such as Department of Labour but also the Ministry of Economic Development and the Ministry of Trade and Enterprise as central in this process, as the nature of engagement is envisioned primarily as an economic issue. As such, the NZ government saw it more fitting to put to use the already established networks and organizations of the diaspora that have thus far successfully mediated the collaboration between expatriates and domestic institutions, providing them with financial support to develop further.

The NZ government action has extended itself from diverse approaches coming from the lower level, such as in the form of cooperation between off shore individuals and networks, and domestic professional networks. Furthermore, social scientist "played a crucial role in naming and constituting the Kiwi diaspora as important contributor to the

⁴² Lerner, Wendy. "Expatriate experts and globalising governmentalities: the New Zealand diasporadiaspora strategy." *Transactions of the Institute of British Geographers* Vol. 32 Issue 3 (Sep2007): ,p.336.

⁴³ Zweig, David. "Competing for talent: China's strategies to reverse the brain drain." *International Labour Review*; Vol. 145 Issue 1/2, (2006): p. 65-89.

⁴⁴ Zweig, David. "Competing for talent: China's strategies to reverse the brain drain." *International Labour Review*; Vol. 145 Issue 1/2, (2006): p. 65-89.

national development”⁴⁵, and were followed by extensive media coverage focusing on *lost-generation* and raising considerable public debate in a high profile New Zealand Herald series covering the Kiwi diaspora.⁴⁶

However, what needs to be asserted here is that neither of the mentioned cases above suits the description of a small developing country. States like those in Central and Eastern Europe (CEE) and the Caribbean all have very weak mechanisms and still no systematic approach to the HQ diaspora question. Correspondingly, various research shows most of the expatriates of these countries reported that there are no systematic and institutional efforts trying to engage them, whilst the vast majority expressed their willingness to collaborate with their home country.⁴⁷ This furthermore illustrates that most of the expatriates desire to have their collaboration formalized with the domestic institutions, which requires initiative coming not only from the government level but also from the private and academic sector.

Investment in Science by Focusing on Diaspora Absorption

When it comes to attracting the diaspora, the great problem in the developing countries remains the issue of limited resources and the inexistence of physical and social grounds for attracting the best and the brightest into the country. In most cases, what attracts scientists is a well established research and innovation atmosphere, requiring much higher investments into the development of research on the part of the state. Many countries being aware of this problem have initiated projects and policies to attract highly qualified professionals, such as the Mediterranean Institute for Life Sciences - a \$2 million Croatian government project located on the Adriatic coast, which offers an attractive research facility where Croatian scientists can work.⁴⁸ The government of India has taken steps in correcting the legislative infrastructure to allow pharmaceutical companies to develop their research abilities, as this sector in India was primarily driven by family businesses and investments. Constrains on patents had been severe, but once the legislation allowed more liberal approach, the pharmaceutical sector of India grew rapidly, ranging from about 10% of the domestic supply in the 1970's, to 60-70% today. The firms

⁴⁵ Larner, Wendy. “Expatriate experts and globalising governmentalities: the New Zealand diaspora strategy.” *Transactions of the Institute of British Geographers* Vol. 32 Issue 3 (Sep2007): p338.

⁴⁶ Larner, Wendy. “Expatriate experts and globalising governmentalities: the New Zealand diaspora strategy.” *Transactions of the Institute of British Geographers* Vol. 32 Issue 3 (Sep2007): p338.

⁴⁷ Ciomasu, Ioan M. "Turning brain drain into brain networking." *Science & Public Policy (SPP)* 37.2 (2010): 135-146. Academic Search Premier. EBSCO. Web. 7 Oct. 2010.; Tung, Rosalie L., and Mila Lazarova. "Brain drain versus brain gain: an exploratory study of ex-host country nationals in Central and East Europe." *International Journal of Human Resource Management* 17.11 (2006): 1853-1872. Business Source Premier. EBSCO. Web. 7 Oct. 2010.; Nurse, Keith and Jessica Jones. „Brain Drain and Caribbean-EU Mobility.“ Shridath Ramphal Centre for International Trade Law, Policz and Service, UWI, Cave Hill Barbados, 2009.

⁴⁸ Tung, Rosalie L., and Mila Lazarova. "Brain drain versus brain gain: an exploratory study of ex-host country nationals in Central and East Europe." *International Journal of Human Resource Management* 17.11 (2006): 1853-1872. Business Source Premier. EBSCO. Web. 7 Oct. 2010.

themselves have hired pharmaceutical engineers of Indian origin that are residing in the US ,which boosted their productivity.⁴⁹

China's investment in research development operates with additional guidelines. It conditions the research grant seekers, such as universities and research institutes, to designate a certain percent of the total grant towards raising the quality of the institution's human resources by engaging Chinese scholars that have settled abroad to work temporarily or permanently on the research projects funded. The Chinese case has also provoked some negative reactions. Resident scholars perceive this approach as unfair, as it presumably states that foreign experience is sufficient for any scholar to obtain funding, regardless of the quality of their qualifications and skills. However, this policy has not only managed to attract expatriates but has also significantly increased the capacities of Research centers and Universities in major provinces and cities of China.⁵⁰

Similarly, the New Zealand government investment in research has put a special focus on the expatriate scholars, through the establishment of funding for research and fellowships for their scientific diaspora. As various research has shown⁵¹, migration patterns of HQ migrants are not necessarily dominantly motivated by economic factors (higher wages) but are seeking environments which would allow them to work on advance research projects and to personally and professionally develop, - all of which requires adequate state support in terms of financial and infrastructural backing for research development.

Facilitating Return

Formal relationships between expatriate experts and economic development projects originated in the last few decades, and was institutionalised by UNDPs TOKTEN (Transfer of Knowledge Through Expatriate Nationals) programme.⁵² Many programmes by the international community, including the World Bank, have emerged subsequently, and have gradually paved their way into the national diaspora strategies. One of the main objectives of these programs was to facilitate the return of the highly qualified population to their home country and support them in accommodating professionally.

Further policies developing on national levels started to take more articulated form as the research on expatriate communities and their prospect of contribution to their native countries was explored. Administrative support, in terms of manoeuvring through different institutional and bureaucratic obligations for returnees have emerged through centers that

⁴⁹ Kale, Dinar. David Wield and Janna Chataway. "Diffusion of knowledge through migration of scientific labour in India" *Science & Public Policy (SPP)*; Jul2008, Vol. 35 Issue 6, p. 417-430.

⁵⁰ Zweig, David. "Competing for talent: China's strategies to reverse the brain drain." *International Labour Review*; Vol. 145 Issue 1/2, (2006): p.65-89.

⁵¹ Ackers, Louise. "Moving People and Knowledge: Scientific Mobility in the European Union." *International Migration* 43.5 (2005): 99-131. Academic Search Premier. EBSCO. Web. 7 Oct. 2010. p. 103.

⁵² Larner, Wendy. "Expatriate experts and globalising governmentalities: the New Zealand diasporadiaspora strategy." *Transactions of the Institute of British Geographers* Vol. 32 Issue 3 (Sep2007): p.338

provide guidance in establishing businesses, finding employment, etc. These centers can be located either in domestically or even, as was the case with China, established in the host countries or within the consular services - providing support prior to the arrival in the country. Additionally, expert or scholar expatriates that have decided to return to China for professional reasons, temporarily or permanently, are eligible to receive housing discounts of up to 20%, and separate housing constructions have been built to secure their accommodation - at the beginning, the government provides significant support for the returnees. Additional support to Chinese returnees was provided through the encouragement for the provinces of return and employers to provide special bonuses, and take into consideration the particular needs of the persons that are coming back with families (such as employment for the spouse, child education and encouragement of specialized schools to help children integrate easier).

However, even with all these incentives, there still remains the challenge of adaptation of experts that have remained abroad for an extensive period of time, during which they have lived in different political, socio-economic and cultural systems and adopted values and behaviours that could be quite different from their home country. This re-entry of the expatriates "can determine both the person's ability to perform well in the local environment and ultimately the person's decision to remain and work in the country"⁵³. Furthermore, even shorter periods of time can have such an effect on the returned emigrant. A study that questioned Open Society Institute Fellowship grantees discovered that the young professionals, upon their return to their country of origin, ended up being very frustrated with the environment in which they tried to operate, claiming that neither the physical infrastructure nor the general mentality of their co-workers was complementary to their adopted approach nor open to innovation and improvements in the work environment. This perception furthermore negatively affected their will to remain in the country, and most of them just wait for the opportunity to relocate elsewhere that would be better able to absorb and develop their knowledge.⁵⁴

In addition to the problem of changing mentality and re-integration, some objective issues still remain, predominantly in the developing countries and countries in transition, that are still internally struggling with improving the quality of their education. Many states are still lagging behind in management of the diploma recognition for the professionals who have studied abroad that can contribute to the country's development. This administrative problem can greatly hamper the transfer of knowledge and obstruct the possibility for a self-determined desire to relocate. Failure to take into consideration that the first necessary step to even provide accesses to permanent employment is the diploma/qualification recognition, creates a negative perception by the expatriates about

⁵³ Tung, Rosalie L., and Mila Lazarova. "Brain drain versus brain gain: an exploratory study of ex-host country nationals in Central and East Europe." *International Journal of Human Resource Management* 17.11 (2006): 1853-1872. Business Source Premier. EBSCO. Web. 7 Oct. 2010.

⁵⁴ Tung, Rosalie L., and Mila Lazarova. "Brain drain versus brain gain: an exploratory study of ex-host country nationals in Central and East Europe." *International Journal of Human Resource Management* 17.11 (2006): 1853-1872. Business Source Premier. EBSCO. Web. 7 Oct. 2010.

their country of origin.⁵⁵ Countries where this is an issue need to work on lifting this problem, as the mutual recognition of diplomas will provide for a much easier and more efficient movement of people, brain circulation and knowledge exchange.

As was shown in the short cross-national examination of existing and possible policy options for attracting the HQ diaspora, the question of whether the initiative should come from bottom-up (from diaspora communities and their networks) or from the top-down (via coordinated government actions) does not have a straight forward answer – both approaches have been put into practice and had had success in different cases. It can be concluded that the sooner a concentrated initiative comes, the greater the prospect in success it may bring. In certain cases, such as the setting up of professional networks, the government can assist, but certainly, the main movers are the professional and organisational networks which better understand how to gather around specific agendas. While in most developing countries and countries in transition there still remains a lot of space for governments to work on lifting obstacles for cooperation and return, a more coordinated and thorough approach towards engaging the diaspora, through identifying their capacities, goodwill and needs, must be taken. This approach relies on a reciprocity in which both home countries and diaspora communities gain. As was illustrated, governments that have realized the potentials of their scientific diaspora communities and have managed to engaged them in their country's development, have in some cases seen significant growth, and the establishment of some globally comparative advantages, such as is the case with the Indian Pharmaceutical Sector.

The biggest concern when it comes to the developing and transitional countries is that they are again lagging behind in this process. Presently, it seems that to a very large extent, these states are still in the phase where they are beginning to comprehend the brain drain problem, but without moving on to consider how to develop brain gain and brain circulation policies or truly engage with their diaspora. As will be shown from the Bosnia and Herzegovina case study to be discussed next, more needs to be done in order to truly mobilize the brain gain potential of the scientific diaspora communities.

⁵⁵ Nurse, Keith and Jessica Jones. „Brain Drain and Caribbean-EU Mobility.“ *Shridath Ramphal Centre for International Trade Law, Policy and Service*, UWI, Cave Hill Barbados, 2009.

3. Creating Ties with the BiH Scientific Diaspora

Taking into consideration the previously examined theoretical background as well as global practices when it comes to encouraging brain gain through the engagement of the highly qualified diaspora, this segment will attempt to compare the framework defined with the current policies, practices and experiences in the case of Bosnia and Herzegovina. The analysis is based on both a review of national legislature, policies and documents on the subject, interviews with leading stakeholders in the field, as well as primary data gathered via an online survey distributed among members of the BiH scientific diaspora.

3.1 Who is the BiH Scientific Diaspora?

One of the biggest challenges when trying to identify individual members of this dispersed population of expatriate nationals in the case of BiH is that official and representative data isn't available. In trying to identify and consult relevant members of the BiH scientific diaspora, this analysis was working with that information that was accessible. This is namely the data collected by the Diaspora Department of the Ministry for Human Rights and Refugees (MHRR), which includes those members of the scientific diaspora who have presently been identified by the Department.⁵⁶ Having discussed the data gathering methodology with the Department employees, we found out that given that there is no systematically collected information on the BiH diaspora, the Diaspora Department gathered the data for their own database using various means: personal contacts (counting on the snowball effect), scientific diaspora organizations abroad, internet research, posting a request for information on their website, through BiH diplomatic missions, etc.⁵⁷ The difficulty to obtain data faced by public institutions working on this topic is a finding of its own. In addition to Diaspora Department data, we have used the database of another complementary initiative, the World University Service (WUS) Brain Gain Plus programme, which includes BiH academics residing abroad but having expressed interest to come teach as guest lecturers at BiH public Universities.

Using these sources, we have identified 240 highly qualified individuals of BiH origin that are currently living in countries around the world. A specialized online survey has been constructed for this purpose and sent out to the potential respondents. The questionnaire explored the reasons for migration from the country of origin (push and pull factors), the issues of existing ties with BiH, both personal and professional, as well as possibilities and willingness to contribute to the further development of BiH as their country of origin. The survey response rate was around 20% (46 responses out of the 240 questionnaires sent out), which provides us with respectable qualitative data on migration trends and brain gain

⁵⁶ And whose professional biographies are part of two publications issued by the Department on the topic of "Who is who" in the BiH Diaspora - Ministarstvo za ljudska prava i izbjeglice BiH. "Ko je ko u bh dijaspori, Doktori nauka i istraživači." 2009. ; Ministarstvo za ljudska prava i izbjeglice. "Ko je ko u bh. Dijaspore – Doktori nauka i naučno-istraživački radnici Drugi Dio." Sarajevo, 2010.

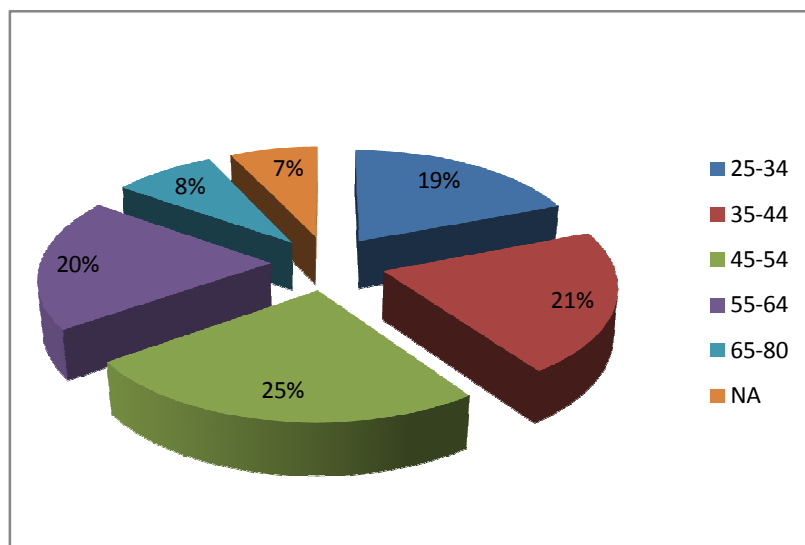
⁵⁷ It is also worthwhile noting that the smallest amount of contacts was in fact received via a 2006 initiative of the Department to send a questionnaire evaluating the situation in BiH diaspora to BiH diplomatic-consular offices.

possibilities. As an addition to analysing the qualitative questionnaire data, we analysed the diaspora members professional profiles part of two Diaspora Department publications, in order to discern some basic demographic features of the BiH HQ diaspora. For this analysis, our sample consisted of 251 individuals.

Analyzing the broader sample⁵⁸ in terms of some basic demographic details, we can organize the geographical distribution of the scientific diaspora within the following clusters: roughly 65% reside in Europe, out of which 15% in the countries of the Western Balkans, while 26% reside in North America. Country wise, the countries of former Yugoslavia notwithstanding, the greatest number of HQ diaspora members are currently residing in the US (21%), followed by Austria (10,5%), Sweden (10%) and Germany (8%). Comparing our sample to the overall diaspora data presented in the 2009 Migration Profile, we can see that the proportions are similar: out of the estimated 1.350.000 emigrants from BiH in the world today, 850.000 are said to be living in Europe (roughly 65%), 450.000 in North America (roughly 33%). Germany, Austria and Sweden are the three leading host countries, former Yugoslavia notwithstanding.⁵⁹ Therefore, our sample structure complements the data available in this regard.

Looking at the distribution by age (see Figure 1), we can see that 40% of respondents are under 45 years old, while 25% are between 45 and 54. A bit above a quarter of the sample population is above the age of 54, or in the more senior category. Finally, 73% of highly qualified diaspora members for whom data is available are male.

Figure 1. Distribution by Age of the BiH HQ Diaspora Sample



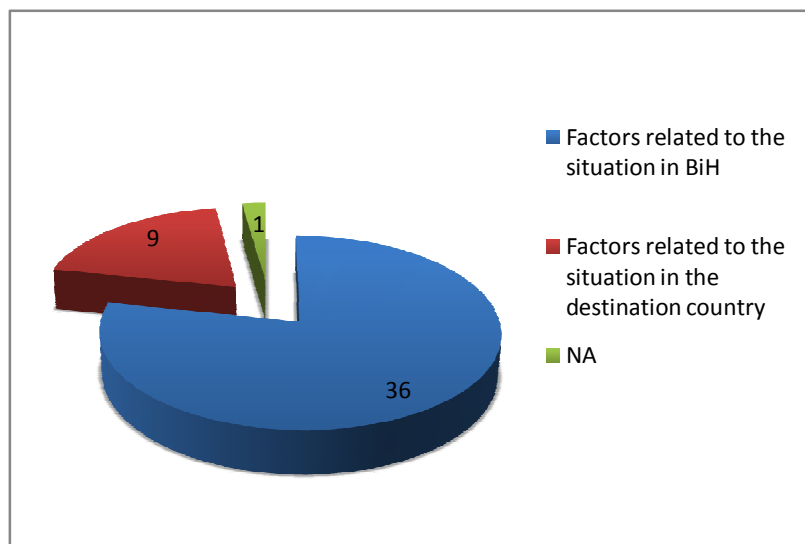
⁵⁸ That of both publications - Ministarstvo za ljudska prava i izbjeglice BiH. "Ko je ko u bh dijaspori, Doktori nauka i istraživači." 2009. ; Ministarstvo za ljudska prava i izbjeglice. "Ko je ko u bh. Dijaspori – Doktori nauka i naučno-istraživački radnici Drugi Dio." Sarajevo, 2010.

⁵⁹ Ministarstvo sigurnosti BiH. Sektor za imigraciju. *Migracioni profil BiH*. 2009.

In terms of their educational background, the great majority within the broader sample hold PhDs (86%), with their professional background being almost equally distributed between social sciences (31%), medical and pharmaceutical sciences (25,4%) and information and technology (24,6%). Although the sample is too small to epitomize on the more specialized distribution of the types of expertise diaspora members hold, and thus too vague at this point to provide confident data for sectoral policies, it however provides a basis for further exploration. Further focus could be set to target the establishment of more confident numbers in these above mentioned fields, in particular by the institutions that could directly benefit from the exchange with diaspora members in this domain.

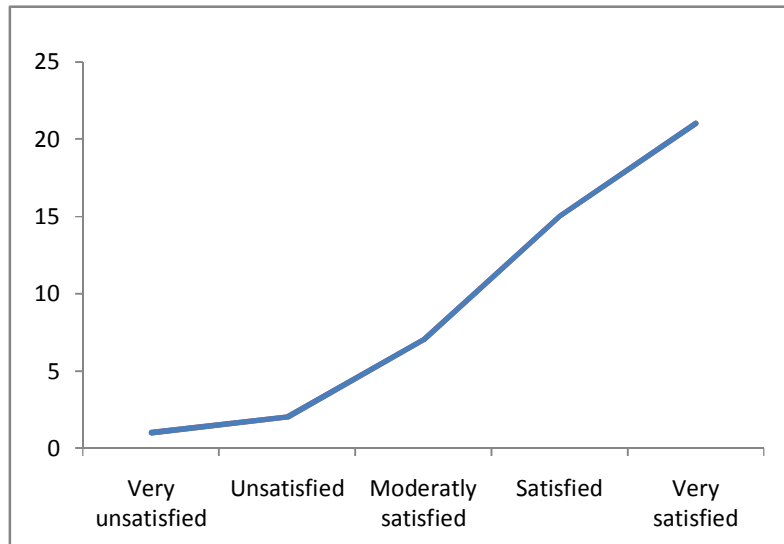
Turning to examine the responses to the survey distributed, looking into data on migration trends of this particular group of respondents, there is a visible congruency of reasons for migration onto the *push* group of factors, with 39 out of 46 respondents having stated that they migrated due to factors related to the situation of their home (sending) country (BiH), rather than those related to the destination country (see Figure 2). This can be put in relation with the year of migration from BiH, as the majority of respondents motivated by push factors highlight the 1992-1995 war as one of the most prominent reasons for migrating. Additional highlighted reasons included complementary answers – political instability and general insecurity. In effect, within our sample, roughly 40% of respondents are “war migrants” - having emigrated between 1992 and 1995. 20% (9 respondents) emigrated between 1970 and 1989, and only four persons migrated during what could be called the second wave of migrations in BiH – from 2001 until present days, and 5 respondents migrated during the first post war migration wave (1996 – 2000). Although based on a very limited sample. This supports the findings on the *war* and *post war* migration of the highly qualified. Out of those respondents who indicated *pull* factors as key reasons for their departure, the leading reasons were the possibility for professional or academic development and a positive socio-economic environment.

Figure 2. Factors Shaping the Decision to Migrate from BiH



On the opposite side, though the pull factors of the destination country were not the deciding element in the decision (need) to migrate, the great majority of respondents expresses a high degree of satisfaction with their situation in their present country of residence (see Figure 3).

Figure 3. Level of Satisfaction with Own Situation in the Receiving Country



Examining their ties with BiH today, we can conclude that most respondents are maintaining frequent ties with their home country. The poles are equally divided between those who visit BiH once a year or less, and those who at least come annually if not more often. Furthermore, the majority of respondents follow the general developments in BiH with notable intensity, as well as maintain very frequent contact with the country via telecommunications. The few respondents that are not following the home country developments migrated before the war in BiH, and this connection could be investigated more deeply.

As a final note to this first segment, introducing the BiH scientific diaspora based on the qualitative survey conducted, findings demonstrate the majority of respondents would like to contribute in some way to the development of BiH, with an overwhelming majority being of the opinion that their involvement could have considerable positive contribution to BiH development. This fact is in part meeting one of the fundamental precondition for putting forward effective brain circulation policies– the fact that there is an interest among HQ individuals presently living outside the BiH to contribute to the development of the country in various aspects. Prior to taking a further look at possible ways of cooperation as well as existing experiences from the perspective of the BiH scientific diaspora, we will first take to examining efforts taken by BiH institutions and organizations in establishing ties with citizens living abroad and thus supporting brain gain policies. A quote from one of the respondents is a good introduction to the discussion: “The BiH scientific diaspora presents a great scientific and professional potential, crucial for BiH, but presently not utilized.”

3.2 Is there Strategic Focus in Establishing Ties with BiH Scientists Abroad?

As was concluded in the first phase of ACIPS' research on the subject,⁶⁰ there is presently no real strategic approach by BiH public institutions in tackling the issue of brain drain and demonstrating necessary attempts to counter these trends via concentrated efforts in developing brain gain policies. We will examine this issue in more detail using the previously established policy cluster framework.

3.2.1 Diaspora Identification

The declared stand of the BiH government in regards to emigration issues is that consciousness does exist of the need to strengthen ties with the BiH population living abroad, thus fully utilizing the resources they provide as well as promoting returning. However, due to other pressing priorities within the country, such as its basic reconstruction following the war, the issue of refugees, displaced persons, as well as other ongoing domestic issues, there has been thus far not much space for significant initiatives towards BiH citizens living abroad.⁶¹ This finds further illustration in the fact that there has since the year 2000 been only one small department within the Ministry for Human Rights and Refugees (MHRR), the previously mentioned Diaspora Department, devoted to the question of the numerous BiH Diaspora. The Department is tasked with conducting activities related to the development of policies and strategies for engaging with the diaspora, including the collection of data and identification of highly qualified BiH citizens abroad, as well as the establishment of contacts with existing diaspora networks.⁶² However, as has been discussed earlier in the methodology of this research, it is precisely the lack of data on BiH citizens living abroad which presents one of the basic problems in developing focused policies in this field. The fact that the Diaspora Department itself is unable to access information in this area in a structural way is telling of the extent of the predicament. Additional anecdotal evidence pointing to this fact is that the BiH diplomatic missions are often contacting BiH ministries to receive information on the various statistical indexes regarding the BiH population abroad, in a country of their own jurisdiction.

As a positive first step, the Department has as of late been participating in the process of drafting of the BiH Development Strategy, and able to introduce priorities and measures addressing the brain drain plight, including recommendations for putting to use the potential, skills and knowledge of the HQ diaspora towards the development of BiH. Recommendations furthermore include using the diaspora potential in human resources development, and increasing competitiveness via the introduction of programmes and policies encouraging BiH's experts and professionals/scientist to return and reintegrate, the development of strategies for circular migration of scientist, establishment of closer ties and networks with the

⁶⁰ Nikolić, Sara, Boriša Mraović and Emina Ćosić. „Brain Gain: kako vratiti, zadržati i dovesti stručnjake u BiH?“ *Association Alumni of the Centre for Interdisciplinary Postgraduate Studies (ACIPS)*: September 2010.

⁶¹ Ministarstvo sigurnosti BiH. Sektor za imigraciju. *Migracioni profil BiH*. 2009. p.50

⁶² Ministarstvo za ljudska prava i izbjeglice BiH. *Ko je ko u bh. dijaspori, Doktori nauka i istraživači*. 2009.; Ministarstvo za ljudska prava i izbjeglice BiH. *Ko je ko u bh. dijaspori, Pisci*. 2009.

academic diaspora abroad, etc.⁶³ The complementary action plan opens a space for the establishment of a focused approach for realizing the aims expressed in the strategy, which would present a positive step forward. However, despite the fact that both of these documents were planned to come into force back in 2008, the draft has not been adopted by the Council of Ministers to this date. Furthermore, comments of various experts warn that the current draft is not implementable due to too vaguely and broadly defined needs, and that there is still much room for improvements. Similarly, though the activities proposed for working with the diaspora are fairly all-encompassing, further strategic prioritization needs to be made to ensure efficiency and applicability of the initiatives. As stated earlier, a necessary first step is gathering sufficient information on the scientific diaspora community, in order to be able to develop strategic policies in their regard. The Diaspora Department is also promoting the idea of adopting a Diaspora Strategy for BiH,⁶⁴ which is also a document that needs to heavily rely on the currently unavailable data on BiH citizens abroad.

Finally, in addition to the work and the initiative of the Diaspora Department, successful implementation of the above-mentioned strategic documents if and when they are formally adopted, will require a much wider engagement of diverse stakeholder institutions on the state level as well as lower levels of governance than it is currently the case. This support is primarily expected of the Ministry of Foreign Affairs, which shares with the MHRR the responsibilities related to the BiH Diaspora, as well as the Ministry of Civil Affairs, the key ministry on the state level dealing with education.⁶⁵ However, the implementation of all State strategies is heavily dependent on the engagement of the lower levels of government, as they possess the most significant jurisdiction on relevant issues, specifically in the case of the ministries of education and science, as well as universities.⁶⁶

3.2.2 Investment in Science and Research

The investment in science and innovation presents an important factor for motivating highly qualified experts to reside in BiH or establish some form of cooperation with the country's institutions. Currently, the greatest challenge in the field of science and innovation is the financing of this sector. BiH expenditures for the development of science currently reach only 0.1% of the GDP, a low rating compared to the overall EU standard of 2%. This problem is addressed in the Science and Research Development Strategy, alongside with other demotivating figures illustrating the general low activity of BiH in the research domain.⁶⁷

However, this Strategy is at the same time the only adopted public document recognizing the problem of brain drain in BiH, and the importance to act upon it. The strategy

⁶³ Additionally, the draft BiH Social Inclusion Strategy also establishes the engagement of scientist and professors abroad via the exchange of experiences, long-distance knowledge transfers, but also lecturing via on-line courses in cooperation with BiH universities. (Stanić, Isma. Ministry for Human Rights and Refugees. *E mail correspondance*. 02. 07. 2010.; Stanić, Isma. Ministry for Human Rights and Refugees, *ACIPS Roundtable*. "Priliv mozgova/pameti: kako dovesti, vratiti, zadržati stručnjake u BiH?". Sarajevo, 24. 06. 2010.)

⁶⁴ Stanić, Isma. Ministry for Human Rights and Refugees. *E mail correspondance*. 02. 07. 2010.

⁶⁵ Due to the lack of a state level Education Ministry.

⁶⁶ Stanić, Isma. Ministry for Human Rights and Refugees. *E mail correspondance*. 02. 07. 2010.

⁶⁷ Vijeće ministara BiH. *Strategija razvoja nauke u BiH 2010.-2015.* 2009. p.13.

recognizes the emigration of scientists as a problem that requires a systematic diagnosis. Further recommendations provided are related to the advancement of two-way scientific exchange programmes, principally through the creation of feasible legislative regulations that would simplify and stimulate an unobstructed transfer of knowledge and technology, the participation of BiH academic community in European research projects, and vice versa.⁶⁸ However, though present in the strategic document, the question of brain drain does not find itself at the top of the priority list of the Strategy, which is furthermore testified by its Action Plan for implementation, that itself does not include precise steps and measures for achievements of the recommended goals.

3.2.3 Facilitating Return

Facilitating return has been one of the most prevalent post-war brain gain efforts, concentrated in activities that have thus far mostly consisted of short-term initiatives orchestrated by international and non-governmental organizations attempting to support temporary or permanent return of qualified nationals. The most significant amongst these projects were the Return of Qualified National (RQN) and the Temporary Return of Qualified Nationals (TRQN), implemented by the International Organization for Migration (IOM), and UNDP's Transfer of Knowledge through Expatriate Nationals (TOKTEN). All of these programs provided significant financial assistance either for participants directly or as support to the institutions that were to absorb the returning capacities.

Despite the effort invested through these initiatives, when the BiH government was asked to take over the implementation of the TOKTEN project, no interest was shown. As a result, foreign governments who have been investing in these initiatives,⁶⁹ are now diminishing the funds granted.⁷⁰

It is furthermore very important to state that the projects implemented have seen a significant rate of candidates (BiH experts and professionals living abroad) interested to contribute to BiH's development without expecting much financial remuneration. However, besides for the already discussed lack of state-interest to provide support, they have come across numerous systematic obstacles in trying to give their participation. Namely, the lack of a harmonized recognition for the concept of volunteerism on different levels of government.⁷¹ As an additional obstacle to the mobility, and particularity the mobility of BiH students, including the return of students that have studied abroad, presents the issue of diploma recognition. Despite the establishment of the Center for information and diploma recognition in the field of higher education, BiH still has no functional system for diploma recognition and accreditation. This issue is still regulated on the lower levels of government (ministries of

⁶⁸Uvalić, Milica. Science, technology and economic development in South Eastern Europe. 2005

⁶⁹ Such as is the Government of Netherlands currently for TRQN.

⁷⁰ Boucault, Regina. Barnes, Sasha. Šunje, Alma i Jugović, Stevan. International Organisation for Migration (IOM). Interview. 19. 04. 2010.

⁷¹ The Law on volunteerism is still pending in the case of the Federation of BiH Entity, the status being regulated by one sole article of the F BiH Labour Law. (Mreža Volontiram. *Aktivnosti i procesi za uspostavljanje zakona o volontiranju u Bosni i Hercegovini*. Pristupljeno: 30.10.2010. Dostupno na: <www.volontiram.ba>)

education and universities), which at the same time don't have a unified and efficient procedures across the country. Further issues related to the facilitation of return of the BiH diaspora is the existing Law on BiH citizenship. Reiterating what is stipulated in the BiH Constitution, this law conditions that a citizen loses his/her BiH citizenship upon the adoption of a foreign citizenship, with the exemption of those citizenships where bilateral agreements between states exist. This paragraph of the Law is currently frozen, and is to come into effect by the end of 2012.⁷² BiH currently has bilateral agreements signed with only two states: Serbia and Sweden. If the legislation isn't modified, the country runs the risk of losing a significant number of its citizens living abroad, and with them its human capital.

To briefly conclude this discussion, despite certain positive but isolated efforts, there is currently a lack of strategic focus on the part of BiH institutions in establishing ties with the highly qualified citizenry living abroad. There needs to be more effort directed towards raising awareness and understanding of all sides involved in this process in order for it to become mutually beneficial.

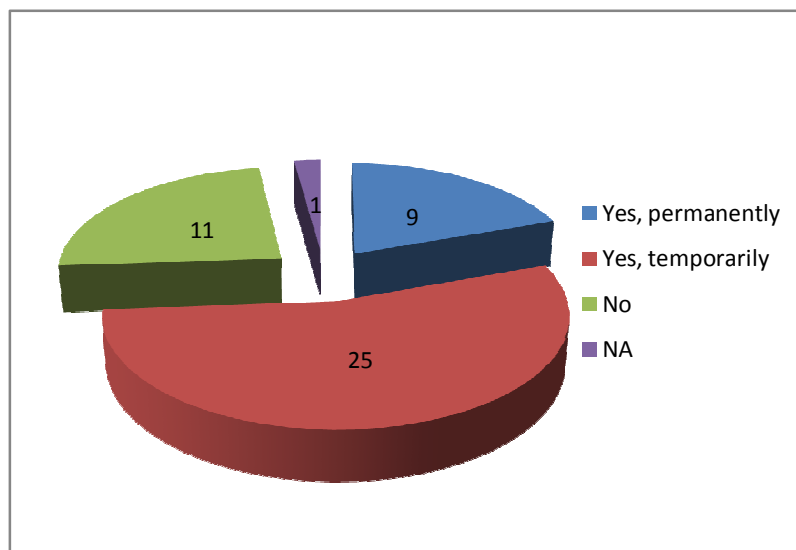
3.3 Engagement From the Perspective of the Scientific Diaspora

In the previous segment, setting a basic 'profile' of the BiH scientific diaspora based on limited data, it has been indicated that members of the diaspora are in fact very interested in establishing ties and methods of cooperation with BiH, as well as with fellow diaspora members abroad.

Asked whether they wished to return to BiH, most indicated desire to do so, however, for the most part temporarily (see Figure 4). This is partly related to the previously defined overwhelming satisfaction with the situation in the country where they are currently residing. In addition, respondents still have an overwhelmingly negative perception of the general situation in science and research in BiH. Equally low grades are given in when it came to assessing the general economic and entrepreneurship environment in BiH, as well as the overall country context. When asked which factors would be key in determining their willingness to return to BiH, the highest priority was given to the possibility for employment in one's area of professional expertise, followed by family, financial security and political stability, all on equal footing of importance. In complement to this, a majority of respondents stated they have in effect not attempted to return due to the factors related to the present situation in BiH.

⁷² „Zakon o državljanstvu BiH“. *Službeni glasnik BiH*. broj 13/99.

Figure 4. Desire to Return to BiH



The majority of respondents have never tried to return to BiH. Among those that have attempted to return, majority report primarily administrative obstacles and diploma recognition as the main problems they had to face. As stated in the previous segment, it is necessary to work on improving this through additional jurisdiction and further integration of the CIP agency (the Center for information and recognition of documents in the sphere of higher education) responsible for the recognition. This would remove the current problem of fragmented and inefficient and time consuming recognition practices.

However, what is perceived by the respondents as even more problematic than the administrative and technical blockages is the seeming lack of initiative of institutions and organizations from BiH when it comes to establishing any kind of relationship or cooperation. Most of the respondents have already had some interaction with local organizations/institutions. In the great majority of cases, this cooperation was the result of their private initiative. As one respondent states,

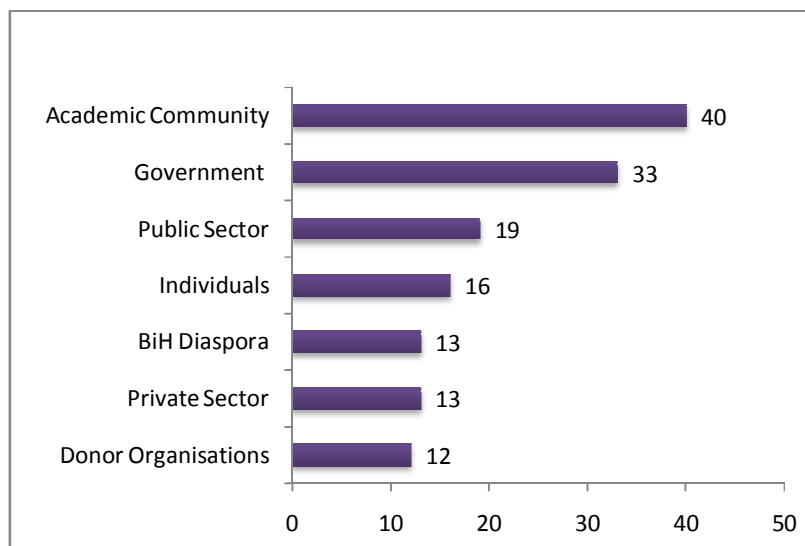
I've tried, on my own initiative, to establish ties with the Faculty of Mathematics and Natural Sciences in Sarajevo and the Technological Faculty in Tuzla. Through contacts with the former institution, I've organized one seminar at the Engineering Faculty in 2007. I've managed to exchange two e-mails with the faculty in Tuzla, through their Dean, and then the communication stopped (not of my own fault). I've lost the desire to try to motivate people who are in the state of complete anemia when it comes to any type of cooperation.

This type of comment, giving a fairly negative review, seems to be quite representative of the general opinion of BiH scientists abroad. Other respondents expressed the view that, rather than taking the initiative to attract experts, the government and ministries are doing the exact opposite – rejecting this support when it is being offered. Overall, respondents shared the perception that initiative on this side is either minimal or lacking completely. All

examples of positive cooperation are orchestrated on an individual to individual basis, and are extinguished shortly after one of the initiators leaves the equation. This again highlights the need for institutionally established methods of cooperation.

Additionally, the institutions with which the largest amount of connections has been established up until now, with the academic sector being the forerunner, followed by the public sector, are also those which are deemed most problematic. The greatest number of respondents stated that support from the BiH government and academic institutions is most needed (see Figure 5.), which coincides with their perception of main problem areas as well. There is an overarching perception that the Universities are closed and unreceptive to change. The negative policies of selection for professional and academic engagement are perceived to be the modus operandi in both academia and public institutions, and that though the governing structures are declaratively supporting the idea of cooperation, no substantive progress has been made.

Figure 5. Stakeholders Perceived Most Responsible for Successful Cooperation



Overall, the discussion presented here, as well as in the previous section, clearly demonstrates the significant lack of any sort of institutionally focused approach that would seriously take into account the possibility of using the diaspora potential, complemented by the low level of satisfaction of scientific diaspora members with the cooperation established thus far.⁷³ This calls for a thorough shift in the current practice of both institutions and organizations that should be/are working on these issues. To shift the focus from negative thinking, the following segment considers ways of moving forward, or suggestions of paths for cooperation that seem most plausible to the members of the BiH scientific diaspora.

In exploring previous and potential types of cooperation the respondents highlighted as most interesting, the prevalent focus was placed on building professional networks, both

⁷³ Insufficient access to information on possibilities of cooperation has also been highlighted as a problem.

with institutions in BiH but also with institutions and organizations from the region (i.e. the countries of former Yugoslavia). This finding complements another need identified in the interview process with regional stakeholders - the fact that the cooperation that previously existed between academic institutions operating in former Yugoslavia, and which is still maintained today on an informal level, should be re-formalized to complement brain gain and brain circulation trends.⁷⁴ The fact that respondents from the scientific diaspora expressed overwhelming interest to participate in regional cooperation also provides additional incentive to work on re-establishing these institutional ties. Other manners of cooperation respondents are interested in include: the organization of congresses of the scientific diaspora, support to scientific conventions, via distance learning, as well as the organization of institutional visits. In this selection of preferred ways of cooperation, it becomes evident that, alongside cooperation with the country of origin, interest exists for the creation of stronger ties within the scientific diaspora community in general. When asked whether they are presently members of a formal or informal organization or network of BiH professionals abroad, the majority of respondents answered negatively. Though there are, therefore currently, no capacities for a formalized bottom up approach when it comes to brain gain policies, research shows that interest for creating as well as strengthening existing scientific diaspora networks⁷⁵ does exist and presents a future brain gain potential as such.

Finally, in the open-ended part of the questionnaire, respondents put forth additional ideas of how they feel they can contribute to BiH development. Several mentioned their capacity to provide a space within their own institutions for further education of prospective young scientist, both in the form of short term engagements, as well as possibilities for post-doctoral fellowships. Finally, one interesting idea which emerged several times is the capacity of older scientists, once they reach retirement, to devote more of their time to the development of their home country. As one respondent states: “I will soon retire and I am certain there are many scientists in a similar circumstance. For those scientists, it is relatively easy to temporarily (or permanently) return to BiH [...] and contribute their time” and expertise. Looking at our sample profile, a bit over a quarter of respondents are presently seniors.

Based on the data available, this final analysis has provided certain indications as to the *profile* of the BiH scientific diaspora, the extent of their ties to their home country and interest to contribute to its development. At the same time, it has assessed the present policies and trends when it comes to engaging diaspora members, with particular focus on the activities of the state in this respect, as well as attempted to illustrate the diaspora’s own experiences in establishing professional ties with BiH as well as ideas and interests when it comes to furthering this cooperation. What has been shown is that there is a significant

⁷⁴ Tanović, Lamija. Former Head of the Department for International Cooperation in Science, Technical, Education, Culture and Sport cooperation within the BiH Ministry of Foreign. Professor at the Mathematics and Natural Sciences Faculty of the University of Sarajevo. Interview. 20. 04. 2010.

⁷⁵ Example of successful networks identified thus far include BHAAAS – the Bosnian-Herzegovinian-American Academy of Arts and Sciences, the Academy of science, arts and culture in The Netherlands (NAUK), the Bosnian-Herzegovinian-Danish academic club in Denmark, the APU network in Sweden providing development opportunities for young academics, entrepreneurs and artists coming from BiH, and the ARS BOSNAE arts club in Germany.

number of BiH diaspora members who have genuine interest to contribute to the development of their home country. Having an overall high rate of satisfaction with their situation in the country they reside in, interest is primarily manifested in the type of cooperation which involves temporary return or occasional visits, building professional networks, both nationally, regionally, as well as within the diaspora community itself, and are also open to providing support to promising young BiH scientists within their own institutions. Though it has been concluded that further strengthening of the formal scientific diaspora networks is needed if they are to be the initiating force behind a bottom-up brain gain approach, it has certainly been demonstrated that the potential for this exists.

However, perspectives are not as bright when looking from the top-down. Namely, the country-focused mapping of existing policies and practices in regards to brain gain has not shown there to be many advancements in the case of BiH, despite for the activities of a sole Department within the Ministry for Human Rights and Refugees, who is unable to tackle the issue on its own. The lack of strategic support was also witnessed in the unsatisfied responses of the members of the BiH diaspora, who pinpoint the academic community and the public institutions as the key barriers to the process of establishing ties, while they are at the same time identified as the leading actors in achieving cooperation. The problem of data unavailability in regards to the scientific diaspora, coupled with the need to work on concentrated awareness-raising on the importance of developing strategic brain gain policies seem to be the necessary next steps forward.

Conclusion

As we attempted to demonstrate here, the problem of brain drain and of putting in place adequate policies and practices enabling brain gain and brain circulation within Bosnia and Herzegovina is of the utmost importance for the overall development of the country, and requires greater attention as such. In the recent decades, BiH has faced the departure of highly qualified experts, who are the pillar of any society in the knowledge-based world of today. However, BiH is simultaneously not doing enough to counter these negative trends. Despite for several independent and for the most part short-term initiatives, there has been little strategic focus placed on dealing with this problem. A general trend of lacking investment, awareness and readiness of public institutions to assign and follow-up on jurisdictions in this area remains blatant. The topic of brain drain and brain gain does not take importance in the domain of public policies and is currently not a large part of the country strategic focus in this regard.

This situation is very much reflected in the position (or rather, the lack there of) BiH is presently taking in regards to engaging with its scientific diaspora. Though the research has illustrated there exists defined interest and potential for brain gain and an improvement to brain circulation practices within the highly qualified BiH diaspora, little effort has been made by national institutions to properly engage with members of these expatriate scientific communities. Thus far, the interest in cooperation is far greater among the actual members of expatriate scientific communities than among and within the institutions that could benefit from this cooperation, which has the potential of contributing to the positive development of educational standards, academic performance and the business environment in BiH.

Taking notes from the best practice cases and policy clusters presented in chapter 2 of this study, BiH needs to take charge in primarily identifying who the professionals in the diaspora are, countering the present lack of data in this regard, in order to be better able to develop strategies to include them, as well as develop a focused country development strategy taking this important expertise into consideration. This research has made some qualitative steps in this regard, which do highlight several brain gain potentials of the BiH diaspora: the high level of education and expertise, combined with the high level of motivation of questionnaire respondents to contribute to the scientific and academic development of their home country; their willingness to transfer scientific ties and expertise from institutions abroad to those within their home country; as well as the still present attachment to the home country, which might fade away in the generations to follow if action to create ties isn't taken now. Additional efforts from BiH diplomatic missions in countries with the highest concentration of HQ nationals (but not exclusively in those) to get information on and reach out to these citizens – through holding consultancy meetings and similar venues could be a first good practice to follow, especially considering the predominantly negative attitudes among BiH HQ emigrants in regards to the general state interest for their contribution, as showed in our findings.

In addition to learning more about who the BiH scientific diaspora is, it is necessary to continue developing strategic documents and policies recognizing the importance of tackling the brain drain issues, thus shaping the BiH strategic focus in the field. Some positive first steps have been taken in this regard by the MHRR Diaspora Department; 1) most notably in introducing the concept of knowledge-based economy within the draft BiH Development Strategy, 2) in part via placing focus on the establishment of ties with the BiH scientific diaspora. If more precise information on and a wider web of contacts with the scientific community abroad can be established, this can subsequently contribute to formulating clearer development goals. This relates to both the strengthening of ties with the communities themselves, as well as further defining broader national development (and scientific development) goals, taking the professional and scientific background of the diaspora into consideration.

Engaging the diaspora also requires the removal of legislative obstacles to their participation, such as is currently the case with the auspicious formulation within the Law on Citizenship and the BiH Constitution in what regards dual citizenship. In addition to this, an equally pressing problem remains the issue of harmonizing the diploma recognition processes in the country, permitting both experts having received their degrees abroad to be recognized in their home country, as well as enabling young prospective scientists to access opportunities abroad, but also be able to receive recognition upon their return to BiH. In relation to this, BiH needs to further pursue an effective higher education reform (including the full implementation of the Framework Law on Higher Education) and harmonization of educational standards with the Bologna processes, as this is a prerogative to both young scientists being able to circulate and expand their knowledge base, as well as to the successful cooperation with highly qualified diaspora members.

Finally, as this research has shown, the BiH highly qualified diaspora presents a largely untapped brain gain potential for the country, due to its interest in engaging in home country development as well as its potential for furthering the establishment of agenda-based professional networks, and providing institutional support to prospective young BiH scientists. Research has therefore illustrated that giving consideration to the diaspora's potential can have very fruitful results on a country's economic and social development as a whole. However, if this potential is not strategically recognized by the home institutions and support shown for knowledge creation and circulation, a backlash can be created, with additional scientists leaving home to join established professional networks abroad, with little prospect of returning. Without more concentrated action taken and initiative demonstrated by the BiH state and academic institutions, Bosnia risks to permanently lose the great potential represented by its highly qualified citizens living abroad.

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