# The Role of the Diaspora in the Internationalisation of Georgian Scientific Research

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This paper provides a state of the art review of the process of the internationalisation of scientific research in Georgia: the challenges and opportunities that exist within a global and highly competitive context. More specifically, the paper focuses on initiatives that encourage Georgian diaspora scientists to commit to building transnational collaborative ties in science, technology and innovation (STI).

## Introduction

The intellectual resources, knowledge and experience of Georgian professionals currently working overseas for leading international research institutions can serve as an invaluable source to tap into opportunities in the field of science. Working on project proposals, drafting jointly developed programmes, exchanging practice and contacts, and creating other complementary and mutually beneficial activities have motivated scientists in the diaspora to pursue work with their colleagues at home. Georgia has significant experience in terms of mobilizing its diaspora. An analysis of these efforts can provide invaluable support for the science internationalization process.

In addition to the review of other opportunities, this paper explores one of the competitions (request for proposal) administered by the Shota Rustaveli National Science Foundation (SRNSF) of Georgia. The SRNSF collaborative research funding scheme (the so-called diaspora grant) aims at attracting diaspora scientists, and strengthening ties between Georgian research teams and their potential collaborators residing abroad. Information about Georgian institutions involved in this funding scheme provides valuable insight into how they develop international cooperation as a result of diaspora engagement and identifies their strong scientific domains.

The key challenge currently facing the Georgian authorities is to relevantly assess the changing dynamics of international migration. The authorities must also create various supportive mechanisms and favourable circumstances for diaspora scientists to contribute to the advancement of both home and host societies. Studying and understanding the makeup and trends in the diaspora is an essential first step when developing such supportive conditions.

## Migration and Development

- **Even though migration and development is a popular topic of discussion these days, it is inadequately reflected in the strategic development documents. At this stage, Georgia's Migration Strategy 2016 - 2020 is the only document that refers to migration and development consistently, applies comprehensive situational analysis, focuses on international migration's positive effects and highlights the prospects migration may hold for development. It is advisable to consider migration and development in the policy documents that define the county's priorities.**

There have been many discussions, high level dialogues, analytical papers and recommendations dedicated to or concerning the issue of human migration and development. Particularly in recent years, various states and international institutions have taken measures to improve migration management. Research papers on human mobility are increasing. It is gradually becoming quite evident that safe and well-managed international migration supports the creation of a solid foundation for sustainable economic development. Despite the fact that it is considered a high priority, migration and development are poorly

represented in Georgia's national development policy documents. National strategies do not include paragraphs dedicated to international migration or the engagement of compatriots residing abroad. Georgia's Social and Economic Development Strategy – **Georgia 2020**, limits its scope to the country's labour migration policy (highlighting the necessity of proper labour migration policy). **There is not a single paragraph about engaging the Georgian diaspora in development.**

On the other hand, it is noteworthy that Georgia's Migration Strategy 2016-2020, developed as part of the State Commission on Migration Issues, underlines the potential of the diaspora in the country's social and economic development process. The document has a separate chapter on migration and development and provides objectives to mobilize highly skilled diaspora for development.

'Throughout history, migrants have fuelled the engine of human progress. Their movement has sparked innovation, spread ideas, relieved poverty, and laid the foundations for a global economy. In a world more interconnected than ever before, the number of people with the means and motivation to migrate will only increase'

Ian Goldin, Geoffrey Cameron and Meera Balarajan, **Exceptional people** - How migration shaped our world and will define our future (2011)

In 2006 UN Secretary-General Kofi Annan delivered the International Migration and Development report. The document summarizes global migration patterns; refers to the need for intergovernmental cooperation; and highlights the role of migration in improving economic conditions, both in the countries of origin and countries of destination. Another highlight of the document is the section on skilled migrants as the creators of positive change - even if highly skilled international migrants do not return to the countries of origin, they can still strengthen educational, cultural and economic links between the two countries: 'The migration of skilled migrants has a number of positive aspects. Migrants have the opportunity of acquiring or improving skills and experience abroad and, even if they stay abroad, may prove - as investors, philanthropists, bearers of new knowledge or promoters of trade and cultural exchange to be valuable resources for their country of origin[1].'

In 2007 a new initiative by UN states was officially launched - **The Global Forum on Migration and Development[2].** GFMD is a high level, non-binding, informal platform. It engages representatives from state institutions, civil society, independent experts, NGOs and diaspora organisations. GFMD enables various governments to engage in dialogue about global and common challenges in the context of international migration. GFMD provides an annual platform to share positive practices, discuss international priorities and build partnerships.

The Organisation for Economic Co-operation and Development (OECD) is one of the international actors that assists governments to develop migration related policies. The OECD publication 'Connecting with Emigrants - A Global Profile of Diasporas" (2012,) explores the diasporas of 140 countries, providing information on the number of emigrants and describing their characteristics. The publication highlights emigrants' exceptional contribution to their homelands: there are some circumstances that hinder and some that support them, as well as factors that greatly precondition diaspora engagement. In this context, the number, education, qualifications, field of activity are all important circumstances. The level of migrants' integration in the receiving societies as well as social, economic and political circumstances in the country of origin also carry significant weight: 'The potential of a diaspora as a resource of economic

[1] International migration and development Report of the Secretary-General, 2006.

[2] The Global Forum on Migration and Development web-page https://gfmd.org

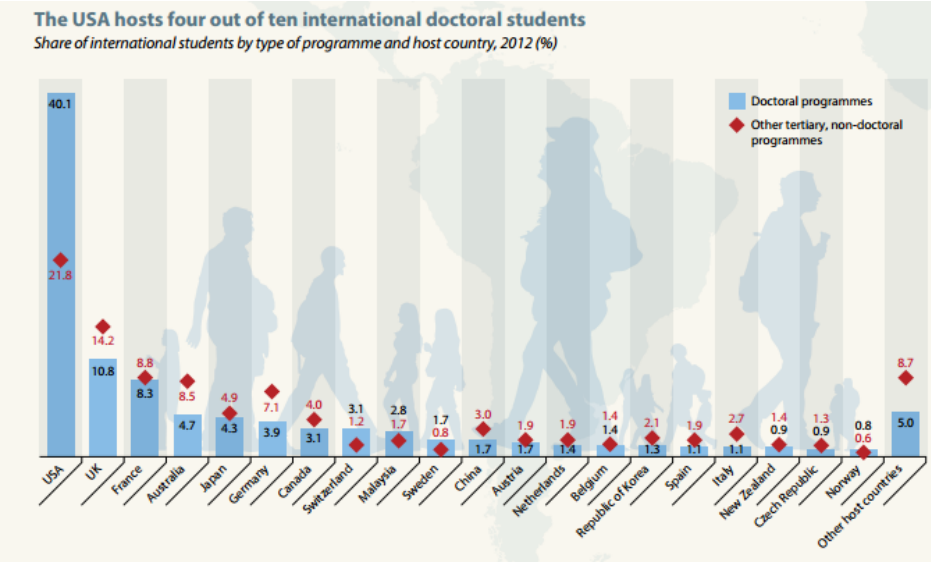
and social development in origin countries and whether diasporas could help foster development depend on its characteristics, such as size, composition, skill levels and degree of concentration, but also on the degree of integration into the destination countries and the economic, political, social environment in origin countries'[3].The OECD places emphasis on the knowledge production about diaspora ('availability of high quality and internationally comparable data on diaspora'). In close cooperation with the Agence Française de Développement, OECD has gathered and analysed migration-related information and made it accessible to the wider public.

One of the principal directions of the migration - development nexus is the relationship of state to its diaspora. Authors within migration research agree that a term ***diaspora*** is often used in a vague manner. It has gradually taken on a definition that has allowed it to become a wider concept. 'The European Commission (2005) uses a broad definition in its **Communication on Migration and Development**. The diaspora from a given country therefore includes not only the nationals from that country living abroad, but also migrants who, living abroad, have acquired the citizenship of their country of residence (often losing their original citizenship in the process) and migrants' children born abroad, whatever their citizenship, as long as they retain some form of commitment to and/or interest in their country of origin or that of their parents'

## The Role of Highly Skilled Migrants in the Internationalisation of Science

- Science is becoming increasingly mobile. Researchers choose dynamic states as their destination countries, where a system to support the sciences is in place and individuals can enjoy a completely favourable environment to implement their research projects.
- Highly qualified professionals want to be affiliated with countries that have a result-oriented strategic vision, countries with a targeted, well-structured and highly operational STI (Science, Technology and Innovation) system. As a result, more talented, motivated and risk-taking foreigners with strong international backgrounds are recruited at laboratories in receiving states. They design innovative products, accelerate scientific progress and create a favourable learning environment on behalf of the receiving countries.
- According to the UNESCO science report[4], the world's high-income economies maintain and increase investment in science development. By doing so, they continue to attract international intellectual capital and promote economic growth within their respectful countries.

In 2015 UNESCO launched the world science report – **UNESCO Science Report – Towards 2030**[5]. The document provides a state of the art review on science, technology and innovation in different regions and countries. One of the key messages of the document is '**science is becoming more mobile':** 'The number of international students rose by 46% between 2005 and 2013: from 2.8 million to 4.1 million. Countries are striving to attract and retain talent to drive the knowledge economy to which they aspire or to maintain their international competitiveness'[6].

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This data is from USECO report. More detailed information is available on the link: https://en.unesco.org/sites/default/files/usr_2-12_prefered_destination_students.pdf

The European Union employs a specific strategy to attract international students to European universities. The US is taking the lead in terms of research and innovation investment. 'The top five countries for R&D expenditure are (in billions of current purchasing power parity (PPP$)) are the USA (PPP$ 454 billion), China (PPP$ 337 billion), Japan (PPP$ 160 billion), Germany (PPP$ 101 billion) and the Republic of Korea (PPP$ 69 billion)'.

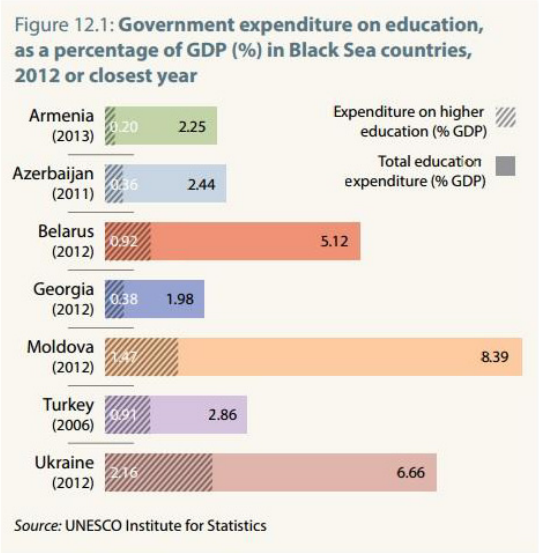
Switzerland, Singapore, Sweden, the USA and Israel have the highest Gross Domestic Expenditure (GERD) on R&D per capita. Switzerland is the global leader in terms of supporting innovation. 'It also devotes 30% of GERD to basic research, thereby ensuring the continual generation of new knowledge and quality university education. Switzerland also hosts one of the biggest contingents of foreign PhD students: 51% in 2012'.

The countries with result-oriented strategies, development-focused visions and well-functioning STI systems are attractive for qualified professionals as well as motivated learners and, consequently, are popular destinations.

## UNESCO World Report – Section Covering Georgia

- **EU institutions and EU research and innovation framework programmes are the key supportive tools for Georgia's international collaboration. The United States of America is an important partner as well. Investment in STI sector (in Georgia) is very low and unstable.**
- **Georgian scientists largely publish in peer-reviewed journals that concern specific scientific fields: physics, mathematics, biosciences, astronomy, medical sciences, engineering, chemistry, agriculture, computer sciences.**

The UNESCO science report also provides information about Georgia in a regional context. A separate section is dedicated to the countries in **the Black Sea basin**: Azerbaijan, Belarus, Turkey, Moldova, Georgia, Armenia, and Ukraine. The report puts a particular emphasis on the small scale investment in STI sector in these Black Sea basin countries: **'**Investment in R&D remains low. Gross domestic expenditure on R&D (GERD) has never recovered in the post-Soviet states to the heady levels of 1989, when it represented 3% of GDP in Ukraine and well over 1% in most other countries'.




According to 2008-2014 data, Georgian scientists mainly publish in peer-reviewed journals within the following scientific fields: physics, mathematics, biosciences, astronomy, medical sciences, engineering, chemistry, agriculture, computer sciences.

Researchers from post-Soviet countries collaborate on scientific articles with colleagues from both the Eastern and Western European scientific community. The US is the top county for collaboration with Georgian researchers, followed by Germany, Poland, the Russian Federation, United Kingdom and Italy.

**The post-Soviet states balance collaboration with Eastern and Western Europe**

*Main foreign partners, 2008–2014 (number of papers)*

| | 1st collaborator | 2nd collaborator | 3rd collaborator | 4th collaborator | 5th collaborator |
|---|---|---|---|---|---|
| **Armenia** | USA (1 346) | Germany (1 333) | France/Rus. Fed. (1 247) | | Italy (1 191) |
| **Azerbaijan** | Turkey (866) | Russian Fed. (573) | USA (476) | Germany (459) | UK (413) |
| **Belarus** | Russian Fed. (2 059) | Germany (1 419) | Poland (1 204) | USA (1 064) | France (985) |
| **Georgia** | USA (1 153) | Germany (1 046) | Russian Fed. (956) | UK (924) | Italy (909) |
| **Moldova** | Germany (276) | USA (235) | Russian Fed. (214) | Romania (197) | France (153) |
| **Turkey** | USA (10 591) | Germany (4 580) | UK (4 036) | Italy (3 314) | France (3 009) |
| **Ukraine** | Russian Fed. (3 943) | Germany (3 882) | USA (3 546) | Poland (3 072) | France (2 451) |

*Source:* Thomson Reuters' Web of Science, Science Citation Index Expanded, data treatment by Science–Metrix

Reuters' Web of Science source on researchers' international collaboration. Data from UNESCO report. More details are available on the link https://en.unesco.org/unesco_science_report

## International Cooperation Opportunities for Georgian Scientists – EU Research and Innovation Framework Programme 'Horizon 2020'

In April 2016, an agreement[7] between Georgia and the European Union was signed, according to which Georgia became an associated country to the Horizon 2020 Programme. On 22 December 2016 the

[7] http://europa.eu/rapid/press-release_IP-16-1630_en.htm

Georgian parliament ratified the agreement and, consequently, Georgia's scientific community, research teams and all related stakeholders were given equal access to participate in the EU framework programme 'Horizon 2020'. Equal participation implies independently submitting proposals, coordinating and leading a research project (becoming a principal investigator), defining Georgian research centre (or a research university, any scientific institution) as a **host institution** etc.

**There are members of the Georgian scientific community who are well informed about how to participate in the current EU framework programme, as well as in the previous, FP7 programme. Currently there is a challenge facing the scientific community: to use existing international opportunities and available resources in order to raise funding in a highly competitive environment and implement groundbreaking, excellent research projects. One of the best means of achieving this ambitious objective is to engage diaspora scientists working in the world's leading research centres, to collaborate with them and jointly develop research proposals.**

## What is Horizon 2020? Why is it Essential to Convince Georgian Diaspora Scientists to Participate in the Programme?

Horizon 2020[8] is the largest EU research and innovation framework programme, and has a budget of about 77 billion euros for the period of 2014 – 2020. Through this programme, the European Commission aims to support 'breakthroughs, discoveries and world-firsts', excellent research and innovation projects. It also aims to facilitate an environment where researchers, private sector representatives, SMEs and other related stakeholders jointly create products in research laboratories and then deliver them to the market. Horizon 2020 is one path to economic growth. The programme consists of different sections (independent actions, initiatives, instruments, thematic sub-programmes) that administer grant competitions independently. The Horizon 2020 programme can support individuals, research teams and research-focused institutions and industries. Considering the wide variety of directions and the available financial resources, competition is obviously high. Horizon 2020 funding can be obtained by any interested party with the right qualifications that is focused on any field of science. The most important defining factor is the groundbreaking research implemented with international, interdisciplinary researchers to meet the societal challenges and contribute to the development of the world (as well as job creation). Georgia has gained full and equal access to the programme's financial resources. Like other H2020 associated and member states, Georgia contributes financially to the programme budget. It is worth noting that, in 2016, part of the membership fee was covered with the support of the EU delegation to Georgia.

[8] https://ec.europa.eu/programmes/horizon2020

EU receiving states produce different informative material to raise the awareness and facilitate the smooth integration of migrants. One of the simplest and evident examples of this sort of support is the European Commission portal **EURAXESS** – Researchers in Motion, https://euraxess.ec.europa.eu.
EURAXESS is a pan-European initiative that provides useful (well-structured and user friendly) information to scientists and other interested individuals about a wide variety of topics, such as job seeking and research funding opportunities, career development and qualification raising opportunities, partnership search and network expanding, as well as other practical details related to human mobility and integration in Europe. Among other useful material provided on the portal are even the description on visa-related and migration-related formalities in different EU member states. Interested users may also find information about emigrating from Europe. The portal also covers social issues, such as pension and insurance, also placement, banking products is different EU member states, health protection, family related topics etc.
The portal also delivers EU commission initiative – science for refugees – **Science4Refugees** together with practical guidance. **Science4Refugees** initiative enables refugee researches to seek relevant positions and engage in the scientific activities.

There are about 500 EURAXESS centres worldwide and more than 13,000 announcements for academic and research positions.

## Diaspora Component in Horizon 2020

- There is a special action/ funding scheme within the Horizon 2020 programme that is focused on scientific diaspora reintegration in the country of origin. It is advisable to explore the currently available opportunities and encourage research-focused institutions to submit proposals to encourage the reintegration of highly experienced compatriots.
  One of the sections of Horizon 2020 is the Marie Skłodowska-Curie actions (MSCA)[9], which enables researchers to increase their qualification and professional network at any stage of their career. MSCA offers a wide variety of opportunities to share knowledge, participate in innovative trainings and be involved in mobility schemes (MSCA budget for 2016 – 2020 is 6.2 billion euros). Special emphasis is

[9] Submission for Marie Skladowska Curie Actions is possible through Horizon 2020 participant portal, calls have different deadlines. Detailed information about the actions are available on the link: http://ec.europa.eu/research/mariecurieactions/

MSCA National Contact Point (NCP) in Georgia is Dr. Zurab Kihguradze, Institution: International Centre for Research, Technologies and Innovations (ICARTI). Contact information: zkigur@yahoo.com www.icarti.ge

placed on researcher employment opportunities, protection of intellectual right (IPR issues), research ethics and the dissemination of project outcomes. Projects funded as part of MSCA have an obligation to create equal opportunities for female and male researchers for realization and development. Successful individuals are expected to have intensive and active communication with the wider public in order to keep them informed about scientific achievements and news. MSCA activities are open to any field of science through the following four programmes:

- Innovative Training Networks (ITN)
- Individual fellowships (IF)
- Research and Innovation Staff Exchanges (RISE)
- Co-funding

MSCA also includes **The Reintegration Panel**[10]. This special effort aims at helping highly skilled migrants to return and smoothly reintegrate back to their homeland. Georgian scientists gained access to the MSCA's reintegration component once Georgia became an association country to Horizon 2020. In order to be eligible for the programme, participants should be established scientists, working outside of their country of origin, and be ready to implement a research project in collaboration with the host institution in the country of origin.

## Collaboration with Diaspora Scientists – International Experience

Georgia can look to the experience of several different countries in terms of developing cooperative ties with diaspora scientists. In Ireland, for example, useful handbooks and practical recommendations about working with the diaspora have been developed as a result of a successful cooperation with highly skilled overseas compatriots. One of the best known examples is the diaspora toolkit by Kingsley Aikins and Nicola White - *Global Diaspora Strategies Toolkit - Harnessing the power of global diasporas*[11] (first edition, 2011). This is an open resource available online. In addition, the International Organisation for Migration (IOM) and Migration Policy Institute (MPI) have published a joint publication - *Developing a Road Map for Engaging Diasporas in Development*, a handbook for policymakers and practitioners in home and host countries (2011). Another good publication is *Engaging Diasporas as Development Partners for Home and Destination Countries: Challenges for Policymakers* (2006). These are all open resources available online for free and may serve as reference guides to draft similar strategies.

### Switzerland, a Swiss Network of Scientific Diasporas – CODEV

The Swiss Network of Scientific Diasporas is a project focused on highly qualified migrants and their role in the development process. The project studies the scientific diaspora residing in Switzerland from three countries of origin: Colombia, India and South Africa. An extensive publication has been produced as part of the CODEV project: *Scientific Diasporas as Development Partners - Skilled Migrants from Colombia, India and South Africa in Switzerland: empirical evidence and policy responses* - Gabriela

[10] The reintegration panel is discussed and explained in details in Horizon 2020 Guide for applicants - http://ec.europa.eu/research/participants/data/ref/h2020/other/guides_for_applicants/h2020-guide-appl-msca-if_en.pdf

[11] Publication is avaliable on the link - http://diasporamatters.com/wp-content/uploads/2016/02/Diaspora-Toolkit-Book.pdf

Tejada & Jean-Claude Bolay (eds).
According to the authors, the three countries were selected due to the considerable experience that Colombia, India and South Africa have building relationships with highly qualified emigrants. The three countries apply various measures to maintain links with the scientific diaspora and mobilize them for the development and progress of their home countries. The authors highlighted the importance of various administrative units dedicated to diaspora relations, as well as the role of universities and research centres. According to the publication, Colombia and South Africa were among the first countries to use the term scientific diaspora: 'Both South Africa and Colombia were among the first countries to introduce the notion of the scientific diaspora option[12]'.
Most of the Colombians working in the academic sector in Switzerland continued their career following student exchange programmes. In addition to the motivating factors of social and economic conditions, individuals have also been motivated to seek careers opportunities abroad due to their home country's academic environment, limited access to scientific infrastructure, lack of doctoral programmes in certain disciplines, etc.

**Insight from Columbia's Experience**
After smooth integration in receiving states, Colombians residing abroad and working in academic field create associations, such as **t**he **Colombian Association of Researchers in Switzerland (ACIS,** established in 1992) and **t**he **Caldas Network** of Colombian researchers and professionals abroad. Individuals involved in the associations are committed to sharing their expertise with their Colombian colleagues. The associations, which are actively engaged with Colombian academics and young researchers, support the development of large scale international projects. **The Caldas Network** is famous for the number of initiatives facilitating international collaboration.
Another success story, project *iNVESTIGA*[13,] uses modern technology to link the Colombian diaspora to secondary schools in the homeland. Colombian diaspora scientists and teachers help professionals back home learn about innovative methodologies in teaching, gain access to educational resources and, at the same time, increase students' motivation. The project's publication *iNVESTIGA: Connecting the Colombian Scientific Diaspora with Secondary Schools in Colombia* shares the story of diaspora engagement: while drafting *iNVESTIGA*, project participants carefully studied similar online communication platforms (One of the co-authors of the publication, Ricardo Corredor-Jerez works in Switzerland, scientific laboratory LTS5-EPFL). In addition, they learned how videoconferences and online discussions were planned. The *iNVESTIGA* project team contacted highly qualified Colombians living abroad and invited them to engage (and share their experience) in the educational process. The resulting cooperation and the outcomes of the participants' efforts have been positively assessed by scientists, teachers and pupils.

**Insights from Ireland's Experience**
Ireland appears to be an outstanding example in discussions about diaspora mobilization and related initiatives. Ireland has become a leader in areas like encouraging diaspora investment and strengthening ties with members of the diaspora. Irish professionals living in different parts of the world have significantly contributed to the country's development. The **Network of Irish Scientists**[14] was

[12] Scientific Diasporas as Development Partners - Skilled Migrants from Colombia, India and South Africa in Switzerland, page 11.
[13] http://www.programainvestiga.org
[14] http://wildgeesenetwork.org

established in 2011 in Washington DC. The network gathers notable Irish nationals from the fields of science, technologies and innovation (STI). Prominent professors from various US universities and research-focused organisations affiliate themselves with the network (its board members include representatives from Virginia Tech and University of California Davis**,** University of Maryland and Johns Hopkins University, National Institute of Health- NIH, Boston College**). The organisation is supported by the Irish Embassy in the United States of America. This encouragement from diplomatic representation is essential: the Network of Irish Scientists regularly disseminates information about updates in the STI system, and sends updates about available research funding opportunities, as well as vacancies, open funding schemes and requests for proposals (RFPs). It also increases the popularity of leading Irish scientist and successful research projects. Members of the network – who are established and well prominent professors - are very keen to offer mentorship to the Irish PhD students.**

### SFI St. Patrick's Day Science Medal Award

Science Foundation Ireland is a legal entity established by the Irish government. The foundation supports basic and applied research. The foundation's mission is to develop Irish society and economics by funding high quality scientific and engineering research. Once a year, the SFI awards an outstanding Irish scientist and a successful representative from industry residing in the United States of America. Candidates from industry and academia are eligible for nomination if they have significantly supported Irish researchers through mentorship, supervision, recommendation and mutual collaboration. Science medal can be exclusively awarded to the nominees who have brought exceptional contribution to the development of Irish science.
Popular award ceremony takes place on the Irish national holiday – St. Patrick's Day. Awards in 2017 were given to Dr**.** Pearse Lyons, founder and president of the global biotechnological company Alltech. The research company was founded in 1980 and at this stage it cooperates with 128 countries around the world. Another recipient of the award in 2017 was Washington University Professor Adrian E. Raftery. Professor Raftery is recognized as the world's leading statistician.
The 2017 award ceremony took place in Washington DC and the winners received medals from the Irish prime minister.

## Observations from the United States of America

A public university in Georgia, US – **Kennesaw State University** (KSU) – hosts about 35 000 students. It is a higher educational institution with a good reputation and good ranking, which has traditionally focused on teaching, although it has recently shifted its emphasis to actively encourage research activities. The university's well-developed teaching programmes and infrastructure are undoubtedly KSU's strength. Among other interesting thematic centres, the KSU incorporates a diaspora study centre. The centre assists KSU to gain international recognition, develop links with students around the world and implement joint initiatives (events) that involve international students. The KSU diaspora study centre puts particular emphasis on collaboration with the African diaspora, even offering students an African Diaspora Studies (AADS) Programme.
Dr. Ikechukwu Ukeje, a native of Nigeria, teaches at the Bagwell College of Education at KSU and, at the

same time, coordinates the university's diaspora-related activities. Dr. Ukeje affiliates himself with the African continent, not a particular African country. He plays an important role in terms of building collaboration between Kennesaw State University and various African universities to facilitate student exchanges and initiate short-term academic programmes and professional exchanges for university academic staff. All the diaspora-related efforts are additional responsibilities to his main tasks at Bagwell College. The KSU diaspora engagement programme includes the following activities:

- Short term courses about African biodiversity, languages and various cultural and anthropological issues. Such courses envisage site visits to African countries. For instance, the two-week East Africa course offered in 2017 is Uganda and Tanzania: Culture, Language and Biodiversity.
- Student and academic personnel exchanges - with the active participation of Dr. Ukeje, Kennesaw State University negotiates with African higher educational institutions. Following negotiations, a relevant Memorandum of Understanding is signed between the two institutions and the parties launch an exchange programme. Currently Kennesaw State University has about 20 such agreements. Recently, in February 2017, KSU signed a Memorandum of Understanding with the University of Lagos, Nigeria. This type of cooperation enables African universities to develop their academic capacities, widen cooperation perspectives and significantly increase the qualification of their students. Dr. Ukeje highlighted that the visiting lecturers attend a special training/ preparation phase before entering a classroom. Quite often the classes are co-taught by local American lecturers. In this way, visiting fellows learn more about KSU teaching methodology and the practices currently in place.
- Arranging conferences/ workshops both at Kennesaw State University as well as in Africa's higher educational institutions. Dr. Ikechukwu Ukeje is personally involved in organizing events and conferences together with partner universities. He mobilises groups of students and academic personnel from both sides, and kindly supports event with logistics and documentation arrangement issues.

This example of a diaspora professional now based in a public university in Georgia, US clearly depicts the potential of individual efforts to internationalise education and science for the countries of origin. The country of Georgia has had similar experiences.

## Georgian Government Initiatives to Encourage Highly Skilled Diaspora Engagement

Georgia has considerable experience cooperating with compatriots residing abroad. Among other implemented initiatives, there have been events attended by representatives of the country's highly qualified diaspora. Through the period of 2008-2016, the Office of the State Minister of Georgia for Diaspora Issues invited several outstanding authors and experts to Georgia to discuss and work on diaspora engagement. These included Kingsley Aikins and Martin Russell from the Irish organisation - **Diaspora Matters**[15]; Prof. Kathleen Newland from Migration Policy Institute[16]; Prof. Robin Cohen and Frank Düvell from the University of Oxford; Dr. Branka Likić Brborić – the Linköping University representative; and Mr.Verdan Džihić from the Institute of International Affairs of Austria. These experts, together with others, developed recommendations on how to mobilise the Georgian diaspora for the advancement of various fields, as well as the country as a whole. The experts submitted their recommendations as part of the discussion process, during workshops or delivered in them as a written analysis.

In order to respond to the challenges related to the internationalisation of research, it is important to share the experience of other countries, as well as use lessons learned at home. In today's world, where academic achievements are not limited (and conditioned) to certain geographical boundaries, the Georgian

[15] http://www.diasporamatters.com
[16] http://www.migrationpolicy.org

diaspora can play a critical role as Georgian scientists seek to present their research to the international community.

### Ministry of Education and Science of Georgia
### LEPL Shota Rustaveli National Science Foundation (SRNSF)

The internationalisation of Georgian scientific research has been identified as a top priority by the Ministry of Education and Science of Georgia, LEPL Shota Rustaveli National Science Foundation (SRNSF). The foundation administers several bilateral and multilateral international projects. At the same time, SRNSF national scientific grants strongly support the component of international collaboration in funded projects: inviting international experts during the project implementation; facilitation of young scientists' mobility; and offering research internships to junior researchers at the world's leading institutions, etc. Shota Rustaveli National Science Foundation (SRNSF) has put a high priority on engaging highly skilled compatriots residing abroad in the process of the internationalisation of research. The issue has been highlighted at SRNSF International Supervisory Board meetings (in February 2016 as well as in July 2016), and it was agreed that diaspora mobilisation for better international collaboration should be actively encouraged.
The need to prioritise the issue of the scientific diaspora on the agenda is also underlined in the Policy Mix Peer review document. The paper was developed as part of the multilateral, EU supported project **IncoNet EaP** (STI International Cooperation Network for Eastern Partnership Countries) upon the request of the Ministry of Education and Science of Georgia. The analytical document has been widely disseminated among Georgia's scientific community.

### SRNSF Collaborative Research Grants with Participation of Georgian Compatriots Residing Abroad

- The Shota Rustaveli National Science Foundation collaborative research grant competition aims at strengthening links with members of the Georgian diaspora working in the world's leading scientific and research institutions, sharing the expertise and knowledge of overseas compatriots and supporting Georgian research institutions to meet international standards.
- Collaborative research grant implies joint activities between two research teams – a group of scientists located in Georgia and the research institution overseas.
- The information presented below is an incomplete list of Georgian scientists' international cooperation. It is highly likely that even more − and more extensive − collaborations occur, however this paper presents information about one particular supportive scheme.
- The presented data also provide a good understanding on which Georgian universities/ research centres are interested in networking with the scientific diaspora in order to develop joint proposals. The most active among Georgia's universities are Tbilisi State University and Ilia State University. One possible explanation for their higher levels of activity could be the size of the universities - both Tbilisi State University and Ilia State University have the highest number of research institutions under their umbrella. The Georgian scientific community's interest and active participation in this particular grant scheme clearly demonstrates the importance of diaspora engagement.

Under the priority **supporting high quality scientific research**, LEPL Shota Rustaveli National Science Foundation (SRNSF) offers a collaborative research grant scheme with the participation of compatriots residing abroad. In terms of its objectives and content, the collaborative research grant programme is an exceptional funding scheme not only within Georgia's scientific community, but also internationally. The competition aims at developing links between Georgian researchers working in the leading Western scientific centres and teams from Georgian institutions. The goal of the programme is to share international experience and bring Georgian research centres closer to international standards.
The request for proposal (RFP) was not announced in 2017, however, the call is the part of the SRNSF general grant scheme. According to the regulatory document, 'the collaborative research grant enables Georgian scientist to get acquainted with updates at the leading Western institutions and keep on track with contemporary research technologies'. The duration of the funded project can be between 6-36 months (additional information on grant regulating documents, content, terms and conditions, budgeting and application procedures is available in the links listed at the end of the paper). It is worth noting that each funded project involves the cooperation between two research teams and two institutions - the centre for Georgian diaspora scientists and an institution in the country of origin.
Based on the structural and content-related changes planned for the competition, it is likely that this particular grant scheme with be combined with another funding opportunity, known as a fundamental research grant. This will still provide members of the scientific diaspora with the opportunity to collaborate with Georgian research teams and contribute to the internationalization of science in Georgia.

According to the data on SRNSF funded collaborative projects, Georgian research institutions and scientific teams have intensive collaboration with the United States of America, Germany, Sweden, United Kingdom, France, Italy, and Switzerland. These are the countries where Georgia has active diaspora scientists and they are working on building cooperative ties between their adoptive countries and Georgia. It is no surprise that these countries have been identified as STI global leaders by the UNESCO world report. Highly skilled Georgians have chosen these countries to continue and advance their academic career.
Although the SRNSF grant scheme on diaspora collaboration is a single initiative, the funded projects and accumulated knowledge creates a background and understanding about international cooperation perspectives.

**Research-Focused Institutions Engaged in SRNSF-Funded Collaborative Projects as of 2011**

| Research Institution in Georgia | Research Institution Abroad |
|---|---|
| Ivane Javakhishvili Tbilisi State University (TSU) | ✓ CERN - the European Organisation for Nuclear Research<br>✓ Forschungszentrum Jülich<br>✓ Academy of Sciences of the Czech Republic |
| Georgian Sleep Research and Sleep Medicine Society -GSSS | ✓ Medical University of Innsbruck |
| Ilia State University | ✓ Institute of Mathematics and Physics (Sciences Faculty) of the Siedlce University |
| St. Andrew the First-Called Georgian University of the Patriarchate of Georgia | ✓ University of Bonn |
| Tbilisi Centre for Mathematical Sciences | ✓ The College of Staten Island, a senior college within The City University of New York (CUNY) |

| | |
|---|---|
| **Life Sciences Centre** | ✓ **The US National Center for Toxicological Research** |
| **Georgian Technical University** | ✓ **General Engineering Research Institute (GERI) Liverpool, UK** |

**Research-Focused Institutions Engaged in SRNSF-Funded Collaborative Projects as of 2012**

| Research Institution in Georgia | Research Institution Abroad |
|---|---|
| **Ivane Javakhishvili Tbilisi State University (TSU)** | ✓ ***Umeå University***<br>✓ ***King's College London***<br>✓ ***San Francisco State University***<br>✓ ***University of Leicester***<br>✓ ***Missouri University of Science and Technology***<br>✓ ***University of L'Aquila***<br>✓ ***State University of New York***<br>✓ ***University of Lund, Stem Cell Centre***<br>✓ ***Thayer School of Engineering at Dartmouth***<br>✓ ***University of Versailles St-Quentin en Yvelines*** |
| **Association Cross Cultural Universum - CCU**<br>**Georgian Comparative Literature Association** | ✓ **European University Viadrina Frankfurt (ODER)** |
| **Ilia State University** | ✓ **Goethe University Frankfurt**<br>✓ **The Université catholique de Louvain**<br>✓ **UMBC/GPHI at NASA Goddard Space Flight Centre**<br>✓ **North Carolina State University, Marine Earth and Atmospheric sciences Department**<br>✓ **Ohio State University** |
| **Giorgi Akhvlediani Society for the History of Linguistics** | ✓ **Indiana University** |
| **Georgian Technical University** | ✓ **The Institute of Theoretical and Applied Mechanics, Academy of Sciences of the Czech Republic** |
| **Grigol Tsulukidze Institute of Mining** | ✓ ***Hinman Consulting Engineers***<br>✓ ***Santa Clara University California USA*** |
| **Georgia's Women and Children Protection Union** | ✓ **City of Hope- Cancer Hospital** |
| **Tbilisi State Medical University** | ✓ **University of Quebec in Chicoutimi** |

| | |
|---|---|
| Ivane Beritashvili Centre for Experimental Biomedicine | ✓ Jacobs University Bremen |

**Research-focused institutions engaged in SRNSF-funded collaborative projects as of 2013**

| Research Institution in Georgia | Research Institution Abroad |
|---|---|
| Ivane Javakhishvili Tbilisi State University (TSU) | ✓ Academy of Sciences of the Czech Republic<br>✓ The University of Pittsburgh<br>✓ The University of Sydney<br>✓ The University of Cape town<br>✓ Malmö University<br>✓ Saint Petersburg University<br>✓ Fermi National Accelerator Laboratory |
| Association of Cardiovascular and Interventional Radiology of Georgia | ✓ The University of Burgundy |
| National Center for Manuscripts | ✓ Ca' Foscari University of Venice |
| Georgian Agrarian University | ✓ Institut Pasteur, Paris |
| Neurological Forum of Georgia | ✓ Suburban Hospital, John Hopkins Medicine Bethesda, MD |
| St. Andrew the First-Ccalled Georgian University of the Patriarchate of Georgia | ✓ The University of Barcelona |

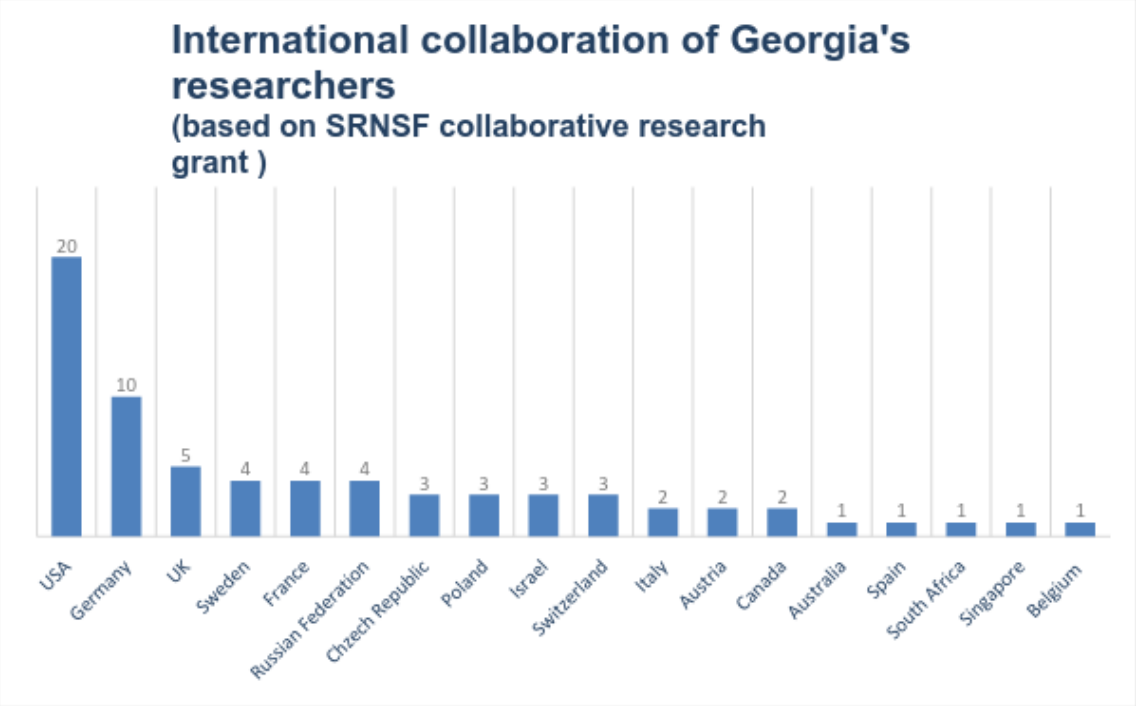
**Research-focused institutions engaged in SRNSF-funded collaborative projects as of 2014**

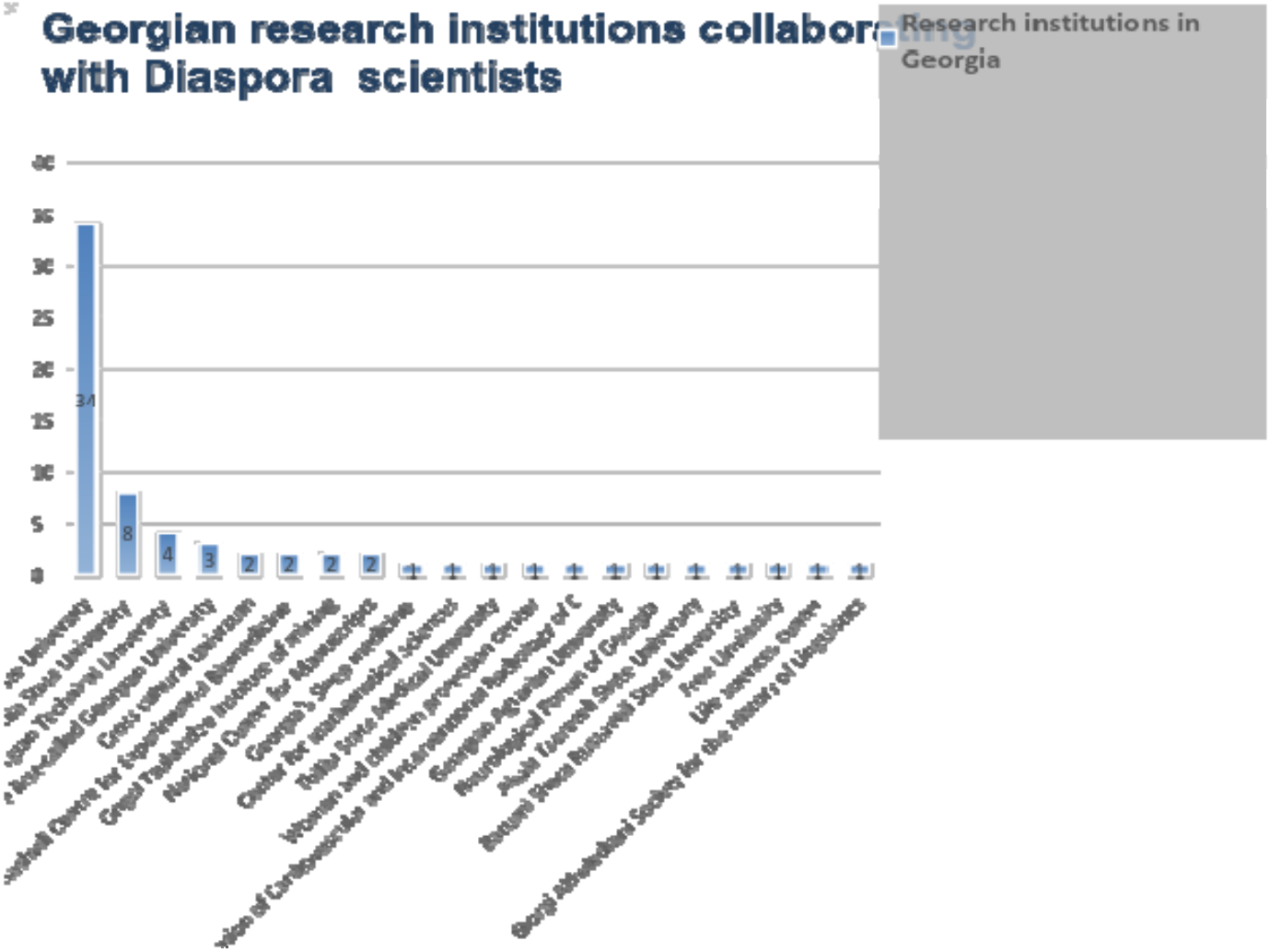
| Research Institution in Georgia | Research Institution Abroad |
|---|---|
| Ivane Javakhishvili Tbilisi State University | ✓ Forschungzentrum Juelich<br>✓ CERN - the European Organisation for Nuclear Research<br>✓ The Hebrew University of Jerusalem<br>✓ University of Münster<br>✓ Université de Versailles<br>✓ Joint Institute for Nuclear Research, Russia<br>✓ Novartis Institutes for BioMedical Research |
| Grigol Tsulukidze Institute of Mining | ✓ Brookhaven National Laboratory |
| Ilia State University | ✓ The University of Lund |
| National Center for Manuscripts | ✓ The University of Warsaw |
| Georgian Technical University | ✓ The Israel Electric Corporation |

| | |
|---|---|
| | ✓ Lawrence Livermore National Laboratory |

**Research-focused institutions engaged in SRNSF-funded collaborative projects as of 2016**

| Research Institution in Georgia | Research Institution Abroad |
|---|---|
| Ivane Javakhishvili Tbilisi State University | ✓ King's College London<br>✓ New Mexico State University<br>✓ Ariel University<br>✓ Genome institute of Singapore |
| Ivane Beritashvili Centre for Experimental Biomedicine | ✓ Rensselaer Polytechnic Institute |
| Free University of Tbilisi | ✓ The University of Zielona Góra |
| Ilia State University | ✓ Queen Mary University of London<br>✓ Nasa Goddard Space Flight Center |
| St. Andrew the First-Called Georgian University of the Patriarchate of Georgia | ✓ The University of Bonn |
| Akaki Tsereteli State University | ✓ Lomonosov Moscow State University |
| Batumi Shota Rustaveli State University | ✓ Goethe University of Frankfurt |
| Association Cross Cultural Universum - CCU<br>Georgian Comparative Literature Association | ✓ Centre for Literature and Cultural Research Berlin |






## Engaging Diaspora Scientists in Development: Support and Obstacles

Opportunities for developing international cooperation networks are available: engaging highly skilled compatriots residing abroad can help to facilitate the advancement of a host country's science internationalization. While some supportive tools are in place to stimulate cooperation with Georgia's high-qualified diaspora, more are needed. Taking into consideration the country's limited financial resources as well as the need to quickly address this issue, attracting the participation of principal investigators (PIs) with relevant experience in EU cooperation programmes is of the utmost importance.

Georgia's research centres and scientific institutions have a strong potential to expand international cooperation. Some collaborative projects with international research teams are in progress, however the **absence of state strategy of STI system** is a significant drawback.

As part of the project − STI International Cooperation Network for Eastern Partnership Countries − **IncoNet EaP**[17]**,** at the request of the Ministry of Education and Science of Georgia, a special analytical document was developed - '**Policy Mix Peer Review of the Georgian STI system'**. The review was implemented by a team of experts and a team assistant in 2015[18]. With the purpose of understanding the science and technology landscape, international STI experts visited Georgia and arranged meetings / interviews/ discussions with the relevant stakeholders. The team also became acquainted with the Georgia's STI system- related documentation. 'The proposed recommendations aim to assist the Georgian policy makers to enhance the performance of the STI system through a more coherent and integrated use of the available human and infrastructural resources and capabilities[19]'. Among key messages of the PMDR document there is an issue of donor's intervention in Georgia's STI system development. Experts highlight that 'donor interventions (ISTC/STCU, ENI, GRDF, WB, etc.) are numerous and highly welcome in Georgia especially since the national financing for STI is very limited…. However, it is evident that the donor interventions are not always aligned to the country's needs, often resulting to unsustainable actions and/or loss of focus'. The PMDR document clearly indicates on the urgent need for the country to develop it STI strategy. Another key message from the proposed recommendations refers to the diaspora involvement in enhancing international cooperation: 'To devote a particular attention in the cooperation with the national diaspora in the context of the international cooperation activities[20]'

In many cases large projects directed towards diaspora mobilisation and engagement failed for a variety of reasons. These reasons can be classified as political, economic, and social. The so-called top down approach – initiatives driven by government institutions – succeed to some extent, enjoying a short-term effect, however, despite considerable efforts, sustainable outcomes are hard to achieve. A common problem around the world has been the lack of sufficient funding for government initiatives.

The Colombian government launched the programme **Es Tiempo de Volver** (It is time to return home) in 2013. The programme aims to facilitate the return of scientists and academics to Columbia and integrate them at local research centres. 'However, the project has already suffered important logistic and financial problems during the first two years (this has been extensively documented by the national media) and its credibility has been considerably affected, as well as the willingness of the diaspora to participate in these agreements with the government[21]'.

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[17] The **IncoNet Eap** Project web-page http://www.inco-eap.net
Another EU supported project on similar topics is - EaP PLUS https://www.eap-plus.eu

[18] **Team of international independent experts**:
George Bonas Team leader - Managing Director, CeRISS, Greece
Adrian Curaj Team member - Director General, UEFISCDI, Romania
Felix Gajdusek Team member - Project Manager ZSI, Austria
Viktor Nedovic Team member - Assistant Minister, Serbian Ministry for Education, Science and Tech. Development Michael Schlicht Team member - Director, BMBF, Germany
Yannis Kechagiaras Team assistant - Project Manager, CeRISS, Greece

[19] Policy Mix Peer Review of the Georgian STI system', page 4

[20] Policy Mix Peer Review of the Georgian STI system', page 24

[21] iNVESTIGA: Connecting the Colombian Scientific Diaspora with Secondary Schools in Colombia ' – **conference materials** https://infoscience.epfl.ch/record/218141/files/FULLPAPER_Tech4Dev2016_Corredor-Jerez_Ricardo.pdf

**When it comes to cooperation and joint projects with individual scientists or research teams, taking a bottom up approach sets long-term perspectives and can create a foundation for independent, stable cooperation. While government-driven supportive initiatives will enhance such collaboration development, research centres and universities should take the lead. Academic institutions should attract diaspora scientists to implement joint, interdisciplinary international research or educational projects.**

In June 2016, a workshop on scientific diaspora - '**Identifying and Engaging the Scientific Diaspora from EaP Countries' took place in Austria, Vienna.** The event was planned as part of the project - STI International Cooperation Network for Eastern Partnership Countries - IncoNet EaP. Representatives from research management/ support institutions from Eastern Partnership and EU member states participated in the event. The workshop addressed challenges in diaspora relations, systemic difficulties and possible solutions. The following difficulties were identified for the EaP region:

- Lack of a sustainable and long term policy;
- Lack of trust towards the fragmented initiatives from the governments;
- Weak connections to diaspora scientists;
- Obstacles while collecting data;
- Lack of funding for implementing affective engagement programmes;
- Poor coordination.

Regular communication with diaspora scientists, sustainable implementation of initiatives, real opportunities and developing relationships based on trust can greatly contribute to strengthening cooperative ties between highly skilled diaspora and their countries of origin.

It is worth noting that, as part of the EaP PLUS project, there are six diaspora conferences on the agenda of Eastern Partnership countries throughout 2017. The conferences aim to increase the engagement of diaspora scientists in the development of STI in their countries of origin.

Scientific Diaspora conference in Georgia is planned for fall 2017.

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- **http://old.rustaveli.org.ge/index.php?module=topic&page=detals&topic_id=18&id=957**
- **Results of 2012 call (Request for Proposal):**
- **http://old.rustaveli.org.ge/index.php?module=topic&page=detals&topic_id=18&id=1147**
- **Results of 2013 call (Request for Proposal):**
- **http://old.rustaveli.org.ge/index.php?module=topic&page=detals&topic_id=18&id=1309**
- **Results of 2014 call (Request for Proposal): http://old.rustaveli.org.ge/index.php?module=topic&page=detals&topic_id=18&id=1609**
- **Call (Request for Proposal) announcement 2016**
- http://rustaveli.org.ge/en/Ongoing-calls/page/1167
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12. **Global Diasporas**, Robin Cohen, *Routledge, second edition, 2008*


[22] For further details, please see OECD publications