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The transformation of the International Science and Technology Center (ISTC) continues. The year 2013 was a major turning point. The amount of activities is now clearly on challenges of the future rather than the legacies of the past. All of the Parties have contributed to the effort. Real partnership, joint leadership, and shared responsibility are the embodiment of the emerging new style.

As the world has changed, the priorities of the ISTC Parties have changed. Thus, the ISTC must change also. Change, of course, is not new to the ISTC. Over the years, the Parties have implemented many modifications and improvements. The ISTC of today is very different from that envisioned by its founders, and the ISTC of the future undoubtedly will reflect even more change.

To promote innovation in the interests of the Parties, the ISTC itself has had to be innovative. To meet the needs of the Parties in a world in which the advance and spread of knowledge creates many common opportunities, but also some common dangers, the ISTC must continue to experiment, improving its programs and refining its own operations.

The Center has already demonstrated that it is capable of major transformation. Originally designed around three countries, more than forty have been involved. Initially, focused on nuclear science, it became a powerhouse of cooperation in agriculture, biotechnology, chemistry, earth and materials science, the environment, medicine, and information technology. Fundamentally an intergovernmental organization, it has found synergy with industry, academia, and others.

The range of activities of the ISTC has expanded, and many different Partners have teamed with the governmental Parties. Nevertheless, scarce resources and changed priorities have always required that difficult decisions be made. The Center has always had to focus on the most important needs as expressed by official decisions of the Parties. Inevitably, this leads to a number of painful decisions not to initiate, or even to terminate, valuable but less urgent activities. The Center does continue to conduct a wide range of activities, however, because the specific requirements of the Parties can differ.

Whether the Party is large or small, the ISTC has made important contributions to the science and technical infrastructure of all the Parties. In some cases, helping scientific teams simply continue important work remains our goal. In other cases, advancing that science to the very frontier of world knowledge is our goal.

Increasingly, our projects involve applied science, helping with the commercialization of technology to benefit humanity and also assisting local science to be self-sustaining in a modern world characterized by vast cooperation and competition. Strengthening the protections of the intellectual property of scientists and institutions is an important support activity in this regard. Facilitating training and travel is another, especially when familiarity with international best practices in fields such as accounting, safety, research validation, and scientific reporting empowers ISTC participants to advance their nation’s interests while engaging a broader community.

Many of our traditional activities aimed at responsible management of dual-use knowledge will continue as the ISTC transitions, but as membership in the transformed Center changes, we can expect priorities to change further. The geographical scope of the ISTC will clearly change as new members join and others revisit their status. The trend has been to more, but smaller members. No Party in the future will experience investment on the massive scale that, for example, peaked in Russia. Of the more than 75,000 scientists who have benefited from the ISTC so far, over 60,000 are Russian.

Our renewed ISTC will need to focus on an increased number of more diverse and smaller member states, but it must continue to act on behalf of the common will of the Parties. The way ahead will build on principles already agreed:

• Focus on the needs of the future,
• Engage countries and institutions outside the traditional area,
• Provide more symmetrical sharing of both responsibilities and benefits,
• Promote more co-funding of projects,
• Reduce overhead and administrative costs, and
• Increase efficiency and agility.

The ISTC benefits also from leadership in the capitals of the Parties. Of special importance today is the leadership shown by the government of Kazakhstan. The facilities being provided for a new main headquarters in Astana at Nazarbayev University place our activities in the middle of the one of the world’s dynamic, growing intellectual centers. We will also retain our branch office in Almaty along with other key branch offices.

As we join in completing the transformative steps that will keep the ISTC at the service of the Parties well into the future, we must not lose our perspective. The Parties created this organization not as an end in itself, but to enable challenging science cooperation. That means our most important assets are the people whose talents are brought to bear on the some of the most important human endeavors of our age. Bringing such talent together is what we must continue to do.

The ISTC in Transition

STATEMENT OF THE CHAIRMAN OF THE ISTC GOVERNING BOARD 2013

Dr. Ronald F. Lehman II
Chair, Governing Board
International Science and Technology Center
2013 continued to be a challenging and difficult year for the ISTC as we continued to downsize our Moscow operations to leave only a core team in place at the end of the year. Whilst this has placed mounting pressure on the organization and resources to maintain services, our staff continue to portray their professionalism and flexibility to multi-task in this process.

On the other hand developments for transitioning the Head Office to Kazakhstan have been evolving throughout the year, which started with initial possibilities for new office space in Almaty and it was later decided that a move to Astana would be more preferable.

As such the ISTC has been offered confirmed temporary office space and then later longer term office facilities on the campus at the Nazerbayev University. To this end the ISTC is working to develop this new office facility.

This Annual Report shows the main results of our work in 2013 which continues to be focused and aimed at the provision of high-quality scientific collaboration for Parties and Partners that work together on a multilateral basis in order to contribute to the solution of scientific common problems.

Our work confirms that scientific problems are now so complicated and widespread that adequate results can only be achieved through joint efforts.

It is with these challenges in mind that in 2013 numerous Workshops and Seminars were held, bringing together the best expertise. Results of scientific projects were presented and discussed at these events.

For example the Seminar organized by the ISTC Scientific Advisory Committee (SAC) on Energy Security, held in Almaty on October 22-23, 2013, led to new insights in this complex matter, since energy is a critical component for guaranteeing the smooth running of nations, whatever their state of development, and the efficient operation of business.

The ISTC continues to develop new and unique ideas and models to serve as a solid basis for further international scientific and technological cooperation on the basis of equality and partnership.

The end of 2013 also saw the withdrawal of the Canadian party from the ISTC Agreement; a funding party member. Canada has played an enormous role as a major funding party over the years and both the ISTC and Canada can be proud of the contribution and leadership that Canada has provided over many years.

The ISTC has also seen the departure of a long-term servant to ISTC in Leo Owsiacki, who represented Canada as its Deputy Executive Director and, for last year, as Executive Director and latterly his work on the Astana office facility agreement and laying down the ground work in Astana for our new Center premises. Leo had been with the ISTC for 9 years and even before that worked as Executive Director at our sister Center STCU in Kiev, Ukraine for 4 years. His knowledge and leadership of the Centers has been invaluable in the development of the ISTC over the years and, as I take over the mantle as Acting Executive Director, this is a hard act to follow.

However, the continued support from the ISTC funding parties and participating country members shows their resolve to continue to move the ISTC forward through all these changes. Since 1994 ISTC has financed 2794 projects with a total value of USD 879,018,488. Most projects were funded respectively in the areas of environment, biotechnology, physics and fission reactors.

The ISTC started an important discussion on the future transformation of the organization in order to address adequately the changing needs to set up a new organization dealing with global scientific challenges, including non-proliferation, scientists’ engagement and activities aimed at further modernization of various economies.

Special arrangements need to be made for work to continue in Armenia, Belarus, Georgia, Tajikistan, the Kyrgyz Republic and, of course, Kazakhstan, which is to be the home of our new head office.

As mentioned above regarding our transition towards a Head Office move to Kazakhstan, the Parties have been working together in drafting a new ISTC Continuation Agreement to facilitate the transition and move from the Russian Federation to Kazakhstan. The drafting of this agreement is now in its final stages and the participation of ISTC recipient countries is playing an important part in formulating this agreement.

Many important issues remain to be dealt with as we continue our path to wind down our projects and operations in the Russian Federation. To this end the ISTC is acting closely with Rosatom to facilitate an orderly and effective closure and resolution of several outstanding issues related to our projects, equipment, staffing, and general legal issues heading towards eventual liquidation of the Moscow center.

Now practicality shifts the focus more towards the new Kazakhstan Center and looking forward to the future and, in the coming year, much work is planned in setting up the new office, liaising with all relevant government bodies and authorities, with our new partners and hosts Nazabayev University and starting operations with new staff in our new office.

The Chairman in his foreward mentioned change and how the ISTC must also change with these new priorities, yet change is nothing new to the ISTC. I can only reiterate the importance of change our new priorities are just a natural progression in the ever changing development of the ISTC. These are exciting times and it breathes a new lease of life into the ISTC in its transition heading into the future.

Let us also not forget those loyal staff who have left the ISTC not only in the last year but over the years, to whom I also express my appreciation as it is worth noting their contributions and the significant roles they have played in the success of the ISTC.

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Despite the downsizing of the staff in Moscow, those remaining constitute a core band of dedicated professionals and my thanks go out to these hard working and vital servants of the ISTC, especially through the increasing difficulties and challenges faced over the past year.

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**OVERVIEW OF ISTC ACTIVITIES IN 2013**

**ISTC – Pursuing our Objectives**

The ISTC coordinates the efforts of numerous governments, international organizations, and private sector industry, providing scientists from Russia, Georgia and the CIS new opportunities for international partnership. The ISTC plays a central role in the management of these science partnerships. Through its legal, financial and administrative frameworks, the ISTC contributes to fundamental and applied research by linking the demands of international markets with scientists and engineers in Russian, Georgian and other CIS institutes.

**Overview of ISTC Activities**

- The information provided below gives an overview of the funded projects by financing source, beneficiary country and technology area.
- These figures show that between 1994 and 2013 the ISTC supported 2794 projects with a total value of USD $879,018,488. Most projects were funded respectively in the areas of environment, biotechnology, physics and fission reactors.
- Over the years the EU and the US were the main sources of funding for ISTC projects and research institutes in the Russian Federation benefited most from this funding up until now. However, this year this funding is directed more and more to ISTC’s Central Asia and Caucasus countries.

**2013 Project Funding and Total Project Funding (1994-2013) - by Source**

<table>
<thead>
<tr>
<th>Party</th>
<th>Amount in 2013 (Total USD)</th>
<th>Amount Total (Total USD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Canada</td>
<td>0</td>
<td>35,302,224</td>
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<tr>
<td>EU</td>
<td>1,087,292</td>
<td>243,655,302</td>
</tr>
<tr>
<td>Japan</td>
<td>610,150</td>
<td>64,981,149</td>
</tr>
<tr>
<td>Korea</td>
<td>0</td>
<td>4,581,951</td>
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<tr>
<td>USA</td>
<td>1,134,617</td>
<td>226,275,518</td>
</tr>
<tr>
<td>Finland</td>
<td>0</td>
<td>1,185,960</td>
</tr>
<tr>
<td>Norway</td>
<td>0</td>
<td>1,881,455</td>
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<tr>
<td>Sweden</td>
<td>0</td>
<td>5,911,946</td>
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<td>Partners</td>
<td>5,405,860</td>
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<tr>
<td>Other</td>
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<td>15,040,272</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>8,978,409</strong></td>
<td><strong>879,018,488</strong></td>
</tr>
</tbody>
</table>

**Grants paid by ISTC to Beneficiary Scientists in 2013 and Total Grants paid (1994-2013) - by Country**

**2013 Partner Project Funding (USD $5,669,850) by Party**

<table>
<thead>
<tr>
<th>Party</th>
<th>Type of Partner Company</th>
<th>Number of projects 2013</th>
<th>Partner Funding 2013 (USD)</th>
<th>Number of total projects</th>
<th>Partner Funding total (USD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>United States</td>
<td>G</td>
<td>17</td>
<td>3,465,019</td>
<td>554</td>
<td>210,291,395</td>
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<tr>
<td>Japan</td>
<td>G</td>
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<td>European Union</td>
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<td>Korea</td>
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<td>1,000,000</td>
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<td>1,014,785</td>
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<tr>
<td>Canada</td>
<td>G</td>
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<td>0</td>
<td>0</td>
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<tr>
<td><strong>Total</strong></td>
<td>G</td>
<td>20</td>
<td>5,603,850</td>
<td>779</td>
<td>266,795,953</td>
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</tbody>
</table>

**Grants paid by ISTC to Beneficiary Scientists in 2013 and Total Grants paid (1994-2013) - by Country**

**Total grants paid (USD $547,884,541) by the ISTC to Beneficiary Scientists**
### ISTC in Transition

#### 1994-2013 Total Project Funding ($879,018,488) by Technology Area

![Diagram showing technology areas and their funding.]

#### 2013 Project Funding and Total Project Funding (1994-2013) – by Beneficiary Country

#### 2013 Project Funding ($8,978,409) by Beneficiary Country

<table>
<thead>
<tr>
<th>Country</th>
<th>Number of funded projects 2013</th>
<th>Funds allocated 2013 (US$)</th>
<th>Number of funded projects total</th>
<th>Funds allocated total (US$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Armenia</td>
<td>4</td>
<td>1,010,000</td>
<td>122</td>
<td>43,950,810</td>
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<tr>
<td>Belarus</td>
<td>0</td>
<td>0</td>
<td>100</td>
<td>21,996,964</td>
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<tr>
<td>Georgia</td>
<td>8</td>
<td>899,739</td>
<td>122</td>
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<tr>
<td>Kazakhstan</td>
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<td>4,779,380</td>
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<td>75,032,164</td>
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<tr>
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<td>1,462,795</td>
<td>31</td>
<td>35,378,488</td>
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<tr>
<td>Russia</td>
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<td>0</td>
<td>8,933</td>
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<tr>
<td>Tajikistan</td>
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<td>1,375,075</td>
<td>46</td>
<td>33,435,351</td>
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<tr>
<td>Ukraine</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>64,296</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>31</strong></td>
<td><strong>8,978,409</strong></td>
<td><strong>2,794</strong></td>
<td><strong>879,018,488</strong></td>
</tr>
</tbody>
</table>

#### Total Project Funding ($879,018,488) by Beneficiary Country (1994-2013)

<table>
<thead>
<tr>
<th>Region</th>
<th>Number of Scientists in 2013</th>
<th>Amount of Grant Payments (US$) in 2013</th>
<th>Number of Scientists Total</th>
<th>Amount of Grant Payments Total (US$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Armenia</td>
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<td>681,940</td>
<td>356</td>
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<td>Belarus</td>
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<td>583,045</td>
<td>544</td>
<td>15,444,306</td>
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<tr>
<td>Georgia</td>
<td>51</td>
<td>126,471</td>
<td>744</td>
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<tr>
<td>Kazakhstan</td>
<td>122</td>
<td>355,717</td>
<td>314</td>
<td>9,077,449</td>
</tr>
<tr>
<td>Kyrgyzstan</td>
<td>418</td>
<td>806,233</td>
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<tr>
<td>Russia</td>
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<td>3,410,955</td>
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<td>Tajikistan</td>
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<td>441,451</td>
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<td>5,445,147</td>
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<tr>
<td><strong>Total</strong></td>
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<td><strong>6,854,425</strong></td>
<td><strong>75,075</strong></td>
<td><strong>547,886,541</strong></td>
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</table>

#### 1994-2013 Project Funding ($879,018,488) by Technology Area

<table>
<thead>
<tr>
<th>Tech area</th>
<th>Number of funded projects 2013</th>
<th>Funds allocated 2013 (US$)</th>
<th>Number of projects total</th>
<th>Funds allocated total (US$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture</td>
<td>564</td>
<td>54,152,140</td>
<td>89</td>
<td>115,713,396</td>
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<tr>
<td>Biotechnology</td>
<td>13</td>
<td>2,917,800</td>
<td>329</td>
<td>125,733,294</td>
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<tr>
<td>Chemistry</td>
<td>5</td>
<td>1,247,942</td>
<td>208</td>
<td>55,773,429</td>
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<td>Environment</td>
<td>3</td>
<td>1,112,772</td>
<td>440</td>
<td>134,210,533</td>
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<td>Fission Reactors</td>
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<td>1,490,000</td>
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<td>31,036,479</td>
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<tr>
<td>Fusion</td>
<td>0</td>
<td>0</td>
<td>51</td>
<td>75,032,164</td>
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<tr>
<td>Information and Communications</td>
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<td>28,536,916</td>
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<td>Instrumentation</td>
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<td>Manufacturing Technology</td>
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<td>0</td>
<td>75</td>
<td>21,996,964</td>
</tr>
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<td>Medicine</td>
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<td>22,470,493</td>
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<td>Non-Nuclear Energy</td>
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<td>0</td>
<td>64</td>
<td>22,470,493</td>
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<tr>
<td>Other</td>
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<td>2,798,135</td>
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<tr>
<td>Other Fundamental Sciences</td>
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<td>0</td>
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<td>Physics</td>
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<td>0</td>
<td>419</td>
<td>108,912,108</td>
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<tr>
<td>Space, Aircraft and Surface Transportation</td>
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<td>0</td>
<td>104</td>
<td>23,418,498</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>31</strong></td>
<td><strong>8,978,409</strong></td>
<td><strong>2,794</strong></td>
<td><strong>879,018,488</strong></td>
</tr>
</tbody>
</table>
Strengthening Ties between Kazakhstan and the ISTC: Establishing New ISTC Headquarters in Astana

On the occasion of the 15th anniversary of the ISTC, President Nazarbaev expressed “his deep gratitude for the work of the organization” whilst “looking forward to continued cooperation with the ISTC for the sake of world peace and progress.”

There are strong links between the research and business communities from Kazakhstan and the ISTC. Since Kazakhstan became a member of the ISTC, in total 184 projects have been funded to the good of the Kazakh scientific community to a total amount of USD 66 million. Projects have been financed predominantly in biotechnology, fission reactors, chemistry, environment and medicine. All major Kazakh R&D institutes have participated in ISTC projects, often together with their colleagues in the CIS, the EU, Canada, Japan and the USA. The projects presented good-quality basic research and the opportunity to bring this research to the market place (innovation/commercialization). For 2014 more than USD 6 million is available in projected funding.

The Ministry of Education and Science (MES) is the lead agency for the ISTC in Kazakhstan. An ISTC Branch Office has existed in Almaty since 1995. The continued growth of research collaborations in Kazakhstan and increases in project funding have led to the need to expand the current ISTC Branch Office with the further intent of relocating the ISTC main headquarters from Russia to Kazakhstan. Various high-level contacts have confirmed a willingness from the Kazakh authorities to host the future ISTC headquarters. This issue was discussed in September 2011 during various meetings of ISTC Chair Mr. Lehman with representatives from Kazakhstan.

Subsequently the offer was repeated at the GB meeting of the ISTC (December 8-9, 2011) and in a letter of December 28, 2011 of the President of the Academy of Sciences of Kazakhstan. It was agreed that the new ISTC Headquarters would relocate to Kazakhstan with a preliminary expansion of the current ISTC Branch Office. An ISTC official was transferred on January 1, 2012 to Almaty to start work on preparing new offices and to establish contacts to implement the function of ISTC Program Coordinator of ISTC projects.

The new ISTC premises were originally planned to be housed at the Kazakh-British Technical University in Almaty. No agreement could be reached however between MES and KBTU and a new offer of office space was made.

Nazarbayev University (NU), located in Astana, Kazakhstan, was confirmed as the new ISTC office location in a letter from DPM Orynbayev dated October 8, 2013. The letter offered permanent space for the ISTC Headquarters at the future NU Science Park with a projected occupancy date of spring 2016. Temporary office space offered with a projected ready date of no later than March 1, 2014.

During December 2013, former ISTC Director, Leo Owsiacki, worked together with Nazarbayev University officials to finalize the ISTC/Nazarbayev University office space agreement. The agreement was signed by both the ISTC and NU with an effective date of December 22, 2013.

In January 2014, the ISTC Chief Administrative Officer (ISTC CAO) moved from Almaty to Astana. On February 19, 2014 the ISTC CAO moved into the new temporary office space at NU to oversee final preparations for the temporary office space and the planning for the permanent ISTC office space. Plans are still on track for a March 1st turnover of the temporary office space to the ISTC.

In addition to the ISTC move to Nazarbayev University, the university applied for and was recommended by the MES for Partnership to the ISTC. In 2012 Nazarbayev University was accepted as an ISTC partner, creating the first such Partnership in the history of the ISTC.
Partner funding has become more and more important both in terms of project support and supplementary budget activities. These activities include such aspect as supporting the travel of scientists to meet with colleagues internationally and to attend important training sessions and workshops.

During the year, new projects funded by both Parties and Partners focused on Central Asia and the Caucasus.

The EU has recently become very active through the European Aid - Development and Cooperation Office (DEVCO) as a Partner to the ISTC and has contributed significantly to the Partner project program. DEVCO is supporting more than USD 7.8 million in new project activities, with a focus on bio-safety and bio-security in Central Asia.

Some examples of Partner projects supported/funded by DEVCO are presented below.

**Project #T-1819**
**Bio-safety Assignment Training for the Republican Center for Quarantine Infection Prevention of the Ministry of Health of the Republic of Tajikistan (RCQIP)**

- **Leading Institute:** Republican Center for Quarantine Infection Prevention of the Ministry of Health of the Republic of Tajikistan, Dushanbe, Tajikistan
- **Allocated:** US $6,099
- **Grants:** US $6,400

**Main objectives and results:**

As part of the program “Strengthening Bio-Safety and Bio-Security Capabilities in Central Asian Countries” the European Union has funded long-term training projects through the ISTC. Through these projects the theoretical and practical skills of relevant laboratory personnel were enhanced in the use of modern diagnostic methods for investigating dangerous diseases and pathogens, and in the process the bio-safety and bio-security expertise in Kazakhstan, Tajikistan and neighboring regions was improved.

In total, 5 experts received training (1 from Kazakhstan, 4 from Tajikistan) through these long-term training projects. For each project the trainees received up to 6 months of English training, depending on their initial comprehension level. Successful completion of the language course was a requirement to move to the next phase of the project, in order to assure effective communication between trainee and trainer during the training phase. Each of the trainees successfully passed their language course and each stayed 1 year at the Robert-Koch Institute (RKI, Berlin, Germany) for theoretical and practical training in modern bio-safety and bio-security standards. The format of the training was “learning-by-doing”, so each trainee received theoretical training and was assigned to a department at RKI where they performed collaborative research. The collaborative research was conducted on *Bacillus anthracis* (anthrax), *Clostridium botulinum* (the cause of botulism), influenza viruses, *Francisella tularensis* (cause of Tularemia) & poxviruses.

After the 1-year training period at RKI the trainees returned to their home institutes in Kazakhstan and Tajikistan, where they are disseminating the knowledge and skills they gained to their colleagues.

**Project #T-1852**
**Bio-safety Assignment Training for the Tajik Research Institute of Preventive Medicine of the Ministry of Health of the Republic of Tajikistan (TRIPM)**

- **Leading Institute:** Tajik Research Institute of Preventive Medicine, Dushanbe, Tajikistan
- **Allocated:** US $2,016,608
- **Grants:** US $6,400

**Main objectives and results:**

As part of the program “Strengthening Bio-Safety and Bio-Security Capabilities in Central Asian Countries” the European Union has funded long-term training projects through the ISTC. Through these projects the theoretical and practical skills of relevant laboratory personnel were enhanced in the use of modern diagnostic methods for investigating dangerous diseases and pathogens, and in the process the bio-safety and bio-security expertise in Kazakhstan, Tajikistan and neighboring regions was improved.

In total, 5 experts received training (1 from Kazakhstan, 4 from Tajikistan) through these long-term training projects. For each project the trainees received up to 6 months of English training, depending on their initial comprehension level. Successful completion of the language course was a requirement to move to the next phase of the project, in order to assure effective communication between trainee and trainer during the training phase. Each of the trainees successfully passed their language course and each stayed 1 year at the Robert-Koch Institute (RKI, Berlin, Germany) for theoretical and practical training in modern bio-safety and bio-security standards. The format of the training was “learning-by-doing”, so each trainee received theoretical training and was assigned to a department at RKI where they performed collaborative research. The collaborative research was conducted on *Bacillus anthracis* (anthrax), *Clostridium botulinum* (the cause of botulism), influenza viruses, *Francisella tularensis* (cause of Tularemia) & poxviruses.

After the 1-year training period at RKI the trainees returned to their home institutes in Kazakhstan and Tajikistan, where they are disseminating the knowledge and skills they gained to their colleagues.
**Project #T-1998**

Creation of Regional Biosafety Training Centre in Dushanbe for Capacity Building for Tajikistan and Afghanistan Professionals

**Main objectives and results:**

Under ISTC Partner Project T-1998, a Regional Bio-Safety Training Centre has been created in Dushanbe, Tajikistan. This project was funded under the program ‘Strengthening Bio-Safety and Bio-Security Capabilities in Central Asian Countries’ that the European Union is funding through the ISTC.

As part of Project T-1998 a training facility was renovated for theoretical and practical training, and bio-safety equipment was procured for training purposes. On June 25, 2013 the newly created Bio-safety and Bio-security Training Centre in Dushanbe was officially opened at the Institute of Botany of the Tajikistan Academy of Sciences. Additionally, a full curriculum was developed, covering different aspects of bio-safety and bio-security, with input from WHO and European experts. Currently, the training of Tajik and Afghan specialists is ongoing, dealing with issues such as handling pathogens and mitigating the effects of an accidental bio-agent release.

**Leading Institute:** Public Organisation “Modern Scientists”, Dushanbe, Tajikistan

**Allocated:** US $1,176,351

**Grants:** US $335,560

**List of Projects Completed in 2013**

<table>
<thead>
<tr>
<th>Project No.</th>
<th>Short title</th>
<th>Leading Institute</th>
<th>Funding Party</th>
<th>Collaborators</th>
</tr>
</thead>
<tbody>
<tr>
<td>#2777</td>
<td>Transmissible Spongiform Encephalopathies</td>
<td>Ivanovsky Institute of Virology / NARVAC, Moscow, Russia</td>
<td>Partners</td>
<td>USA</td>
</tr>
<tr>
<td>#3003</td>
<td>Newcastle Disease and Avian Influenza</td>
<td>Federal Centre for Animal Health, Vladimir, Russia</td>
<td>Partners</td>
<td>USA</td>
</tr>
<tr>
<td>#3610</td>
<td>Inactivated Vaccines against Avian Viral Diseases</td>
<td>Federal Centre for Animal Health, Vladimir, Russia</td>
<td>Partners</td>
<td>USA</td>
</tr>
<tr>
<td>#3714</td>
<td>DNA Markers of Potato Genes for Late Blight Resistance</td>
<td>Institute of Agricultural Biotechnology, Moscow, Russia</td>
<td>Partners</td>
<td>USA</td>
</tr>
<tr>
<td>#3721</td>
<td>Molecular Identification of Plant-Parasitic Nematodes</td>
<td>Phytopathology Research Institute, Bolshie Vyzemy, Moscow reg., Russia</td>
<td>Partners</td>
<td>USA</td>
</tr>
<tr>
<td>#3802</td>
<td>Retinovirus-Induced Diseases in Poultry</td>
<td>Ivanovsky Institute of Virology / NARVAC, Moscow, Russia</td>
<td>Partners</td>
<td>USA</td>
</tr>
<tr>
<td>#3978</td>
<td>Molecular Diagnostics Laboratory for Plant Pathogens</td>
<td>Phytopathology Research Institute, Bolshie Vyzemy, Moscow reg., Russia</td>
<td>Partners</td>
<td>USA</td>
</tr>
<tr>
<td>#4070</td>
<td>Biocontrol Agents Adapted to Extreme Environments</td>
<td>Phytopathology Research Institute, Bolshie Vyzemy, Moscow reg., Russia</td>
<td>Partners</td>
<td>USA</td>
</tr>
<tr>
<td>#K-1396</td>
<td>Kazakhstan Pasturable Lands Monitoring</td>
<td>Kazakh Research Institute of Ecology and Climate, Almaaty, Kazakhstan</td>
<td></td>
<td></td>
</tr>
<tr>
<td>#2685</td>
<td>Safety System to Protect Biological Material</td>
<td>Phytopathology Research Institute, Bolshie Vyzemy, Moscow reg., Russia</td>
<td>Partners</td>
<td>USA</td>
</tr>
<tr>
<td>#3034</td>
<td>Sunflower Diseases</td>
<td>Russian Research Institute of Biological Plant Protection, Krasnodar, Krasnodar reg., Russia</td>
<td>Partners</td>
<td>USA</td>
</tr>
<tr>
<td>#3104</td>
<td>Recombinant Murerian Inhibiting Substance</td>
<td>Institute of Highly Pure Biopreparations, St Petersburg, Russia</td>
<td>Partners</td>
<td>USA, Uzbekistan</td>
</tr>
<tr>
<td>#3949</td>
<td>Probiotics for Functional Food</td>
<td>Institute of Immunological Engineering, Lyschchiny, Moscow reg., Russia</td>
<td>Japan</td>
<td>Japan, Canada, Slovakia</td>
</tr>
<tr>
<td>#4009</td>
<td>Anti-Tumor Vaccines Based on Heat Shock Proteins</td>
<td>Pacific Institute of Bioorganic Chemistry, Vladivostok, Primorsky reg., Russia</td>
<td>Japan</td>
<td>Japan</td>
</tr>
<tr>
<td>#4060</td>
<td>Center for Training of Biosafety</td>
<td>Novosibirsk State University, Novosibirsk, Russia</td>
<td>Canada</td>
<td>Canada</td>
</tr>
<tr>
<td>#4083</td>
<td>Ethanol Production from By-products</td>
<td>JSC Biochimmash, Moscow, Russia</td>
<td>Partners</td>
<td>USA</td>
</tr>
<tr>
<td>#A-1662</td>
<td>Monitoring of Blood-Sucking Flies</td>
<td>Institute of Molecular Biology, Yerevan, Armenia</td>
<td>Canada</td>
<td>Canada, USA, Germany, UK</td>
</tr>
<tr>
<td>#A-1764</td>
<td>Antitumor and Radiosensitizing Organometallic Copper Complexes</td>
<td>Research Center of Radiation Medicine and Burns, Yerevan, Armenia</td>
<td>EU</td>
<td>Austria, Germany, UK, USA</td>
</tr>
<tr>
<td>#A-1866</td>
<td>Bacterial Peptides</td>
<td>Center of Prophylaxis of Especially Dangerous Infections, Yerevan, Armenia</td>
<td>Partners</td>
<td>USA</td>
</tr>
<tr>
<td>#A-1868</td>
<td>Complex Nitrogen Biofertilizer</td>
<td>Institute of Biochemistry, Yerevan, Armenia</td>
<td>Partners</td>
<td>USA</td>
</tr>
<tr>
<td>#A-1980</td>
<td>Probiotics for Familial Mediterranean Fever Patients</td>
<td>Institute of Biochemistry, Yerevan, Armenia</td>
<td>Partners</td>
<td>USA</td>
</tr>
<tr>
<td>#B-1640</td>
<td>Transformation of Sugars into Nucleosides of Biological Importance</td>
<td>Institute of Bioorganic Chemistry, Minsk, Belarus</td>
<td>EU</td>
<td>Germany, Finland</td>
</tr>
<tr>
<td>#G-1666</td>
<td>Bacteriophage Composite against Dental Infections</td>
<td>Georgian Academy of Sciences / Institute of Bacteriophage, Microbiology and Virology, Tbilisi, Georgia</td>
<td>Canada</td>
<td>USA, Canada</td>
</tr>
<tr>
<td>#KR-1768</td>
<td>Regulations on Biosafety in Kyrgyzstan</td>
<td>State Sanitary Epidemiological Supervision Department, Bishkek, Kyrgyzstan</td>
<td>Canada</td>
<td>Canada</td>
</tr>
</tbody>
</table>
## ISTC in Transition

![Page Image](image)

### Project No. | Short title | Leading Institute | Funding Party | Collaborators
---|---|---|---|---
#K-1784 | Epidemiology of Plague | Isahak-Kul State University named after K. Tyurnyanov, Karakol, Kyrgyzstan | Canada | Canada
#T-1594 | Murine Rodents in Central Tajikistan | Institute “Biological preparations” of Academy of agricultural sciences RT, Dushanbe, Tajikistan | Canada, USA | Canada, USA
#T-1818 | Bio-safety Assignment Training in Tajikistan | Tajik Research Institute of Preventive Medicine, Dushanbe, Tajikistan | Partners | Germany

**Chemistry**

<table>
<thead>
<tr>
<th>Project No.</th>
<th>Short title</th>
<th>Leading Institute</th>
<th>Funding Party</th>
</tr>
</thead>
</table>
#3561 | Desulphurization of Transport Fuel | Institute of Physical Chemistry and Electrochemistry, Moscow, Russia | Partners |
#3697 | Risk of Human Health by Example of Man's Health Facility | Research Institute of Hygiene, Occupational Pathology and Human Ecology, Yerevan, Armenia | Partners |
#3879 | Absorbers for Vehicle Emission Control | JS Company “Sarov Laboratories”, Sarov, N. Nogorod reg., Russia | Partners | USA
#3994 | Integration of Plant Protection Agents | Russian Research Institute of Biological Plant Protection, Krasnodar, Krasnodar reg., Russia | Canada | Canada
#B-1603 | Alkali Based Borohydrides for Hydrogen Production | National Academy of Sciences of the Republic of Belarus / Institute of Heat and Mass Transfer, Minsk, Belarus | Japan | Japan
#B-1746 | Innovative Antiviral Agents | Belarusian State University / Institute of Physical Chemical Problems, Minsk, Belarus | EU | Austria, Germany
#CI-1087 | Secondary Polymer (Puliplen Company) | Puliplen Ltd., Soversk, Tomsk reg., Russia | Partners |
#CI-109 | Production of ultra-high pure carbon for electronic industry needs | Khlopin Radium Institute, St Petersburg, Russia | USA |
#CI-1284.2 | Synthesis of Phosphoric Ethers | Institute of Organic Catalysis and Electrochemistry, Almaty, Kazakhstan | Canada, USA | Canada, USA
#CI-1476 | Pillared Clays as Catalysts and Sorbents | Institute of Organic Catalysis and Electrochemistry, Almaty, Kazakhstan | EU | Spain

**Environment**

<table>
<thead>
<tr>
<th>Project No.</th>
<th>Short title</th>
<th>Leading Institute</th>
<th>Funding Party</th>
<th>Collaborators</th>
</tr>
</thead>
</table>
#3715 | Air Pollution Transport from Central Asia | Institute of Atmospheric Physics, Moscow, Russia | Partners | USA |
#3823 | Solidification of Radioactive and Chemical Waste | Khlopin Radium Institute, St Petersburg, Russia | Partners | USA |
#4008 | Ecology of Amur River Basin | Russian Academy of Sciences / Far East Branch of RAS / Pacific Geographical Institute, Vladivostok, Primorsky reg., Russia | Japan | Japan
#4010 | Forest Fires Prognosis | Russian Academy of Sciences / Far East Branch of RAS / Institute of Water and Ecology Problems RAS, Far Eastern Branch, Khabarovsk, Khabarovsk reg., Russia | Japan | Japan
#4028 | Climate Change: Carbon Stocks and Pollution Loads in Northern Latitude Soils | Institute of Physicochemical and Biological Problems in Soil Science, Pushchino, Moscow reg., Russia | Partners |
#4033 | Microorganisms for Biofuel | Center for Ecological and Bioresources Development, Pushchino, Moscow reg., Russia | Partners | USA |
#T-1508 | Uranium Wastes Treatment | Nuclear and Radiation Safety Agency (NIASA), Dushanbe, Tajikistan | EU | Czechia

**Fission Reactors**

<table>
<thead>
<tr>
<th>Project No.</th>
<th>Short title</th>
<th>Leading Institute</th>
<th>Funding Party</th>
<th>Collaborators</th>
</tr>
</thead>
</table>
#B-1810 | Bio-safety Assignment Training in Tajikistan | Tajik Research Institute of Preventive Medicine, Dushanbe, Tajikistan | Partners | Germany
#B-1806 | Transformers for Fusion Products Pressure Gauge | National Nuclear Center of the Republic of Kazakhstan / Institute of Nuclear Physics, Almaty, Kazakhstan | Partners |

**Information and Communications**

<table>
<thead>
<tr>
<th>Project No.</th>
<th>Short title</th>
<th>Leading Institute</th>
<th>Funding Party</th>
<th>Collaborators</th>
</tr>
</thead>
</table>
#B-1682 | Ovarian Cancer Angiogenesis | National Academy of Sciences of the Republic of Belarus / Institute of Informatics Problems, Minsk, Belarus | EU | Germany |
#CSP-053 | Communication system for seismic hazards | Scientific Foundation "International Center Garn", Yerevan, Armenia | | |
#CSP-059 | Khujand Scientific Center communication network | Physical-Technical Institute, Dushanbe, Tajikistan | | |

**Manufacturing Technology**

<table>
<thead>
<tr>
<th>Project No.</th>
<th>Short title</th>
<th>Leading Institute</th>
<th>Funding Party</th>
<th>Collaborators</th>
</tr>
</thead>
</table>
#2270 | Mono-Crystal Electrodes for Powerful X-ray Tubes | NPO Lutich, Podolsk, Moscow reg., Russia | Partners |
#A-1661 | Market Research for YerPhI Developed Technologies | A.I. Alkhanyan National Science Laboratory, Yerevan, Armenia | Partners |
#CI-010 | NailjetProTM Research, Development and Production | ImagNail Russia, Nizhni Novgorod, Russia | Partners |
#CI-031 | Highly Pure Silicon Carbide Equipment | NPO Lutich, Podolsk, Moscow reg., Russia | | |

**Materials**

<table>
<thead>
<tr>
<th>Project No.</th>
<th>Short title</th>
<th>Leading Institute</th>
<th>Funding Party</th>
<th>Collaborators</th>
</tr>
</thead>
</table>
#4003 | Nanostructured Titanium for Implants | Ufa State Technical University of Aviation, Ufa, Bashkiria, Russia | Partners | USA |
#B-1708 | Nanocarbon in Electromagnetic Applications | Institute for Nuclear Problems, Minsk, Belarus | EU | Belgium, Italy, Canada
#B-310 | TI Products for Medical Application | NanoMet, LLC, Ufa, Bashkiria, Russia | | |

**Medicine**

<table>
<thead>
<tr>
<th>Project No.</th>
<th>Short title</th>
<th>Leading Institute</th>
<th>Funding Party</th>
<th>Collaborators</th>
</tr>
</thead>
</table>
#2800 | Influenza A Viruses of Birds and Pigs | Ivanovsky Institute of Virology, Moscow, Russia | Partners |
#3117 | Microchip for Detection of Toxins | Institute of Bioticorganic Chemistry, Moscow, Russia | Partners |
#3359 | Detection of Bacteria in Blood | Research Center of Toxicology and Hygienic Regulation of Biopreparations, Serpukhov, Moscow reg., Russia | Partners |
#3701 | Toxic Action of Nanopowders | VNIKHT (Chemical Technology), Moscow, Russia | EU | Germany, Italy
#3868 | Clots in Blood Vessels | VNIIEF, Sarov, N. Novgorod reg., Russia | EU | Italy |
## ISTC Structure

### Permanent Governing Board Parties

- **European Union**
- **Japan**
- **Russian Federation**
- **United States**

### Other Parties

- **Norway**
- **Republic of Korea**

### CIS Parties and Georgia

- **Azerbaijan**
- **Belarus**
- **Kazakhstan**
- **Kyrgyz Republic**
- **Tajikistan**
- **Georgia** (Board Member in 2014)

### Members of the Governing Board:

- **Chair (USA)**: Ronald F. Lehman II
- **European Union**: Eddie Maier
- **Japan**: Rokushiro Michii, Yoshiaki Takahashi
- **Russian Federation**: Lev Ryabev
- **United States of America**: Simon Limage

### Members of the Scientific Advisory Committee:

- **Japan**: Masanori Araki
- **European Union**: Jean-Pierre Contzen, André Syrotta
- **Russian Federation**: Eugeny Avrutin, Yuri Trutnev
- **United States of America**: Steven Gotoher, Uppendra Singh Rohatgi

### ISTC in Transition

#### Project No. Short title Leading Institute Funding Party Collaborators

- **#1-152** Certified production of radionuclide products for nuclear medical application FEI (IPPE), Obninsk, Kaluga reg., Russia
- **#KR-1398.2** Monitoring Rabies of the People and Animals Kyrgyz Research Institute of Livestock, Veterinary and Pastures, Bishkek, Kyrgyzstan Canada, USA
- **#KR-13710** National Disease Surveillance Database for Kyrghyz Republic Republican Center of Quarantine and Especially Dangerous Infections, Bishkek, Kyrgyzstan Partners Canada, USA
- **#RT-1837** Foot-and-Mouth Disease in Gorno-Badakhshan Area Institute “Biological preparations” of Academy of agricultural sciences RF, Dushanbe, Tajikistan Partners USA

#### Non-Nuclear Energy

- **#3266** Effective Termeoelectrics Russian Academy of Sciences / Physical Technical Institute, St Petersburg, Russia Partners
- **#3910** Modeling of Photosynthesis on the Basis of Supramolecular Systems Russian Academy of Sciences / Semenov Institute of Chemical Physics, Moscow, Russia EU, Austria, Spain
- **#3525** Electrohydraulic Borehole Device VNIIEF, Sarov, N. Novgorod reg., Russia Partners USA
- **#KR-1758** Creation of Individual Dosimetry Center National Nuclear Center of the Republic of Kazakhstan / Institute of Radiation Safety and Ecology, Kurchatov, Kazakhstan Partners

#### Other Basic Sciences

- **#3993** Luminous Events and Penetration Radiation in Thunderstorm Atmosphere VNIIEF, Sarov, N. Novgorod reg., Russia EU, Denmark, Greece
- **#4016** Gas Hydrates in Lake Baikal Limnological Institute, Irkutsk, Irkutsk reg., Russia Japan, Japan
- **#KR-1668** Sliding Phenomena in High-Mountain Condition Kyrgyz-Russian Slavonic University, Bishkek, Kyrgyzstan EU, USA, Italy

#### Physics

- **#1116** Gas Bubble Collapse in liquid VNIIETF, Snezhinsk, Chelyabinsk reg., Russia USA, USA
- **#3793** Pulse Discharge in Flow Joint Institute for High Temperatures RAS, Moscow, Russia Partners
- **#8881** Nuclear Fusion on Polarized Deuterium and Helium-3 Nuclear Physics Institute, Gaetchnia, Leningrad reg., Russia EU, Germany, Switzerland
- **#8888** Accelerating Section for Linac4 Budker Institute of Nuclear Physics, Novosibirsk reg., Russia EU, Other, Switzerland
- **#8889** Cavities for Accelerating Section for Linac4 Budker Institute of Nuclear Physics, Novosibirsk reg., Russia Partners
- **#3959** Near-Zero Emissions Combustor System Siberian Branch of RAS / Institute of High Current Electronics, Tomsk, Tomsk reg., Russia Partners USA
- **#3963** Thin Film Structure St Petersburg State University, St Petersburg, Russia EU, France, Germany, Switzerland
- **#3965** Multi-Charged Ion Source with High Ionization Efficiency Russian Academy of Sciences / Institute of Applied Physics, N. Novgorod, N. Novgorod reg., Russia EU, Other, Switzerland, Italy, France
- **#4022** Vacuum System for Electron-Positron Colliders Budker Institute of Nuclear Physics, Novosibirsk reg., Russia Japan, Japan
- **#8876** Laser Microprocessing A.I. Alkhanyan National Science Laboratory, Yerevan, Armenia Partners
- **#8868** Optical Multi-Channel Interferometer B.I. Stepanov Institute of Physics, Minsk, Belarus Korea, Other, Germany, Korea

#### Space, Aircraft and Surface Transportation

- **#872** Shock Wave and Vortex Interference with the Body Surface Central Aerodynamic Institute, Zhukovsky, Moscow reg., Russia EU, France, Germany, Belgium
- **#4035** Transonic Flutter Central Aerodynamic Institute, Zhukovsky, Moscow reg., Russia Canada, Canada
### Parties Contact Information

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#### TBD
**TBD**

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Fax: +1 202 716 7698  
E-mail: LoweDL@state.gov

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State Committee of Science  
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Fax: +374 1 590403  
E-mail: gik@edu.am

#### Republic of Belarus
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Fax: +375 17 284 1068  
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**ISTC Secretariat Structure**

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**Senior Coordinator**

**Communications and External Relations**

**Branch Offices**

**Operations Department**

**Partnering & Innovation Department**

**Industrial Technologies Department**

**Finance Office**

**Projects Group**

**Partner Projects and US Partner Promotion Division**

**Projects Division**

**Japan Partner and Technology Promotion**

**Procurement Office**

**Korean Partner Promotion**

**ITG**

**Administrative Support Group**
Glossary of Main ISTC Terms and Programs

The Bio-safety/Bio-security Program provides additional resources to support various Bio-safety and Bio-security initiatives.

The Commercialisation Support Program facilitates and strengthens long-term commercial self-sustainability efforts by ISTC beneficiaries through promotion of marketable products and services.

The Communication Support Program (CSP) supports eligible CIS institutes and organisations for building IT infrastructure where existing capabilities inhibit the accomplishment of ISTC projects and the development of commercial opportunities.

The Governing Board is the primary ISTC decision-making body, which is made up of representatives from Canada, the European Union, Japan, the Russian Federation and the United States, with one yearly rotating seat for representation of one of the other countries of the CIS member states or Georgia.

The Mobility Program provides additional opportunities for direct communication of the Russian and other CIS and Georgian scientists with their colleagues from abroad through financing international travel related to ISTC projects and activities.

The Outreach Program explains the objectives and working methodology of ISTC including the disseminating of ISTC project results.

The Partner Promotion Program attracts initiates and develops projects between the private sector and institutes in Russia and other CIS member countries or Georgia.

The Patenting Support Program provides assistance and support for the appropriate protection of intellectual property created under ISTC regular projects for its effective exploitation.

The Responsible Science Management Program aims to increase awareness among scientists about the potential dual-use of research including the use of sensitive materials.

The Science Workshop and Seminar Program promotes the integration of ISTC beneficiary institutions and scientists and engineers into the international S&T community through supporting various science events.