

Nonproliferation Through Science Cooperation



International Science & Technology Center: Commercial Opportunities for Scientists

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Core Objectives



- ***Redirect*** former WMD scientists of FSU
- Reinforce the ***transition to the market*** economy
- Help ***integrate WMD scientists*** into the global scientific community
- Contribute to ***solving*** national/global science & technology ***problems***
- Support basic and applied ***research***

G8 Global Partnership:



Parties of ISTC have designated their contributions to ISTC as fulfilling Global Partnership pledges

Relevant ISTC projects:

- **Submarine decommissioning**
ISTC involvement ranges from new technologies for dismantlement to oceanic radio-nuclide databases
- **Chemical weapons destruction**
Technological approaches include blast furnaces and reaction into commercial products
- **Disposition of fissile materials**
Research on advanced reactor types and new fuels includes feasibility and safety studies

ISTC Projects & CWD Support



- 3155 “Development of Technology for Sovtol and Sovtol Containing Equipment Detoxication” - *State Institute of Technology of Organic Synthesis (GITOS), Shikhany, Saratov reg., Russia*
- K-754 “Eco-efficient Catalytic Conversion of White Phosphorus to Organophosphorus Compounds” - *Institute of Organic Catalysis and Electrochemistry, Almaty, Kazakhstan*
- 3220 “Determination of Organophosphorus Agents in Air” - *Scientific Research Institute of Hygiene, Toxicology and Occupational Pathology, Volgograd, Russia*
- 3372 “Residual Toxicity of Chemical Agent” - *Research Institute of Hygiene, Occupational Pathology and Human Ecology, Vsevolozhsk, Leningrad reg., Russia*

ISTC Partner Program



- **Government organizations and private companies have invested over \$190 million in FSU science through ISTC Partner Program**
- **Partners enjoy certain privileges, such as technology matchmaking, tax-free grant payments, IPR support**
- **Dedicated Partner project managers at ISTC respond to specific needs and focus of Partner**

ISTC Partner Program



Most active Partners:

- ***US Defense Threat Reduction Agency***
- ***US Department of Health and Human Services***
- ***Agricultural Research Service***
- ***DoE Initiatives for Proliferation Prevention***
- ***European Office of Aerospace R&D***
- ***DoS BioIndustry Initiative***
- ***DARPA***

ISTC Partner Program



Chemical Partners:

- ***BASF, Bayer***
- ***3M, Dow, Du Pont***
- ***Nissan, Teijin***
- ***AECL***

Commercialization



- **Challenge in FSU to bring early scientific results to market in absence of standard financial tools**
- **ISTC Commercialization Support Program assists scientists in bringing their promising technology to “invest-ability”**
- **To date ComSP program has executed agreements to create more than 700 civilian working-places**
- **Success Story: UK Firm Firestop and VOCCO, Russia**

ISTC Institutes at CWD 2007



- **Kolodkin, Session 4 – Accident After-Effects s/w, h/w**
- **Strukov et al., Sessions 8, 15 – Detection**
- **Filatov, Session 14 – Decontamination Issues**
- **Ermolaeva, Session 16 – Toxicology of Hazardous Wastes**
- **Rusanov, Session 17 – Conversion of explosives**

Selected ISTC Activities



US Sponsored Attendance to ACS Meeting, 25 – 29 March, 2007

US Sponsored Attendance to SOT Meeting, 25 – 29 March, 2007

Canadian-Sponsored Workshop on Hg Soil Remediation and Emission Reduction, 28 May – 1 June, 2007

Canadian-Sponsored Workshop on Response to Chemical Emergencies, Mid-September 2007

Canadian-Sponsored Attendance to RemTech 2007, Remediation Technologies, Mid-October 2007

Conclusion



ISTC: Commercial Opportunities for Scientists

Thank you for your attention

Questions and comments?

Contact



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Role of Sustainability

It is clear that nonproliferation and sustainability are highly linked concepts – but what are the methods for working towards these dual goals?

- **Increase number of commercial Partners funding projects**

Presently 90% of ISTC Partner funds originate from other governmental sources

- **Integrate CIS science with CIS funding sources**

Link to domestic demand for innovative technologies, Targeted Initiatives a step in this direction

- **Create systemic links with global initiatives**

Funding Parties have linked their ISTC contributions to activities of G8 Global Partnership

History

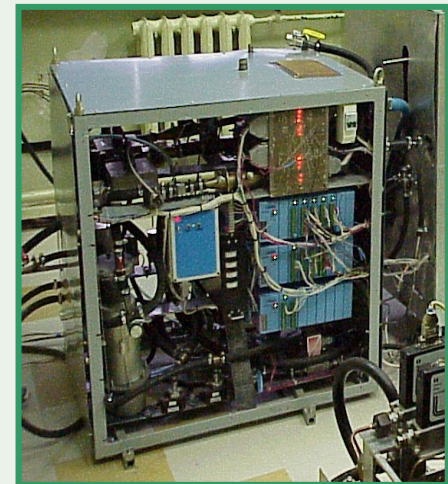


- **Founded in 1992 by the governments of the EU, Japan, the USA and Russia; operations began in 1994 in Moscow**
- **ISTC now has 37 member countries (25 from EU), representing the FSU, Europe, Asia, and North America**
- **Parties and Partners select and fund scientific projects in FSU**
- **ISTC manages projects and directs supporting programs for project participants and institutes**

Solutions for Russia: Fuel Cell Technology

ISTC and MinAtom, with the support of Russian firm Gazprom, have launched a targeted initiative to develop 3-5 kw stationery fuel-cell power plant and commercialize the results

- Fuel cell technology is a highly efficient and environmentally clean source of energy for stationery applications
- Tentative agreement reached: ISTC funds technology R&D at Russian institutes; Gazprom subsidiary Orgenergogaz agrees to purchase at least 400 fuel-cell power stations a year once necessary tests are completed
- State Duma Committee for Science and Education involved in Fuel- Cell steering group



G8 Global Partnership: Key to ISTC's intermediate future

Realities of Global Partnership:

- Majority of funds directed at first 3 Global Partnership priorities: submarine dismantlement, chemical weapons destruction, and fissile material disposition
- Large portion of G8 funds currently spent in home countries on logistical and technical issues
- Smaller countries also have interest in supporting Global Partnership, but do not have ability to contribute large funds

Future role of ISTC:

- Through ISTC projects, Russian scientists can be *active* participants in nonproliferation, not just *passive* recipients of funds
- Russian science as resource for developing necessary technologies for GP work – “two birds with one stone” approach

In 2005, ISTC adds new department Global Security and Strategic Planning

New GS department will *not just redirect* former weapons scientists, but *specifically redirect* them towards science and technology that addresses counter-terrorism, disarmament, non-proliferation, and CBRN security issues:

- Safety and security of facilities
- Transportation and containment of dangerous goods
- Destruction and conversion of dangerous materials
- Material and process controls
- Detection and enforcement products



One example: DTRA as ISTC Partner

Through ISTC Partner program, U.S. Defense Threat Reduction Agency has invested over \$37 million for nonproliferation projects

Focus on biological institutes: VECTOR, State Research Center for Applied Microbiology, Pokrov Plant of Biopreparations, etc.

Biosecurity

- Installation of CCTV, fire-warning system, access control
- Renovations to security perimeter

Biosafety

- Centralized technical & biomedical support
- Facilities for highly dangerous pathogens
- Upgrade electronic communication system

Concepts for the future



Changing meaning of collaboration

ISTC International Science Laboratory in Minsk a testament to this vision of true side by side research – Fraunhofer Institute in collaboration with Stepanov Institute

More local control, more local benefit

ISTC Fuel Cell Targeted Initiative links Russian scientists with Russian business to answer need of domestic market

Resolution of legal issues

Questions of IPR rights and export controls becoming more prevalent, and require more attention and consensus among ISTC Parties