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European Nanotechnology Gateway

Funding and Support for international NANOTECHNOLOGY collaborations

December 2005

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About Nanoforum

Nanoforum is a thematic network funded by the European Commission, aiming to promote and raise the standard of nanotechnology activities throughout Europe. Nanoforum comprises a consortium of leading European nanotechnology organisations led by the Institute of Nanotechnology (UK) and including VDI Technologiezentrum (Germany), CEA-LETI (France), Malsch TechnoValuation (Netherlands), METU (Turkey), Unipress (Poland), Sofia University (Bulgaria), BIT (Austria) and NanoNed (The Netherlands). Nanoforum is an information source for the European Community that unites disciplines and countries. Nanoforum provides a resource for business, research, government and financial institutions across Europe.

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- 1st Nanoforum General Report: "Nanotechnology helps solve the world's energy problems", first edition published in July 2003, updated in December 2003 and April 2004.
- 2nd Nanoforum General Report: "Nanotechnology in the New EU Member States and Candidate Countries; Who's who and research priorities", first edition published in July 2003, updated in November 2003 and September 2005.
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- "SME participation in EU research programmes", October 2004.

Series background studies to policy seminars:

- "Nanotechnology in the Nordic Region", July 2003.
- "Nano-Scotland from a European perspective", November 2003.

Funding and support for international nanotechnology collaborations

Funding and support for international nanotechnology collaborations

Global nanotechnology collaborations have received a lot of attention lately. Although Europe's research community is in a good position to play a leading role in international nanotechnology networking and research, this cannot be done without funding. Nanoforum has investigated multilateral and bilateral funding opportunities for nanotechnology open to European researchers with partners in other parts of the world. We have also identified web portals and organisations which can help EU researchers find partners in North and South America, Eastern Europe, Russia and Newly Independent States, Asia-Pacific and Africa. The present report summarises the results of our survey.

1. Funding opportunities

This report identifies funding opportunities at the global level and in the following world regions: North America; Latin America; Asia-Pacific; Eastern Europe, Russia and Newly Independent States; and Africa.

1.1. Global

The **European Commission** funds international R&D collaborations through the Sixth Framework Programme, and intends to do the same under the Seventh Framework programme. Collaborations exist with countries which have signed bilateral science and technology agreements with the EU, and with countries in special regions. These regions are Mediterranean countries which border the EU; Russia and the Newly Independent States; and developing countries in general. Funding for international collaborations can also be included in thematic programmes, including the NMP programme for nanotechnology etc. Individual researchers interested in working in another world region can benefit from the Marie Curie scheme for Mobility. On the European Commission's nanotechnology pages on CORDIS, European researchers interested in proposing collaborative projects with partners in other world regions are guided towards funding and assistance. The funding for the Sixth Framework programme has almost finished and the first calls for the Seventh Framework programme will be published in 2007.
http://www.cordis.lu/nanotechnology/src/intlcoop.htm and
http://europa.eu.int/comm/research/industrial_technologies/lists/list_155_en.html

Under the **Intelligent Manufacturing Systems** (IMS) scheme, European research organisations and companies can propose collaborative research projects involving partners in at least three of the participating global regions: Australia, Japan, Korea, Switzerland and the USA. The IMS is organised into several Communities of Common Interest (CCI's) including **n-ABLE** for nanotechnology in manufacturing. IMS was established 10 years ago, and started a new 10 year phase in May 2005. However, the EU has still to decide whether to join the second phase.
www.n-able.org ; http://www.cordis.lu/ims/home.html

Human Frontier Science Programme (HFSP)

The HFSP supports novel, innovative and interdisciplinary basic research focused on complex mechanisms of living organisms; fields supported range from molecular and cellular approaches to biological functions to systems and cognitive neuroscience. Particular emphasis is now placed on bringing scientists from fields such as physics, mathematics, chemistry, computer science, bioinformatics, nanoscience and engineering together with biologists to open up new approaches to understanding complex biological systems.

Research grants are provided for teams of scientists from different countries who wish to combine their expertise to approach questions that could not be answered by individual laboratories. Emphasis is placed on novel collaborations that bring together scientist from different disciplines (e.g. from chemistry, physics, computer science, engineering) to focus on problems in the life sciences. The research teams must be international. The principal applicant must be from one of the eligible countries, however other participating scientists and laboratories may be situated anywhere in the world.

The member* countries are:
Australia, Austria, Belgium, Canada, Cyprus (EU part), the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, the Republic of Ireland, Italy, Japan, the Republic of Korea, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland, the United Kingdom, and the United States of America.
*These countries provide financial support to the HFSP either directly or indirectly via the contribution from the European Union.
Website : http://www.hfsp.org/

1.2. North America

1.2.1. USA

The EU and the **USA** have signed an international Science and Technology cooperation agreement including nanotechnology. This means in practice that researchers in Europe and the USA can submit a collaborative research proposal each to their own funding organisations. Both funding bodies must approve the proposal for it to be successful.
http://www.cordis.lu/nanotechnology/src/intlcoop-us.htm

In the USA, the Office of International Science & Engineering (**OISE**) funds international collaborations with the USA. A special programme on Nanotechnology Education is ongoing, but no more calls for proposals are expected. Another relevant opportunity may be the International Materials Institute. A call for proposals is expected in due course.
http://www.nsf.gov/div/index.jsp?org=OISE

NSF and the DFG fund **USA-Germany** bilateral collaborations in Chemistry. Deadline 13 January 2006.
http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=13627&org=OISE&from=fund
and http://www.dfg.de/en/international/index.html

The National Institutes of Health (**NIH**) has opened some of its calls for proposals to collaborations with European researchers, but not all. An overview of all nanotechnology funding from the NIH is available at: http://www.becon.nih.gov/becon_funding.htm

1.2.2. Canada

The EU and **Canada** have signed an international Science and Technology cooperation agreement including nanotechnology.
http://www.cordis.lu/nanotechnology/src/intlcoop-ca.htm

1.3. Latin America

Spain, Portugal and all **Latin American** countries coordinate funding for R&D in the CYTED Ibero American programme for Science and Technology for Development. Micro and Nanosystems projects can be funded under the ICT area of the call for proposals 2005. The programme is only open for Spanish, Portuguese and Latin American researchers.
http://www.cyted.org/Nueva.asp

1.3.1. Argentina

The EU and **Argentina** have signed an international Science and Technology cooperation agreement including nanotechnology.
http://www.cordis.lu/nanotechnology/src/intlcoop-ar.htm

In **Argentina**, the research council CONICET organises the participation in the CIAM inter-American cooperation programme in Materials, including nanomaterials.
Coordinator: Ing. Arturo Alvarez
e-mail: proyecto@conicet.gov.ar or coopinter@conicet.gov.ar
www.conicet.gov.ar/coop/convocatoria/CIAM.php

The **Argentinian** National Agency for Science and Technology Promotion stimulates international R&D collaborations. They coordinate the collaboration with the EU, a bilateral collaboration programme with France, and participate in the IBEROEKA, an R&D collaboration involving Latin American countries, Spain and Portugal.
http://www.agencia.secyt.gov.ar/default.htm

The Secretariat for Science, Technology and Industrial Innovation of the ministry of Education, Science and Technology in **Argentina** also coordinates international collaborations in Science and Technology.
http://www.secyt.gov.ar/

1.3.2. Chile

Chile also has signed an international Science and Technology cooperation agreement with the EU, including nanotechnology projects.
http://www.cordis.lu/nanotechnology/src/intlcoop-cl.htm

1.3.3. Mexico

The national research council **CONACYT** coordinates international collaboration programmes. This includes calls for proposals and the management of bilateral and multilateral collaboration programmes. Several programmes imply collaborations between researchers in the North America and Mexico, or Pan-American programmes including CIAM for materials. There are also some programmes stimulating research collaborations between developing countries. CONACYT also participates in CYTED, the Ibero-American research network funding research projects involving Spanish, Portuguese and Latin American scientists.
http://www.conacyt.mx/ > Programas de cooperacion internacional

The **Mexican Academy of Sciences** also administers international collaboration with other Academies of Sciences. They collaborate with **FUMEC** in a programme to invite visiting scientists to Mexican universities and to send Mexican students to study in the USA for summer internships. They also host an exchange programme with the Slovakian Academy of Sciences.
http://www.amc.unam.mx/c_casin.htm (in Spanish)
http://www.fumec.org.mx/ (Spanish and English)

1.4. Asia-Pacific

1.4.1. Australia

Australia and the EU have signed an international Science and Technology cooperation agreement, including nanotechnology projects.
http://www.cordis.lu/nanotechnology/src/intlcoop-au.htm

1.4.2. China

The EU and **China** are collaborating on nanotechnology under an international Science and Technology cooperation agreement.
http://www.cordis.lu/nanotechnology/src/intlcoop-cn.htm

Chinese Ministry of Science and Technology (MOST)
The Chinese Ministry of Science and Technology (MOST) funds international R&D collaborations. Its objectives include:

- organising the implementation of bilateral (governmental) and multilateral (international organisations) S&T cooperation and exchange plans as well as official agreements of science and technology cooperation, and to examine and coordinate major projects of non-official science and technology cooperation and exchange.
- guiding S&T sections of Chinese embassies and consulates in foreign countries,
- liaising with S&T sections of foreign embassies and resident offices of international organisations in China

Website : http://www.most.gov.cn/eng/organization/department/office.htm

Chinese Academy of Science (CAS)
The Chinese Academy of Sciences (CAS), as China's highest academic institution and national comprehensive R&D centre in natural sciences and high-tech innovation, has always attached great importance to the academic exchange and cooperation with international science and technology communities. At present, CAS has established formal contacts with major research and academic organisations in more than 60 countries (including every developed country and some developing countries). In addition to various kinds of cooperative activities on mutually interested issues, CAS has signed more than 70 cooperative agreements at the Academy level and more than 700 agreements at the institute level with their partners spread over 40-plus countries and regions in the world. CAS funds international collaborations through its **Bureau of International Cooperation.**
Website: **http://www.casbic.ac.cn/english.htm**
http://english.cas.cn/Eng2003/page/home.asp

National Natural Science Foundation of China (NSFC)
Since its establishment, the National Natural Science Foundation of China (NSFC) has continuously stressed the importance of international (and regional) cooperation and exchange. As an integral part of NSFC's work, international cooperation and exchange aims to promote basic research and the progress of the science funding system in China. Up to now, it has signed cooperative agreements and memoranda of understanding with 60 science funding organisations and national research institutions in 35 countries and regions and raised its budget for international cooperation and exchange from 3 million yuan in 1987 to 82 million yuan at present.

The Bureau of International Cooperation of NSFC is in charge of the management of international cooperation and exchange activities through its five divisions: Division of Asian, African and International Organization Affairs, Division of American, Oceania and East European Affairs, Division of West European Affairs, Office of Hong Kong, Macao and Taiwan Affairs and Division of Planning.

Some Project Categories and Special Funds:
Joint Research Projects
NSFC funds joint research activities conducted by Chinese scientists (who undertake on-going NSFC research projects) with their foreign counterparts in areas of mutual interest. The fund covers the costs of personnel and information exchange, and cooperation in scientific experiments. It is the priority funding category by NSFC in its international cooperation and exchanges.
Fund for International Cooperation and Exchange of Key State Laboratories
This Fund supports international cooperation and exchange activities conducted by the key State laboratories. It encourages these laboratories to participate in international cooperation and competition so as to bring into full play their strengths in upgrading basic research as well as in high quality training.

Website : http://www.nsfc.gov.cn/e_nsfc/2004/02gp/04ice/001.htm
(Guide to program 2004 –International exchanges)

China Science and Technology Exchange Centre
China Science and Technology Exchange Centre is an institution of MOST, which specialises in international science and technology exchange. Its aim is to promote cooperation in the fields of science and technology, and economy between Chinese and foreign scientific and

technological and industrial circles, and promote China's economic construction and social progress as well as friendly intercourse with various countries.

Major tasks of the centre include
- To invite foreign retired or on the job experts and overseas Chinese experts to China for technical guidance and advice, lecturing and cooperative research.
- To hold various kinds of international science and technology exhibitions, symposia, technical seminars and product demonstrations.
- To organize training courses on special techniques and scientific management abroad and to send professional technical managers abroad for study and research.
- To receive visits of foreign science and technology delegations for study and exchange.
- To provide consultation services and information about technology import and export, and to act as agents for foreign companies doing business in China and Chinese companies for technology trade abroad.
- To carry out some inter-governmental projects of science and technology cooperation and exchange.

Website: http://www.cstec.org.cn/zhxwebEnglish/index.htm

China-EU Science and Technology Cooperation Promotion Office (CECO)
In December 22, 1998 a science and technology cooperation agreement was signed between the People's Republic of China and the European Union. This allowed China to participate in the fifth framework programme, and for EU scientists to participate in the Chinese 863 and 973 research programmes. The cooperation principle was joint research with shared costs and results. To promote further Chinese involvment in the EU's framework programmes MOST established the "China-EU Science and Technology Cooperation Promotion Office**"** (CECO). CECO will provide researchers with information dissemination, EU partner searching as well as special consulting for application procedures. CECO is supported by the EU delegation in Beijing as well as the Chinese Embassy in Brussels. CECO is attached to the China Science and Technology Exchange Centre. Depending on the project, Chinese partners will be supported either by the European Commission or by MOST. European partners will receive funds from the European Commission.

Science/technology programme areas are:

- Environment, energy and sustainable development
- Product innovation, material research, measurement standard and transport
- Food, health agriculture ageing populations
- Information society, communication technology
- Development of agriculture, health, environment and policy research

Website: http://www.ceco.org.cn/index_eng.asp

1.4.3. India

India has signed an international Science and Technology cooperation agreement, including nanotechnology projects with the EU.
http://www.cordis.lu/nanotechnology/src/intlcoop-in.htm

The Indian **Department of Biotechnology** of the Ministry of Science and Technology funds international collaborations in life science research, including nanotechnology. http://dbtindia.nic.in/proposals/proposalmain.html

The **Department of Science and Technology** of the same Ministry of Science and Technology also supports international collaborations. They coordinate a wide range of bilateral and multilateral agreements and stimulate exploratory missions of scientific delegations, events, fellowships, joint R&D programmes and centres of excellence, and access to research infrastructure. The countries and regions they collaborate with include: the European Union, Bulgaria, France, Germany, Hungary, Israel, Italy, Poland, Portugal, Romania, Switzerland, and UK. http://dst.gov.in/scientific-programme/International-s-tcoop.htm

The **Council of Scientific and Industrial Research** stimulates international collaborating by publishing details of foreign research council grants that are open to Indian researchers (under career development). They also offer funding for attending conferences abroad. http://www.csir.res.in/

1.4.4. Japan

Cooperation in Science and Technology in Japan
1 Cooperation based on International Frameworks : Japan has concluded agreements on science and technology cooperation with 40 countries and is implementing wide-ranging bilateral cooperation in science and technology. Japan is also promoting cooperation based on multilateral frameworks, such as the G8 Summit, OECD and APEC.
2 Promotion of International Research Exchange : In order to promote international research exchanges in the science and technology fields, the Japan Science and Technology Agency (JST) and the Japan Society for the Promotion of Science (JSPS) has been taking the initiative in carrying out international research exchange activities such as the exchange of researchers and international joint research programs.
3 Promotion of International Cooperation Projects: Japan has been vigorously tackling projects including the Human Frontier Science Program (HFSP), the Large Hadron Collider (LHC) Project, the International Space Station Program, the International Thermonuclear Experimental Reactor (ITER) Project and the Integrated Ocean Drilling Program (IODP).

MEXT (Ministry of Education, Culture, Sports, Science and Technology)
MEXT promotes exchanges among researchers through Japanese researchers overseas, dispatch of researchers to international scientific conferences, invitation of foreign researchers to Japan and researcher exchange programs implemented by the Japan Society for the Promotion of Science (JSPS) and the Japan Science and Technology Corporation (JST).

In addition, MEXT promotes international cooperation in science and technology by promoting cooperation through bilateral science and technology cooperation agreements, multilateral international joint research and Antarctic research projects, and by providing assistance and cooperation to UNESCO programs, the OECD and APEC. Major international cooperation projects include the: (1) Human Frontier Science Program (HFSP); (2) International Space Station (ISS) Program; (3) International Thermonuclear Experimental Reactor (ITER) Plan; (4) Integrated Ocean Drilling Program (IODP); and (5) Large Hadron Collider (LHC) Project by the European Organisation for Nuclear Research (CERN).

Bilateral agreements:
MEXT has a bilateral agreement concerning nanotechnology with the **UK:** a UK-Japan Nanotechnology Symposium was held in March 2005 under the support of Nanonet, MEXT and Grant-in-Aid for Scientific Research on Priority Areas "Physics of Quantum Nanoelectronics and Application to Novel Devices" (supervised by Prof. N. Miura and Prof. Y. Arakawa) of MEXT in order to further promote UK-Japan research collaboration and researchers exchange program in nanotechnology.
Website : http://www.mext.go.jp/english/news/2004/08/05011301.htm

JSPS: Japanese society for the promotion of Science.
The Japan Society for the Promotion of Science (JSPS) is an independent administrative institution, established by way of a national law for the purpose of contributing to the advancement of science in all fields of the natural and social sciences and the humanities. JSPS plays a pivotal role in the administration of a wide spectrum of Japan's scientific and academic programs. JSPS's operation is supported in large part by annual subsidies from the Japanese Government. Its main functions include promoting international scientific cooperation.

Programmes for scientific cooperation:
- JSPS Postdoctoral Fellowship
- JSPS Invitation Fellowship
- JSPS Summer Program
- Bilateral Programmes including with European countries
- Japanese-German Graduate Externship-International Research Training Group
- JSPS Core to Core Program (including nanoscience and engineering in superconductivity)
- Grant-in-Aid for Scientific Research
- 21st Century COE Program
- (Japanese-German Frontiers of Science Symposium)
- (ESF-JSPS Frontier Science Conference Series for Young Researchers)

Websites: http://www.jsps.go.jp/english/about_us/overseas_office.html
http://www.jsps-bonn.de
http://www.jsps.org
http://jsps.u-strasbg.fr/

NEDO (International Project department)
A **"Grant for International Joint Research (NEDO Grant)"** includes the field of nanotechnology.
This programme provides research funds to eminent international joint research teams. The objective is to improve the level of international industrial technology and to establish the foundation for creating new industry, thereby enhancing Japanese industrial technology. Since its launch, this grant programme has supported some outstanding international research activities, and five Nobel Laureates have thus far participated in the programme.
Further details:
(1) Grant ratio: 100% of total expenses
(2) Duration: up to three years
(3) Grant amount: a total of up to 70 million yen for the entire research duration
(4) Eligible applicants: international joint research teams consisting of four or more researchers from two or more countries. The research organisations to which applicants belong should have appropriate research facilities.

(5) Research fields: industrial technology; energy; global environment; and establishment of international standards

Website: http://www.nedo.go.jp/english/introducing/contact.html

NIMS (National Institutes for Materials sciences)
Measures for international cooperation to date include general agreements on comprehensive research cooperation and memorandums of understanding (MOU) on individual research topics with top-class research institutes and the international joint graduate school system with leading universities. Comprehensive Research Cooperation is agreed with limited overseas institutions. This type of cooperation is not limited to particular research topics but encompasses all aspects of materials science and engineering. Several research groups or units of both sides are expected to perform parallel collaborations on specific research topics and bilateral workshops may be organized. The comprehensive agreement is signed by the President of NIMS.
http://www.nims.go.jp/eng/cooperate/research_cooperation.html

Cooperation under MOU essentially covers collaboration on a specific research topic between a research unit or group of NIMS and overseas institutions. The MOU is generally signed by the Director-General of the relevant research unit of NIMS. As of April 2005, such agreements have been concluded with 60 research institutes from 22 countries.
It includes cooperation with the Nanomaterials laboratory.
http://www.nims.go.jp/eng/cooperate/mou.html

NIMS website: http://www.nims.go.jp/eng/index.html

1.4.5. Korea

KONTRS (Korea Nanotechnology researchers Society)
KONTRS is a legally recognised organisation. One of its objectives is to help international collaboration through the organisation of international events, and technological innovation and manpower exchanges.
Website: http://www.kontrs.or.kr/ (in Korean)

KOSEF (Korea Science and Engineering Foundation)

International Cooperative Research Program
KOSEF provides grants for bilateral joint research projects through mutual discussion with the counterpart organizations, allowing domestic scientists to conduct international cooperative research with foreign scientists.

Counterpart Countries (Organisation) include Austria (FWF), Belgium (FWO-Vlaanderen), Czech Republic (ASCR), Finland (AF), France (CNRS, ARIEL), Germany (DFG), Hungary (HAS, HAE), Italy (CNR), Poland (PAS), Spain (CSIC), Switzerland (SNSF), UK (EPSRC, BBSRC, NERC, PPARC, SOAFD)
Korean participants should be at least full-time university lecturers or senior researchers of government-supported institutes.

Fields: KOSEF: all natural science fields, engineering fields, and social science fields related to science and technology.
Overseas counterparts: in accordance with their own regulations.
Research period: the support period is up to 2 years.
Funding: KOSEF and its overseas counterparts jointly support costs for researchers under the cost-sharing formulas specified in MOUs.

Website: http://www.kosef.re.kr/english/02/pro.html

MOST (Ministry of Science and Technology)
The Ministry of Science and Technology (MOST) was reorganised in February 1998 and its mandate includes formulating S&T policies, programmes, and projects including technology cooperation and atomic energy in support of national development priorities.

MOST actively promotes both bilateral and multilateral cooperation with foreign countries and international organisations through:

- the International Joint Research Program (is now being restructured so it can facilitate bona fide international joint R&D.)
- bilateral cooperation
- multilateral cooperation

The **STAR programme** (Science and technologies Amicable Relationship) is one example which is supported by the French Embassy, MOST and KOSEF). This programme funds several different projects. One of the research fields (for 2005) was "New materials and nanotechnology"
http://www.delkor.cec.eu.int/en/whatsnew/7.Experience%20of%20Member%20States%20-%20France.pdf
Website: http://www.most.go.kr/most/english/science_04.jsp

1.4.6. New Zealand

In **New Zealand**, NANO-MNRF at the University of Sydney funds a NANO Travel and Access programme.
www.nano.org.au/tap.htm

The **New Zealand** Foundation for Research, Science and Technology funds international nanotechnology collaborations under the International Investment Opportunities Fund.
www.frst.govt.nz/about/contact.cfm

1.4.7. Taiwan

In Taiwan, the NSC (National Science Council) stimulates international R&D collaborations. The Department of International Programs (DIP) serves as the window for international scientific cooperation within the NSC. To carry out this important mandate, DIP relies on carefully formulated strategies and mechanisms designed to promote cooperation.
The policy and strategy of the NSC's international cooperation include:

1. Elevate S&T capabilities and industrial competitiveness through bilateral or multilateral cooperative ties with industrialised countries;
2. Sponsor researchers to participate in international activities;
3. Actively participate in global research projects such as Global Change, and International Decade for National Hazard Reduction;
4. Strengthen S&T collaboration with newly industrialised countries;
5. Foster cooperative relations between national laboratories and research institutes abroad;
6. Promote international cooperation by implementing the Honourable Visiting Programme, the Short-term Visiting Programme and the Programme for International Seminars.

NSC and its collaborative partners abroad have set up special programmes to help scientific research teams and young scientists from both sides to explore possibilities for international cooperation. This effort includes programmes such as:
1. Project-based Personnel Exchange Program (PPP)
2. Medical Post-doc Research Visit Program
3. Research Visits to Germany by NSC Sponsored Ph.D. Candidates (Sandwich Program)
4. Research Visits for Post-docs from Abroad
5. Summer Institute in Taiwan
6. International Program on Research Excellence in Collaborative Effort

Websites: http://web.nsc.gov.tw/ct.asp?xItem=14947&CtNode=3430
http://www.nsc.gov.tw/int/english/preface.htm

1.4.8. Thailand

NSTDA International Cooperation Office
NSTDA realizes that in order to keep abreast with S&T growth and development in order to maintain a strong leadership in this area, it needs to look beyond the national boundary for a wider exchange, distribution and dissemination of knowledge, practices and discoveries in international perspective. The international cooperation office serves as a contact point of all international activities for NSTDA Its main activities cover work liaison with outside international organizations and coordination with the four national research centers as well as the special projects within the Central Offices including providing, recommending new initiatives and opportunities of international cooperation to NSTDA.

Cooperation opportunities are available under thematic areas covered by the EU sixth Framework programme (FP6) for research and technological development which includes life sciences, biotechnology for health, nanotechnologies and nanosciences, knowledge-based multifunctional materials and new product processes and devices, aeronautics and space, food quality and safety, sustainable development, global change and ecosystems, citizens and governance in a knowledge-based society. (see *www.cordis.lu/fp6*).

Website: www.nstda.or.th

1.5. Africa

1.5.1. South Africa

South Africa and the EU have signed an international Science and Technology collaboration agreement, including nanotechnology.
http://www.cordis.lu/nanotechnology/src/intlcoop-za.htm

The national nanotechnology network **SANI** stimulates international nanotechnology collaborations between South African research groups and European research groups by funding the costs of a South African partner in FP6 projects which are in the national interest. Topics may include Vanadium, Platinum, Gold and Titanium.
http://www.sani.org.za/international/int.asp

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1.6. Russia, Eastern Europe, NIS

Russian, Eastern European and NIS companies can participate in **EUREKA** pan-European industrial R&D projects. This includes microsystems and nanotechnology research.
www.eureka.be

1.6.1. Russia and NIS

The EU and Russia have signed an agreement on the cooperation on science and technology, including nanotechnology.
http://www.cordis.lu/nanotechnology/src/intlcoop-ru.htm
The Russian information is available at:
http://www.fasi.gov.ru/international/

Funding for international collaborations involving Europe and Russia and the Newly Independent States is available under the **INTAS** scheme. This includes nanotechnology.
http://www.intas.be/

The International Science & Technology Centre ISTC aims to stimulate peaceful R&D in Russia and the NIS countries as a non-proliferation initiative. Research may include nanotechnology.
http://www.istc.ru/

2. Web portals on nanotechnology outside the EU

2.1. Global

Currently, a number of web-portals and networking organisations with the ambition of global coverage are being set up. The following tables list those which offer services aimed at supporting R&D collaborations in at least two global regions. These are categorised by services and areas of research covered.

Acronym	Full name	website
Mancef	Microsystems and Nanotechnology Commercialisation and Education Foundation	www.mancef.org
GNN	Global Nanotechnology Network	www.globalnanotechnologynetwork.org
Nano and the Poor	Meridian Institute	www.nanoandthepoor.org
Nanoforum	Nanoforum	www.nanoforum.org
Development Gateway	Nanotechnology for Development	http://topics.developmentgateway.org/nanotechnology

Services offered	MANCEF	GNN	Nanoforum	Nano and the Poor	Development gateway
Online database of R&D groups			X		
Online news service			X		X
Online publications		X	X	X	X
Events Calendar	X	X	X		X
Discussion forum					X
Web links	X	X	X		X
Information on funding			X		
Jobs / career information	X		X		X
Organise events (actual or virtual)	X	X	X	X	
Education / training (actual or virtual)		X	X		
Regular newsletters (printed or e-mail)	X		X (to be launched)		
Other	Database of companies	Virtual research collaboration;	Database of companies;	Online consultations	

		network the networks	links to other EU projects and networks		
Users			4500 (registered)		
Members	400				
Country	Americas, Asia/Pacific, Europe	global	Europe with international sisters	global	global
Scientific disciplines / application domains					
Chemistry & Materials			X		
Health & Nanobio		X	X		
NanoTools & Metrology	X		X		
Information & Communication		X	X		
Space & Transport		X	X		
Energy		X	X		
Nanoscience (fundamental research)		X	X		
Societal issues			X	X	X
Safety& Environment		X	X	X	X
Consumer Products			X		
Construction			X		
Strategy	X		X	X	X
Economy	X		X		
Agriculture / Food			X		

2.2. North America

In North America a wide range of nanotechnology web-portals and other sites exist. One site in each of Canada and the USA is described in more detail below.

Acronym	Full name	website
NNI	National Nanotechnology Initiative	www.nano.gov
CNBA	Canadian Nanobusiness Alliance	www.nanobusiness.ca

Services offered	NNI	CNBA
Online database of R&D groups		
Online news service	X	X
Online publications	X	
Events Calendar	X	
Discussion forum		
Web links	X	X
Information on funding	X	X
Jobs / career information	X	X
Organise events (actual or virtual)	X	
Education / training (actual or virtual)		
Regular newsletters (printed or e-mail)		
Other		
Users		
Members		
Country	USA	Canada
Scientific disciplines / application domains		
Chemistry & Materials	X	
Health & Nanobio	X	X
NanoTools & Metrology	X	X
Information & Communication	X	X
Space & Transport	X	X
Energy	X	X
Nanoscience (fundamental research)	X	
Societal issues	X	X
Safety& Environment	X	
Consumer Products	X	X
Construction	X	
Strategy	X	X
Economy	X	X
Agriculture / Food	X	

2.3. Latin America

In **Brazil**, there are four thematic and geographic nanotechnology networks, organising 400 researchers:
RENAMI (Molecular and Interfaces Nanotech Network)
Nanosemimat (Semiconductor and Nanostructured Materials)
NanoBio (Nanobiotechnology Network)
Nanomat (Nanostructured Materials Network)

RENAMI, Nanosemimat and SUFRAMA are collaborating in a joint venture, N4 Brazil. http://www.svcom.jp/ics/nanotech/2005/Search-e.find.jsm?lang=ENG&type=index&key=b

In **Mexico**, the REGINA network of nanoscientists hosted by UNAM coordinates research of over 100 scientists. CAPMEMS is a portal for Microsystems and Nanotechnology collaborations between Mexico and the USA.

In **Costa Rica**, the LANOTEC network coordinates research projects in which researchers from four national universities participate. One of the areas is Engineering (Ingenieria), which covers miniaturisation of sensors, carbon nanotubes, biomaterials and plasma physics.

Acronym	website
Renami – Brazil	http://www.renami.com.br/
MINAPIM – Brazil	http://www.suframa.gov.br/minapim/news/
UNAM – REGINA – Mexico	www.nano.unam.mx
CAPMEMS -Mexico	http://www.capmems.org.mx/
LANOTEC- Costa Rica	www.conare.ac.cr/cenat > ingenieria

Services offered	RENAMI	MINAPIM	UNAM – REGINA	CAPMEMS	LANOTEC
Online database of R&D groups			X	X	
Online news service			X	X	
Online publications		X	X		
Events Calendar		X	X	X	
Discussion forum	X (members only)				
Web links	X	X	X	X	X
Information on funding					X
Jobs / career information					
Organise events (actual or virtual)		X	X		
Education / training (actual or virtual)		X		X	X
Regular newsletters (printed or e-mail)		X			
Other					Coordinate research projects in 4 universities in different areas including nano-materials and devices
Users		3000	> 20,000 / year		
Members	17 groups		100		4 universities
Country	Brazil	Brazil, Argentina, Chile, Peru, Ecuador, Venezuela, Mexico,	Mexico	Mexico, USA	Costa Rica

		Panama, Honduras, Bolivia, Portugal, Spain, Germany, Japan, etc (40 spanish-portuguese speaking countries).			
Scientific disciplines / application domains					
Chemistry & Materials	X	X	X		X
Health & Nanobio		X	X		
NanoTools & Metrology				X	
Information & Communication	X			X	
Space & Transport					
Energy			X		
Nanoscience (fundamental research)	X	X	X		X
Societal issues		X			
Safety& Environment		X			
Consumer Products		X			
Construction					
Strategy				X	
Economy		X			
Agriculture / Food		X			
Exchange links?		Yes	Yes		Yes

2.4. Asia Pacific

Name	website
APNF, Asia Pacific nanotechnologies Forum – Asia	http://www.apnf.org/content.php?content.1
Asia nano Forum – Asia	http://www.asia-nano.org/ContactUs.php
Casnano – China	http://www.casnano.ac.cn/english%20web/index.html
Shanghai Nanotechnology Promotion Center – China	http://www.snpc.org.cn/english/english/introduction.asp
Nanoworld/ Asia pacific nanotech weekly - Japan	http://www.nanoworld.jp/apnw/ http://www.nanoworld.jp/apnw/
Nanonet - Japan	http://www.nanonet.go.jp/english/
Japan science and technology agency (JST)	Information : http://www.jst.go.jp/EN/JSTguide2004.pdf Website (nano web page): http://www.jst.go.jp/kisoken/nanoe.html

NEDO - Japan	www.nedo.go.jp/english/activities/1_sangyo/6/P88001e.html www.nedo.go.jp/itd/grant/index.html www.nedo.go.jp/itd/grant-e/outline/international.html
Nanonet - Korea	Website: http://www.nanonet.info (Korean only) www.nanobank.info www.nanoinfo.or.kr

Services offered	**APNF**	**Asia Nano Forum and Nano-world**	**Casnano**	**Shanghai nanotechnology promo-tion centre**	**Nanonet, Japan**	**JST**	**NEDO**
Online database of R&D groups					X	X	
Online news service		X	X		X		
Online publications	X	X	X				
Events Calendar		X			X		
Discussion forum							
Web links		X				X	
Information on funding							
Jobs / career information	X	X	X				
Organise events (actual or virtual)	X	X			X		
Education / training (actual or virtual)		X			X		
Regular newsletters (printed or e-mail)	X	X			X		
Other	Adverti-sing Members only		Projects, promi-sing youth, expert	Organisa-tion, Achieve-ment, Shanghai incubator, nano experts	Nano for kids	Introduc-tion of research in their program	
Users		13 econo-mies in Asia-Pacific				20,000 hits/mont h	
Members							
Country		Australia, China, Hong Kong, India, Indonesia, Japan, Korea, Malaysia, New Zealand, Singapore , Taiwan, Thailand, Vietnam	China	Shanghai (China)	Japan	Mostly Japan	Japan

Scientific disciplines / application domains							
Chemistry & Materials	X	X			X		
Health & Nanobio	X	X			X		X
NanoTools & Metrology	X	X			X		X
Information & Communication	X	X			X		
Space & Transport					X		X
Energy	X	X			X		X
Nanoscience (fundamental research)	X	X	X	X	X	X	
Societal issues	X	X			X		
Safety& Environment					X		X
Consumer Products	X	X			X		
Construction					X		
Strategy	X	X			X		
Economy	X	X		X	X		
Agriculture / Food	X	X			X		
Exchange links?	no	Yes	no	no	no	no	No

Pacific Region

Name	Website
Working in Nanotechnology	http://www.workingin-nanotechnology.com
NANO-MNRF	http://www.nano.org.au
Australian Research Council Nanotechnology Network	http://www.ausnano.net
Research Centre for Physics; Indonesian Institute of Sciences	http://www.nano.lipi.go.id/
Ian Wark Research Institute	http://www.unisa.edu.au/iwr
Nanotechnology Victoria	http://www.nanovic.com.au
The MacDiarmid Institute for Advanced Materials and Nanotechnology	http://www.macdiarmid.ac.nz

Services offered	Nanotech-nology Victoria	Ian Wark Research Institute	NANO-MNRF	Research Centre for Physics; Indonesia n Institute of Sciences	The Mac Diarmid Institute for Advanced Materials and Nanotech-nology	Working in Nanotech nology	Austra-lian Re-search Council Nanotech-nology Network
Online database of R&D groups	X	X		X			X
Online news service	X			X			X
Online publications				X			
Events Calendar	X			X			X
Discussion forum				X			
Web links	X	X		X			X
Information on funding				X			X
Jobs / career information	X	X				X	X
Organise events (actual or virtual)			X	X	X		
Education / training (actual or virtual)			X	X	X	X	
Regular newsletters (printed or e-mail)				X	X	X	X
Other			Access to nanostruct ure analysis instrument ation			Education, Training, Courses, Events in Nano	
Users	80 visits/day	150+		150	~150	8000+	
Members							
Country	Australia,	World-	Australia,	Indonesia,	New	World-	Australia

	USA, Europe, India	wide	Japan, Singapore, New Zealand, USA, France, Germany, Italy	Malaysia and other ASEAN countries	Zealand	wide	
Scientific disciplines / application domains							
Chemistry & Materials	X		X	X	X	X	X
Health & Nanobio	X		X	X	X	X	
NanoTools & Metrology			X		X	X	
Information & Communication			X	X		X	X
Space & Transport			X			X	
Energy			X		X	X	
Nanoscience (fundamental research)			X	X	X		X
Societal issues				X			X
Safety& Environment				X			
Consumer Products	X			X			
Construction							
Strategy				X			
Economy						X	
Agriculture / Food	X		X				
Exchange links?	yes	no	maybe	yes	yes	yes	no

2.5 Africa and Middle East

The following web portals have been identified in Africa and the Middle East:

Acronym	Name	Website
SANi	South African Nanotechnology initiative	www.sani.org.za
Pardis	Pardis Technology Park	www.irantechnomart.com www.techpark.ir
Iranian Nanotechnology Initiative	(Only in Arabic)	www.nano.ir
NIPER	Nano-biopharmaceutics Group	http://www.geocities.com/mnvrk/

Services offered	SANi	Pardis Technology Park
Online database of R&D groups		X
Online news service		X
Online publications	X	
Events Calendar	X	X
Discussion forum		
Web links		X
Information on funding	X	X
Jobs / career information		
Organise events (actual or virtual)		X
Education / training (actual or virtual)	X	X
Regular newsletters (printed or e-mail)	X	X
Other		
Users		The web portal is relatively new
Members		(β version now online)
Country	South Africa	Iran plus Middle East / South East Asia
Scientific disciplines / application domains		
Chemistry & Materials		X
Health & Nanobio		X
NanoTools & Metrology		X
Information & Communication		X
Space & Transport		X
Energy		X
Nanoscience (fundamental research)	X	
Societal issues		
Safety& Environment		X
Consumer Products		X
Construction		X
Strategy		
Economy		
Agriculture / Food		X
Exchange links?		yes

2.6. Russia, NIS and Eastern Europe

Name	Website
Eltech	www.eltech.ru/intern/index.htm
FP6-Nano	www.fp6-nano.com
Concern Nanoindustry	http://www.nanotech.ru/
Nanonewsnet	http://www.nanonewsnet.com/
Nanoscopy	http://www.nanoscopy.net/en/index.shtml

Services offered	Eltech	FP6-Nano	Nanonewsnet	Nanoscopy
Online database of R&D groups			Coming soon	X
Online news service	X	X	X	X
Online publications		X	X	
Events Calendar		X	X	X
Discussion forum			X	X
Web links	X	X	X	X
Information on funding	X	X	X	
Jobs / career information		X	X	
Organise events (actual or virtual)	X		X	X
Education / training (actual or virtual)	X	X	X	X
Regular newsletters (printed or e-mail)	X	X	X	
Other			Commercialization information Marketing studies for nanoproducts Nano material and equipment e-store Competitions	
Users	>100/day			~2000
Members			800	
Country	Russia, Ukraine, Belarus	Russia, some European countries	Russian Federation, Ukraine, Belarus, Uzbekistan, Armenia	Worldwide
Scientific disciplines / application domains				
Chemistry & Materials		X	X	X
Health & Nanobio		X	X	X
NanoTools & Metrology	X	X	X	X
Information & Communication	X		X	X
Space & Transport			X	
Energy			X	
Nanoscience	X	X	X	X

(fundamental research)				
Societal issues			X	
Safety& Environment			X	X
Consumer Products			X	
Construction			X	
Strategy			X	
Economy			X	
Agriculture / Food			X	
Exchange links?	yes	yes	yes	yes