

## **INTER** Programme for the Promotion of International Cooperation

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## **1 Summary of the Programme INTER**

The objective of this programme is to develop new international partnerships. The programme aims to facilitate participation in international initiatives for cooperative funding of projects with partners from several countries.

## **2 Introduction**

During the first years of its operation, the FNR has financed programmes in the area of social sciences, medicine and biotechnology, food safety, water, secure e-commerce, surface treatment and nanotechnology (see Appendix I). A strong emphasis was put on scientific quality as the main evaluation criteria. The FNR believes that it has considerably contributed to an improvement in the quality of research projects in Luxembourg and the level of the research community on a whole. This has also been felt by the members of the Steering Committees of the current programmes of the FNR. The recommendations by the experts for further improvements of the programmes stress visibility and critical mass as main points of focus. The science base in Luxembourg may not be sufficiently large to reach critical mass without strong ties with international partners. International collaboration would increase visibility of research efforts in Luxembourg and strong partnerships formed internationally would raise the impact of Luxembourg research and its standing.

The FNR organised a meeting on the 10 December 2004 inviting international experts with the aim to review the procedures of the FNR and help define the best ways to set up future activities in terms of programmes and accompanying measures. The experts agreed with the conclusions of the steering committees when building critical mass in areas of research was highlighted as a major concern and it was felt to be important for the Luxembourg science community to collaborate closely within as well as to seek ties to scientists in the entire World. This networking should not be limited to the greater region and Europe. The FNR should allow for the collaboration with well suited research labs and industry in Luxembourg and abroad by setting money aside for initiatives on an international scale.

## **2.1 International collaboration in the European Setting**

Establishment of strong collaborations within Europe has become a priority within recent years and this has been addressed particularly in the conferences of Lisbon and Barcelona.

One chief concern of European science remains competitiveness with respect to other major economic blocks and the global arena. Factors such as developing the best research environment retaining the most talented scientists and setting international standards of excellence are seen as most important. Programmes bringing together national funding agencies, national research organisations and their analogues are an effective and efficient mechanism for overcoming some of the disadvantages of scale in a distributed science policy system. The EUROCORES programme from ESF and the ERA-NET programme which is part of the FP-6 exemplify this approach. EUROCORES seeks to merge bottom-up proposals from researchers and top-down research priorities of funding agencies or national scientific organisations. Coordination of the programme for networking of funded scientists is provided by the ESF but the funding remains with the participating national funding bodies.

The ERA-Net on the other hand is a programme targeting funding agencies such as the FNR and its objective is to help the agencies to coordinate their approaches and cooperate. This initiative arises in part from the fact that in Europe approximately 95% of public financing for research is managed by a national system of financing. Forming strong ties and cooperation between funding bodies would have a big impact on the European research area (ERA) by reducing fragmentation of the European efforts and creating economies of scale.

## **2.2 The Current International Collaboration financed by the FNR**

When engaging in enhanced European cooperation, research councils and research funds are believed to benefit from experiences in multiple, successful past and ongoing joint activities.

**On the programme level**, the FNR is currently restricted in its means to participate in calls for projects in the frame of international activities. The FNR does not have the flexibility to spontaneously participate in such calls as the budgets are earmarked for the specific national programmes. There have been few exceptions where international calls for a suited research domain were issued just prior to a national call. A short call response time of often little more

than 3 months is inhibitive to the incorporation of these initiatives in programmes of the FNR except in very opportune instances. The difficulty lies thus in the coordination of programmes between countries.

The FNR already allows participation in international programmes; however, this is done at a limited budget from the FNR or the Research Ministry. Current examples are the partaking in the two EUROCORES programmes of the ESF (European collaborative research programmes in Biodiversity and in the Social Sciences) and the NSF-Materials programme, a common programme between the NSF and European partners. (See appendix II for descriptions of the current EUROCORES programmes. A description of NSF-Materials is found in appendix III.)

**On the project level**, the international interactions within FNR funded projects generally take the form of a third party service rendered by the international partner. So far, FNR funded research projects are characterised by very limited active contributions of foreign organisation to the research activities of the projects. This is largely due to the funding mechanisms of the FNR, which make the co-ordinated financing of a joint project by the FNR and the foreign funding body difficult. The FNR sees however a clear desire by the Luxembourg research community for cooperation with international researchers. This is exemplified by the meeting that took place between researchers in biomedicine from Luxembourg and Nancy in December 2004 in order to build on common research interests in view of possible future collaborations. Meetings of this nature are foreseen for other domains of research interests in Luxembourg, such as the field of environmental sciences.

Mobility of researchers has been recognised as a major tool in improving collaboration and information exchange between researchers from different nations. The FNR has thus established an accompanying measure which promotes the mobility of researchers between Luxembourg and other countries in both directions.

**On the European level**, the FNR is partaking in three ERA-Nets (see appendix IV for a description of the ERA-NET scheme) on research in ageing, neuro-sciences and material sciences. The aim of the ERA-NET Scheme is the coordination and cooperation of national and regional programmes in view of developing common multi-national programmes in the

near future. Appendix IV also contains a list of ERA-Nets which could be potentially interesting for a participation of the FNR.

### **2.3 The challenge**

If research in Luxembourg intends to be a pillar of the country's future development, the quality of research has to be further improved and critical mass has to be attained. Experts stress that these goals can be achieved through the establishment of strong ties with international research institutions. The FNR thus needs to overcome its current restricted means to participate in international calls or to develop bi- or multilateral calls in cooperation with international funding agencies. A programme allowing for the quick and flexible response to international initiatives would be an invaluable tool in creating the greatest possible opportunities for international collaboration for researchers in Luxembourg.

## **3 Detailed Description of the Programme INTER**

### **3.1 INTER Programme Objectives**

The general aim of the programme INTER is to enhance international cooperation and to increase the scope and impact of the current domain specific programmes by promoting research projects between researchers from Luxembourg and abroad. The main utility of the programme will be the added flexibility by which the FNR can support Luxembourg research in the priority domains of the FNR. It will either permit access to the various funding initiatives that present themselves in the European context and worldwide or enable the FNR to initiate bi- or multilateral arrangements for a call in its priority domains in conjunction with other international funding bodies.

A multinational approach will help reach critical mass and visibility within Europe and elsewhere in the world. Additionally it will help in solving trans-national issues (i.e. pollution...) as some studies require a regional, European or world-wide scale to achieve scientific validity and may not be feasible on a national scale. An integrated international approach may show a greater coherence in the study of global issues and have more credibility in the view of the science community and the Luxembourg public.

The programme INTER may facilitate access to specialised equipment or databases not readily available to the Luxembourg research communities. In particular, the social and medical sciences projects will have a huge gain from the richness and diversity of the European society, when made accessible through international cooperation.

INTER will help build synergies between research centres in Luxembourg and outside Luxembourg and thus increase competitiveness of research in Luxembourg on an international level.

### **3.1.1 INTER Research Areas**

The research priorities addressed by this programme are those defined by the conventions of the present (BIOSAN, EAU, NANO, SECAL, SECOM, TRASU and VIVRE) and future programmes of the FNR. This holds with the general policy of the FNR to strengthen and foster a limited number of particular research areas in Luxembourg.

In order to flexibly react on an opportunity for the Luxembourg research community, additional priorities may be adopted by the Board of Administration after consultation with the Scientific Board. However, the budget for projects financed in additional priorities areas is limited to a maximum of 25% of the INTER programme budget.

In addition to the participation in activities in the above mentioned research areas, the programme INTER also envisages to support activities such as infrastructure development, development of human resources, dissemination and exploitation of results, and training.

### **3.1.2 Eligibility of International Activities**

The programme INTER aims to enable researchers in Luxembourg to participate in international activities which have to fulfil the following general criteria:

The international activity originates

either from the initiative of a recognised international scientific organisation (i.e. ESF),

or from bi- or multilateral arrangements between several national funding bodies. These arrangements can also emanate from the FNRs own initiative, if believed the activity to be beneficial for the Luxembourg research environment or following proposals of researchers in Luxembourg.

During the whole duration of the international activity, it has to be supported by one or several national funding agencies or international research organisations.

The activity needs to be of the nature of a multi-annual programme that seeks to encourage interaction between research institutes of different countries.

The project selection is undertaken on the merits of high scientific quality after an independent international evaluation of the project proposals by peers. The evaluation process can be managed either by the national agencies or by a third party international organisation.

The research priority areas of the international activity have to focus on the research areas defined in the multi-annual programmes of the FNR. With a limited part of the INTER programme budget (25%) the FNR will be able to support other research domains in order to respond to the needs of the Luxembourg research community.

The activity has to be retained on decision of the Board of administrators of the FNR after consultation with the Scientific Board. The international activity will have to fulfil the selection criteria for FNR programmes:

- Scientific Quality
- Socio-economic impact
- Cost-effectiveness
- Motivating effect at national level and international level
- Achievability in the Luxembourg context

### **3.1.3 Eligibility of beneficiaries**

Funds provided by the INTER programme are aimed at beneficiary organisations as specified in article 3 of the law of the 31st Mai 1999. The FNR's potential beneficiaries are public-sector bodies, departments and establishments authorised, in their areas of competence, to undertake research and development and technology transfer work aimed at promoting scientific progress or technological innovation, i.e. their legal statutes should contain a reference to their research mission.

Research activities eligible for funding have to be carried out by these beneficiaries or in partnership with them. The funding for the collaborating international partners will have to be carried by the partnering funding organisation.

Although the international initiative should encourage the involvement of multiple Luxembourg establishments, businesses and industrial groups in order to enhance socioeconomic added value, no financial aid however can be directly given by the FNR to industrial partners except through third party contributions via the research organisms.

### **3.2 Compliance of the INTER programme with criteria for FNR programmes**

#### **Scientific Quality**

Scientific quality will be assured by the following means:

All international initiatives or bilateral proposals envisaged to be incorporated in the programme INTER will be submitted for review to the Scientific Board and Board of administrators to evaluate if the schemes fulfil the eligibility criteria.

For the schemes accepted by the Board of administrators, a call for project proposals will be issued and these proposals will be fully evaluated by international experts in the specific domains. Some schemes may foresee a project evaluation arranged by a third party. One of the criteria of INTER is that they follow a similar evaluation protocol to that of the FNR.

Additionally, a committee of experts will have to regularly audit and evaluate the accepted projects on the basis of commonly accepted criteria (scientific publications, active presence at conferences, resulting applications etc.) to ensure scientific quality is given for the particular project.

#### **Socio-economic impact**

The socio economic impact of the INTER programme largely results from the multinational approach which will help the Luxembourg research environment to reach critical mass and visibility within Europe. The enhancement of international collaboration of research centres in Luxembourg through the INTER programme will lead to a substantial knowledge transfer to Luxembourg.

Research particularly in the area of the social and medical sciences will benefit greatly from international cooperation by being able to extend the studies on a European or Worldwide level. These gains should be directly reflected in social benefits through improvements in the health and social systems (through better diagnostics, medical treatment etc...).

An important criterion for the selection of an international activity will be the involvement of multiple Luxembourg establishments, businesses and industrial groups in order to enhance socioeconomic added value (i.e. potential users of the project's results etc).

### **Cost-effectiveness**

The cost effectiveness of INTER is given by the fact that the programme foresees the financing of projects of a bi- or multilateral nature where the research costs of the project partners are covered by the respective national funding agencies. The sharing of costs permits the funding of often large projects with relatively little financial input of each of the partner funding agencies.

### **Motivating effect at national level and international level**

By nature of its design the programme INTER will create cooperation of Luxembourg researchers with international partners and thus fulfil the wishes of the researchers in Luxembourg for financing of such collaborative efforts. The programme intends to build on the cooperation by multiple research establishments based in Luxembourg and aims to involve the Luxembourg private sector with the view of finding potential users of the end-products of the project.

### **Achievability in the Luxembourg context**

The research community has clearly shown its desire to collaborate on an international level. Present research projects already show some degree of international collaboration while bilateral conferences between our neighbouring research institutes (and others) plainly highlight that common research interests exist. The willingness for joint research projects is demonstrated and proposals are being drafted as a result of these meetings. The current funding situation however may not enable them to easily apply for financial support.

#### **4 Budget breakdown of the programme**

Total Budget for the period 2006-2011 is € 6'000'000 with the following breakdown:

2006: € 1'500'000

2007: € 1'500'000

2008: € 1'000'000

2009: € 1'000'000

2010: € 1'000'000

## 5 Appendices

### 5.1 Appendix I

Current FNR programmes:

SECOM	E-commerce Security <b>9 projects</b> (selected in 2001 and 2004)	2000-2007	€ 7 500 000
NANO	Innovative Materials and Nanotechnology <b>3 projects</b> (selected in 2001) 2 <sup>nd</sup> call foreseen in 2005	2000-2008	€ 6 700 000 Available for 2 <sup>nd</sup> call: € 700 000
EAU	Sustainable Management of Water Resources <b>8 projects</b> (selected in 2001)	2000-2007	€ 5 000 000 Available: € 195 370
BIOSAN	Biotechnology and Health Extension PROVIE <b>11 projects</b> (selected in 2001 and 2004)	2000-2008	€ 8 500 000
VIVRE	Living in the Luxembourg of Tomorrow <b>14 projects</b> (selected in 2002) 2 <sup>nd</sup> call foreseen in 2005 and participation in ESF Eurocores programme « European Collaborative Research Projects in the social sciences » in 2005, 2006 and 2007	2002-2009	€ 12 000 000 Available for 2 <sup>nd</sup> call and ESF participation: € 7 183 604
SECAL	Food Safety <b>6 projects</b> (selected in 2004)	2003-2010	€ 6 000 000 Available: € 118 467
TRASU	Surface Treatment 1 project	2003-2009	€ 6 000 000
Total	52 projects Calls foreseen: NANO (2005) and VIVRE (2005)	2000-2010	€ 51 700 000 Committed: € 43 502 559

## 5.2 Appendix II

### EUROCORES

The aim of the EUROCORES (EUROpean Science Foundation COllaborative RESearch) Scheme is to create the critical mass necessary for scientific excellence by enabling researchers in different European countries to develop collaboration and scientific synergy.

Pressure for cooperation comes from a variety of sources. In many cases, the scientific proposals considered by the relevant Standing Committees emanate 'bottom-up' from scientists. In other cases they may come from Member Organisations and reflect 'top-down' national priorities. In both instances the Foundation will support the proposals provided they satisfy the main criteria of scientific excellence and European added value.

#### EUROCORES Programmes

Current Programmes in Physical and Engineering Sciences	
Smart Structural Systems Technologies (S3T)	09/2004 - 09/2009
Self-Organised Nano-Structures (SONS)	09/2003 - 12/2007
Fundamentals of Nanoelectronics (FoNE)	
Current Programmes in Medical Sciences	
Pan-European Clinical Trials (ECT) EUROCORES	
EUROCORES on Science of Protein Production for Functional and Structural Analysis (EuroSCOPE)	
EUROCORES Programme on the Development of a Stem Cell Tool Box (EuroSTELLS)	
EUROCORES on Genetic Epidemiology, Atherosclerosis and Related Traits (EuroGEAR)	
Current Programmes in Life, Earth and Environmental Sciences	
Challenges of Biodiversity Science (EuroDIVERSITY)	07/2004 -
EUROMARGINS	10/2003 -
EuroCLIMATE	07/2003 -
Dynamic Nuclear Architecture and Chromatin Function (EuroDYNA)	
EUROCORES on Science of Protein Production for Functional and Structural Analysis (EuroSCOPE)	
European Mineral Sciences Initiative (EuroMinSci)	

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Current Programme in Humanities	
The Origin of Man, Language and Languages (OMLL)	
BOREAS: Histories from the North - environments, movements, narratives	05/2005 -
Current Programme in Social Sciences	
European Collaborative Research Projects (ECRP)	10/2004 - 09/2009
Consciousness in a Natural and Cultural Context (CNCC)	

### 5.3 Appendix III

#### NSF-Materials

Materials World Network: Cooperative Activity in Materials Research between US Investigators and their Counterparts Abroad

Continued progress in materials research is increasingly dependent upon collaborative efforts among several different disciplines, as well as closer coordination among funding agencies and effective partnerships involving universities, industry, and national laboratories. In addition, because of the growing interdependence of the world's economies, partnerships are important not only at the national level but from an international point of view as well.

The National Science Foundation is working together with counterpart national and multinational funding organizations worldwide to enhance opportunities for collaborative activities in materials research between US investigators and their colleagues abroad. This solicitation describes an activity to foster opportunities for collaboration in materials research between investigators in the US and their counterparts abroad. It includes joint activities between NSF and funding organizations in (a) the Americas, through the Inter-American Materials Collaboration (CIAM); (b) Europe, including national European funding organizations, the European Science Foundation, and the European Commission; and (c) other countries or regions.

Proposals submitted to NSF in response to this solicitation must have clear relevance to fundamental materials phenomena, synthesis, characterization, properties and/or processing. NSF will accept proposals from eligible US institutions addressing collaborations between researchers from the US and participating countries/regions. Concurrently, investigators at institutions abroad should submit to the counterpart funding organization in their country/region a request for support of their side of the collaboration. NSF will consider support for the US side of such collaborations, with the expectation that funding or research organizations from the appropriate countries/regions will consider supporting the costs of the non-US participants. Projects proposed to NSF are expected to offer students and junior researchers the opportunity to participate in an international research and education experience and, more generally, for integrating research and training in an international environment, and to clearly demonstrate the value added by the international collaboration.

## 5.4 Appendix IV

### ERA-NET

The ERA-NET scheme tries to support the Cooperation and Coordination of Research Activities carried out at National or Regional Level.

The European Research Area has as its core message the need to overcome the traditional fragmentation of research efforts in the EU through better coordination and cooperation. In

<b>Some Suitable ERA-NET Schemes</b>			
<b>Acronym</b>	<b>Title</b>	<b>Coordinator</b>	<b>Type</b>
<b>FORSOCIETY</b>	Research and Innovation strategy	Ministry of development, general secretariat of research and development, Greece	CA
<b>SAFEFOODERA</b>	Food Safety – Forming a European Platform for Protecting Consumers against Health risks	Nordic innovation center, Norway	CA
<b>SNOWMAN</b>	Gestion durable des sols et des eaux souterrains soumis à la pression de la pollution et de la contamination des sols	Bundesministerium für Land- und Forstwirtschaft, Umwelt und Wasserwirtschaft, Austria	CA
<b>COMPERA</b>	ERA-NET on national and regional programmes and initiatives dedicated to the creation and support of ‘Competence Research Centers’	Institut voor de Aanmoediging van Innovatie door Wetenschap en technologie in Vlanderen	CA
<b>HERA</b>	Humanities in the European Research Area	NWO	CA
<b>BIODIVERSA</b>	An ERA-NET in Biodiversity	Institut français de biodiversité	CA
<b>ERA-PG</b>	Espace européen de la recherche dans le domaine de la génomique végétale	Genomics Initiative, Netherlands	CA
<b>ERA-ARD</b>	The Agricultural Research for Development (ARD) dimension of the ERA	Research Center for International Development	CA
<b>CORNET</b>	ERA-NET Collective Research	AiF	CA
<b>e-RANET</b>	Les TIC dans les industries manufacturières traditionnelles	Department of Trade and Industry, UK	CA
<b>EU-SEC</b>	Coordinating National Research programmes on Security during major events in Europe	UNICRI, Italy	CA
<b>INCONET</b>	International scientific cooperation, science and technology development, international dimension of ERA	Education and Science Ministry Spain	SSA
<b>EUWI</b>	Coordination of Member state research programmes in water science for the developing world	Department of international development	SSA

this regard, the recently launched Sixth Framework Programme for Research and Technological Development (FP6) introduced a specific programme "Integrating and Strengthening the European Research Area" from which a new initiative - the ERA-NET Scheme - will be financed.

The ERA-NET Scheme is about the coordination and cooperation of national and regional programmes and as such, it aims at the national and regional programme makers and managers. These are, in most countries, either working in the Ministries or working in national funding agencies, which implement programmes on behalf of their governments. The ERA-NET Scheme will be implemented via an Open Call for proposals, welcoming proposals for coordination actions in any field of science and technology i.e. using a bottom-up approach. The Commission will pay all additional costs related to the coordination up to 100%.