Enhancing the bilateral S&T Partnership with Ukraine

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Abstract

The present document aims at pinpointing some concrete possibilities for S&T cooperation between three countries that closely positioned to one another, share common borders, but have very different geo-political statuses within Europe. Poland and Romania are EU Member States, while Ukraine is at the very border of EU and subject to EU's ENP policy. Among the diversity of programmes, schemes and initiatives that foster collaborative research at European level, those were selected that best provide for the three systems to interact and thus contribute to the ENP's general objective, that of avoiding the emergence of new dividing lines between the enlarged EU and its neighbours, but instead strengthening the prosperity, stability and security of all concerned.

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1 INTRODUCTION

The present deliverable is aimed at establishing the main opportunities for S&T collaboration of Ukraine, Romania and Poland at their neighboring border regions, as part of one of the EU objective for neighboring countries, that of establishing a borderless broader ERA. This should entail the participation of EU neighbours not only in the research Framework Programme, but also with the other dimensions of the European Research Area, such as the coordination of research programmes and infrastructures, enforcement of knowledge-sharing principles and seamless mobility of researchers.

The regions in cause happen not to be of the most fortunate in Europe. Two of the countries, Romania and Poland are member states of the EU, still facing various obstacles on their way up to the EU average, such as regional development disparities, lack of regional initiatives and opportunities. Ukraine, on the other hand, one of the most important neighbour countries for the EU, faces the same difficulties in terms of regional development and opportunities, not to mention the more delicate political history and environment. Nevertheless, Ukraine has a high potential for scientific and technological development while proving repeatedly its determination to reaffirm its position as a European country and to build sustainable cooperation with the EU.

Since the research systems of the three countries differ greatly, we will further try to present a short description of each, followed by presenting the main cooperation opportunities identified by analyzing the three inventories (see Annexes) and the facts described by each of the participants in cause.

The main sources of information for this document are the contributions from the Romanian, Polish and Ukrainian partners, the information packages for some of the ENPI Cross Border Cooperation programmes and available information on the results of some of them.

The deliverable *2.7 Inventory of opportunities for collaboration between Romania, Ukraine and Poland* is composed of two parts:

1. Regional S&T analysis and main cooperation frames for Ukraine, Poland and Romania
2. Annexes to the analysis – Inventories of opportunities for collaboration in the border regions of Romania, Poland and Ukraine (Programmes, Research actors, TTI actors)

The inventory and the present analysis aim at shaping a R&D framework for cooperation between Romania, Poland and Ukraine by better exploiting the regional R&D actors, TTI infrastructure and existing programmes. The inventory provides a comprehensive list of universities, research institutes and TTI entities, as well as their main features.

2 RTD &INNOVATIONS SYSTEMS

2.1 POLAND

2.1.1 Research system

The polish research system is mainly dominated by public actors and funding.

The Ministry of Science and Higher Education is the main body responsible for the formulation of Polish research policy. It is also the main financing agency, creates overall research strategies, defines priority research areas, and is responsible for assessment of the research proposals and evaluation of research performance. However, the *Ministry of Economic Affairs* is responsible for more than a half of Branch R&D Units (105 out of 194).

Another important player in Poland's R&D landscape is the *National R&D Centre*, created in June 2007, established as a state agency for managing large R&D projects of strategic importance. The rationale for establishing this new agency was to allow the Ministry of Science and Higher Education to focus on the activities relating to policy-making and move towards more competitive funding programmes. The Act shows the need of decentralisation of responsibilities, separating policy formulation attribution from policy implementing attributions. The *Polish Academy of Sciences* is a state scientific institution founded in 1952. The research activity of the Academy is financed mainly from the State budget via the Ministry of Science and Higher Education. The Polish Academy of Sciences currently has 76 institutes

The *Higher Council of Branch Research Institutes* is the formal representation of these institutes. The Council consists of 31 members and it prepares opinions and presents recommendations on matters relating to STI policy.

The Foundation for Polish Science (FNP), established in 1991, is an independent, self-financed, not-for-profit, non-governmental organization, with a mission of supporting science in Poland. It is the largest source of science funding in Poland outside the State budget.

The Higher Education Council is the formal representation body of the higher education institutions collaborating with the Minister of Science and Higher Education and other State institutions in creating education policy in the area of higher education.

Data from 2008, show that 1157 units were performing research and development activities Around 119,682 persons were employed in research and development activity, of which 97,474 as researchers. Most of the researchers were employed at the universities and higher education institutions (70,731), the others at the R&D Units (JBR) (11649), in R&D units of business enterprises (8861) and in the scientific units of the Polish Academy of Sciences (4956). As a particularity, the universities are the main R&D performers in Poland employing more than 75% of R&D personnel.

2.1.2 Research policies

There are several important instruments that govern the Polish research landscape, namely:

- National Scientific Research and Development Programme (last amended: 2008)
- Building upon knowledge: Science reform for Poland's development (last amended: 2008)
- Act on some forms of supporting innovation activities (last amended: 2005)
- Partnership for Knowledge (last amended: 2009)
- Act of 15 July 2007 on the Principles of Financing Science (last amended: 2007)
- Strategy for the development of Higher Education in Poland until 2020 (last amended: 2010)

The development of the polish research policy in the recent years is based on three major Acts:

- Act amending the Act on Branch research institutes of 5 July 2007,
- Act on Principles of financing science and
- Act on the National R&D Centre of 15 June 2007, adopted in order to reform the research system.

The major reform package of Polish science system, known as 'Building upon knowledge' has as a main goal to increase the competitiveness of the Polish science in relation to European and international standards through the establishment of organizational structures and implementation of procedures. There are five specific objectives of this reform package, notably to: improve the quality of Polish science; forge linkages between science and industry sectors; align the system (including the funding regulations) to international standards; increase the participation of young scientists; and create conditions conducive to good practice examples.

For a long time the focus of research policy has been to large extent on generic instruments, although there is a trend to focus the R&D activities on programming confirming that there has been modest focus on particular thematic priorities. In 2007, the Ministry of Science and Higher Education published three competitions for 13 different thematic projects, three of which were launched in the framework of the Programme 'Polish artificial heart". The targeted or thematic projects refer to the research projects commissioned by the Ministry of Science and Higher Education to undertake research activities in the specific thematic areas identified as sustainable development opportunities in the National Framework Programme. Another example of programming national R&D activities would be the Research and development programme for the defense industries, which sets six R&D priority areas, notably ICT, Sensors and Observation, Weapons and Armament, Self-operating Platforms, Protection and Survival in Combat Zones, and New Materials. The programme receives financing from the Science budget.

Yet, the Polish Government concluded that the *weakest point of the Polish S&T system* is an inefficient way of turning science into business. To remedy this problem, some new S&T policy measures were deemed necessary: (1) to encourage the business sector to finance and perform R&D and (2) to promote the utilization of research findings, of which the results of R&D performed by public research institutions. *This is a common issue for all three countries and therefore should be one of the themes targeted for cooperation in border regions.*

2.1.3 Research financing

The major funding source of R&D activities in Poland is the State budget (57.5% GERD). The second biggest source of funding for R&D activities is the business sector accounting 33.1% of GERD in 2006, which in nominal terms is almost €500m. The order of the other sources of funding by the size of their financial allocations is as follows: abroad (7%), higher education (2.2%) and private non-profit sector (0.3%). In total, the Polish GERD in 2007 was estimated at €1.77b. (Source: Central Statistical Office (2009) "Science and technology in 2007")

The State budget is mainly distributed towards two types of institutions, notably HEIs (42.9%) and branch research institutes (34.5%), followed by the scientific units of Polish Academy (19.6%). Slightly less than 2% of the State budget funding is transferred to business enterprises. As for the business funding in R&D, a significant part goes to the JBRs – branch research institutes (69.2%) and only 20.8% to higher education institutions Source: Central Statistical Office (2007) "Science and technology in 2006")

The analysis of the structure of the 2007 GERD by fields of science shows that slightly less than a half of R&D expenditure (49.5%) was spent on technical sciences and about a quarter (24.7%) on natural sciences. Besides that, one tenth of GERD was spent on medical sciences (9.8%), and less than that on social science (8.6%), and agricultural sciences (7.4%). (Source: Central Statistical Office (2009) "Science and technology in 2007").

The national public funding is channelled through six basic funding channels:

- core funding for statutory R&D activities, i.e. institutional finance provided selectively for designated research establishments, units and university departments for covering costs of their own research activities (not educational or training activities),
- investments in R&D infrastructure such as buildings and equipment,
- peer-reviewed research grants based on research proposals presented by small research teams or individual researchers,
- subsidies for R&D programs of national importance, commissioned by enterprises, state administration bodies or local authorities (financial means are allocated for implementation of projects and utilization of research findings),
- subsidies for international co-operation in science and technology resulting from intergovernmental agreements,
- subsidies for selected R&D support activities (e.g. information services, library facilities, promotion of science).

More, according to the Act on Principles of financing science of 15 June 2007, the Polish research system benefits from eight different funding modes, including:

- strategic research and development programmes (managed by the National R&D Centre);
- research/development and goal-oriented projects;
- statutory funding;
- R&D related investments;
- scientific international cooperation;
- projects supporting research activities;
- Minister's programmes/initiatives; and
- advisory related activities.

2.2 UKRAINE

2.2.1 Research system

The research system of Ukraine is governed by several institutions, starting with the Ministry of Education and Science of Ukraine (MESU), followed by National Academy of Sciences of Ukraine (NASU) as the second most important institution, the State Committee on Science, Innovation and Informatization and Field Academies of Science. It is the Academies (NASU and other branch academies) that provide the bulk of research actors (1452 scientific institutions, organizations and enterprises under their authority), whereas the Ministry and the State Committee have in their subordination the 175 universities in Ukraine.

MESU is central executive authority in Ukraine which implements government policy in fields of education, S&T research and development. Also, MESU is responsible for launching and implementing national S&T programmes.

As for international cooperation, MESU promotes cooperation of national S&T organizations with the foreign partners and coordinates the scientific cooperation of Ukraine with more than 50 countries over the world the international S&T commitments are also stated by a special budgetary line called "Implementation of commitments of Ukraine in sphere of the international S&T cooperation" and which finances some 88% of the international S&T programmes and projects.

The institutes of the state-sponsored academies of sciences constitute the core of the system of public research establishment in Ukraine. There are six academies, which are included in the official list of the state-funded academies of sciences. The academies had 365 research organisations in 2007 and 32.5% of total Ukrainian expenditures on R&D. The National Academy of Science of Ukraine (NASU) is the highest state-supported research organization, counting for approximately 75% of all resources and personnel of all state-sponsored academies. It incorporates 14 research departments, nearly 170 research institutes and 6 regional Science Centers. It is worth mentioning that Academy institutions were founders of the first Ukrainian technological parks and play a key role in the operation of 5 such research-and-engineering facilities pools, which under Ukrainian law enjoy preferential innovation and investment environment.

2.2.2 RTD programming and financing

Science, technology and Innovation are among key priorities of the Ukrainian government. In the National Programme of Social and Economic Development for 2004-2015 science and innovation policies are described as key elements of the state policy. The S&T priorities in Ukraine are established by the Law on Priority Directions on Development of Science and Technology (2007). This Law formulates priorities till 2017 in broad terms, leaving room for each ministry or academy to redefine these priorities according its own interests.

Thus, the Ministry of Education and Science uses these priorities broadly in the formulation of its own R&D programmes, and the National Academy of Sciences and other state-sponsored academies establish their research priorities only using the national priorities as guidelines and not playing a decisive role in the process of distribution of funds.

Yet, the Government understands the importance of new technology for the country's sustainable development, and there could be mentioned two such specific national programmes: the *energy saving programme*, especially in energy, metallurgy and petrochemical industries, and agricultural research programme for *development of alternative sources of energy* from agricultural products.

The Ukrainian government usually uses three key forms of financing R&D.

- First, direct financing of R&D organizations (more than registered 1400 organizations). It counts for more than 90% of the state financing to the government sector
- Second, through state R&D and development programmes on competitive basis (Fundamental Research State Fund)
- Third, relatively small amounts of money (less than 1% of the state R&D budget) are distributed through grant schemes.

Business sector has different mode of funding. Institutional financing is less than 25% of total funding, while the rest it receives from other business enterprises, from abroad, and through participation in the research and development programmes. Thus, the bulk of funding in private sector, including state funding is on competitive basis.

2.2.3 Innovation Structure of Ukraine

Ukraine has been making efforts to sustain the innovation component of the national S&T environment. According to the Law of Ukraine "On innovation activity" innovation infrastructure is a complex structure of enterprises, organizations, institutions, its unions, associations of any forms of ownership, which serve to ensure innovation activity: financial, advisory, marketing, informational and communicational, juridical, educational, etc.

The formulation of the innovation policy could not be identified with any specific institution. To some extent, the Cabinet of Ministries is trying to play the role of co-ordinator for the innovation policy. As for the implementation, the State Agency of Ukraine for Investments and Innovations is in charge of applying the innovation policy and it also has the task and the budgetary means of "Upkeeping of regional centers of innovation development and implementation of regional and branch innovation programs".

Other from the state support, The Law of Ukraine "On alterations to the Law of Ukraine "On special regime of technological parks of innovation activity" and other Laws of Ukraine" dated January 12, 2006, was defining the functioning regime for 15 technological parks all across Ukraine, and later, in 2007, one more has joined the national innovation landscape: Scientific park "Kiev Polytechnic".

2.2.4 The European dimension

Ukraine is a priority partner country within the European Neighbourhood Policy (ENP). The Partnership and Co-operation Agreement (PCA) which entered into force in 1998 and provides a comprehensive and ambitious framework for cooperation between the EU and Ukraine, in all key areas of reform. The declared goal of Ukraine's cooperation with the EU is that of becoming a EU member state, thus, the instruments for EU-Ukraine have gradually evolved from Partnership and Co-operation Agreement (PCA), to EU-Ukraine Action Plan, reaching today the form of EU-Ukraine Association Agenda Priorities for Action.

Ukraine has a number of bilateral agreements on S&T co-operation with individual EU countries, which complemented to the main agreement with EU. In recent years, all Ukrainian governments have announced their intention to develop closer relations with the EU, and the policy of the European Union has a strong influence on formulation of the science policy in Ukraine. The Strategy of Economic and Social Development of Ukraine for 2004-2015 contains a goal to reach the 'Lisbon' level of 3% of R&D expenses in 2015. Ukraine plans to develop further co-operation with the EU and to take more active part in the Framework Programmes.

There are still no special funding schemes for non-nationals but new research programmes, especially in energy saving, environment protection and some other areas were influenced by the EU research policy. Different ministries and state agencies, which are involved in financing of R&D, such as the Ministry of Education and Science and the National Space Agency have announced their intention to develop further their contacts with the EU in the research field.

The Ministry of Education and Science has created a National Information Point of Ukraine, which contains useful information on EU-Ukraine partnership in research and development (http://www.fp6-nip.kiev.ua/). This clearly shows the need of the research community of Ukraine to establish a formal contact with the Community Framework Programmes

The Research Framework Programmes, that bring together research organisations from the EU member-states, is one form of co-operation that has become available for Ukraine since the Third Framework Programme (FP3), when an agreement on partnership and collaboration was signed between Ukraine and the EU. But Ukraine's participation in the Framework programmes is still limited, and since Ukrainian scientists and the Government are interested deeper S&T cooperation with the EU member states, Ukraine and EU envisage a possible association to the FPs

Usually, Ukrainian organisations are not the key partners in the projects, and they could not expect the same level of financing, as European institutions. The reason of this situation is that Ukraine does not contribute any financial resources to the EU Framework Programme (FP), and hence does not permit Ukranian partners to play an equal role in FPs. The impact of the participation in the EU FPs is definitely positive, as Ukrainian scientists receive new valuable experience and knowledge, and strengthen their contacts with EU partners.

The EU Research Programme have had an influence on national priorities setting in Ukraine, and its main directions are used to formulate research agenda in different ministries and academies. More, some priorities of the EU and Ukraine are almost identical, especially in energy and ICT sectors (see Section 2.4 Key Research Policy Focus).

Another important step for international S&T collaboration is the Law on ratification of Ukrainian application for a membership in European innovation and R&D programme "EUREKA" (N 610-VI, 2008), which formalises participation of Ukrainian researchers in the EUREKA programme. *Since EUREKA is fostering market-oriented R&D, this frame would be an important cooperation scheme that would benefit all three countries facing the same problem: low absorption of R&D results in industry*

2.3 ROMANIA

2.3.1 Research system

The National Research, Development and Innovation system of Romania is governed by Governmental Ordinance 57/2002 and approved by Law 324/2003–and it is defined as the total number of public and private units and institutions having research and development as activity.

Presently, the infrastructure of the Romanian RDI system comprises:

- R&D personnel, 43502 employees, of which 30864 researchers and 15111 PhD researchers (source: National Institute of Statistics 2009)
- 264 public R&D units, of which 168 R&D units of national interest: 46 national institutes, 56 public universities, 66 R&D units belonging to Romanian Academy (52 institutes, 14 research centers), 17 agriculture R&D units and 51 agriculture R&D stations subordinated to the Academy of Agricultural and Forest Sciences "Gheorghe Ionescu-Sisesti" (ASAS).
- About 2000 R&D entities, of which 850 in the private sector
- Specialized personnel for about 50 S&T areas, (including top technologies like IT, medicine, aeronautics, etc). There is a significant percent of researchers in technical and engineering sciences, about 40%.
- Network of technology transfer and innovation units – 50 specific entities (technology transfer centers, technological information centers, technology and business incubators) as well as 4 scientific and technological parks.

The Romanian RDI system has three *strategic objectives*:

- *Creation of knowledge,* obtaining of some peak scientific results, competitive on international market;
- *Raising the Romanian economy competitiveness by innovation,* with impact on the economic sector. This strategic objective is in synergy with the one of Operational Sectorial Programme "Raising Economic Competitiveness- Priority Axis 2: Raising Economic Competitiveness by research and innovation;
- *Raising social quality* by developing solutions with direct benefits for society, and five specific objectives:

Specific objectives of the RDI system:

- Raising scientific performance (RDI results, patents and licenses, % of innovative companies)
- Developing the system's resources (human resources, research infrastructures)
- Involving the private sector
- Raising institutional capacities
- Extension of international cooperation

2.3.2 Policy instruments

The *National RDI Strategy for 2007-2013*, approved by Government Ordinance No 217/2007, provides, as main objective, reducing the differences between Romania and the rest of the EU countries and prepares the Romanian RDI system to identify and consolidate, through international partnerships and competitions, those areas in which it has the best performances.

The RDI policy is structured in two budgetary programmes:

- *Development of the R&D capacities and dissemination of research results,*
- *Raising economic competitiveness through research and innovation,* which mainly addresses the economic effects of research investments.

Afore mentioned objectives are transposed in practice through national research programmes:

- **National RDI Plan for 2007-2013**

The National Plan, the main instrument for implementing the National RDI Strategy has been approved by Government Ordinance No. 475/2007 establishing the rules and implementation principles, the programmes, investments scheme and budget - 15 billion lei for the whole 2007-2013 period, monitoring procedure, as well as evaluation and impact indicators for both programmes and entire plan level.

The National Plan for RDI has six component programmes:

1. Human Resources - Increasing the number of researchers and their professional performances,

2. *Capacities* – Developing the research capacities and opening the RDI system to the international scientific environment and national socio-economic environment,

3. *Ideas* – Obtaining outstanding scientific and technological results, comparable to the ones obtained at the European level, reflected by the increase in international visibility and recognition of Romania research.; no priority areas set, accent on excellence and international visibility,

4. *Partnerships in RDI priority areas* – for stimulating public-private R&D partnerships and for solving tangible economic problems.,

5. *Innovation* – Increasing the innovation, technological development and production assimilation capacity of the results of the researchers, in order to improve the competitiveness of the national economy and to improve the quality of life.

6. *Institutional Performance* – by ensuring the continuity and the stability of activities carried out by RDI activities, with the purpose of implementing own development strategies, elaborated in line with RDI national strategy

- **Core Programmes**

The Core Programmes for R&D have been defined by Government Ordinance No. 57/2002 for scientific research and technologic development as own programmes of the national R&D institutes, elaborated for a multi-annual period, with own objectives that correspond with the medium and long-term strategy for the respective domain.

The core programmes are a complementary financing mean for the National RDI Plan.

The budget for these programmes is settled by the annual law for state budget and the actual allocation of the funds for each institute is operated by ANCS (state authority) by competitional mechanisms.

- **Sectorial Operational Programme "Increase of Economic Competitiveness – Priority Axis 2 - Increase of Economic Competitiveness by research and development.**

The objectives of Priority Axis 2 - Increase of Economic Competitiveness by research and development contribute to:

- Raising the research capacities through the development of R&D infrastructure and attracting young and high qualified specialists in research institutions, as well as in private companies having research departments.

- Raising the knowledge offer of the universities and R&D units;
- Stimulating technology transfer between R&D units and enterprises;
- Stimulating the demand for innovation of the enterprises.

- **Programmes in coordination of Romanian Academy**

The Romanian Academy coordinates three fundamental research programmes in::

- Exact sciences: (math and astronomy, chemistry, physics), life and Earth sciences, technical and engineering sciences;
- Human sciences
- Economic, social and judicial sciences

- **Sectorial plan for R&D – programmes under the coordination of other ministries**

Government Ordinance No. 57/2002 provides, by sectorial plans for R&D, achievement of some specific development objectives at sectorial level, in several areas.

Except for the Ministry of Education, Research, Youth and Sport, other five ministries manage and run sectorial R&D plans for public utility:

- Ministry of Agriculture and Rural Development (MADR): sustainable development in the forestry, horticulture and fishery sectors, improvement and breeding, management and marketing for agriculture;
- Ministry of Economy: support for patents and technology transfer;
- Ministry of Communications and Informational Society – E-government, household e-services;
- Ministry of National Defence: perfecting the operative measures in case of emergencies, compatibility with NATO armed forces;
- Ministry of Interior and Administration: preventing and fighting crime, efficiency in maintaining and re-establishing public order.
- Ministry of Environment and Forests : sustainable development in the forestry and environment

- **Bilateral Programmes**

Presently, ANCS runs 19 bilateral coorperation programmes in S&T areas, mainly with: South Africa, Austria, Vallon Belgium, Bulgaria, Cyprus, China, Koreea, France, Germany, Greece, Italy, Great Britain, Moldova, Slovakia, Slovenia, Turkey, ***Ukraine*** and Hungary. The bilateral programmes are practically translated into cooperation protocols in some selected S&T areas. Usually, the protocols are renewed every two years. The bilateral prjects are a complementary measure offered to a Romanian participant in a National Programme R&D project for mobility expenses in due connection with the research project, also based on a reciprocity agreement signed by the Romanian partner with the foreign partner.

Financing of the RDI system

The programmes of the National Plan for R&D are financed on competition criteria and the six priorities of the Plan are financed, distinctively, part by ANCS, part by other implementing organisms under ANCS coordination:

➢ CNMP – National Centre for Programme Management (CNMP), Romania, is a legal Romanian public body established by the Government Decision no 1264/2004 to coordinate research programmes under the National Plan(s) for Research, Development &

Innovation. The CNMP's activity as programmes manager means preparation of calls for proposals, organisation of independent evaluation of proposals, contract negotiation, scientific and financial monitoring of (projects based) programmes and evaluation of programmes implementation, results and impact.

➢ CNCSIS – National Council for Scientific Research in Higher Education is an advisory body of the Ministry of Education, Research and Innovation, the interface between the Ministry and the universities scientific communities. Through its executive and financing unit (UEFISCSU), CNCSIS manages the financial resources for the development of higher education and research in higher education.

➢ AMCSIT – Management Agency for Scientific Research, Innovation and Technology transfer of Polytechnic University of Bucharest is a public body under the Ministry of Education, Research and Innovation, established by Government Ordinance No 983/1999, which ensures the management and the marketing of scientific research, innovation and technology transfer in the field of engineering and other related fields.

Recently, CNMP, UEFISCU and AMCSIT (all implementing agencies) have merged under the name UEFISC-DI, with attributions in implementing R&D programmes (national and international), thus separating the roles of policy formulation and policy implementation.

2.3.3 Technology Transfer and Innovation system

The Romanian TT and Innovation system is regulated by Governmental Decision 406/2003 regarding establishment, functioning, evaluation and accreditation of the entities in the innovation and TT infrastructure, as well as the means of support for them.

The Romanian TT and Innovation infrastructure is formed by technology and business incubators, technology transfer centres, technology information centres, industrial liaisons offices, S&T parks. They are mainly concentrated around traditional universitary poles like Bucharest, Cluj, Timisoara, Iasi, etc.

ReNITT – National Network for Innovation and Technology Transfer – is the network of acreditated entities for innovation and technology transfer.

The accreditation and granting the "entity of the infrastructure" title is made by the state authority for R&D (ANCS). ReNITT comprises 54 acreditated entities:

- 20 technological information centres
- 14 technology transfer centres
- 16 technology and business incubators
- 4 technology and scientific parks (Bucuresti, Iasi, Galati, Timisoara)

They receive financing from the budget through National Plan's *Innovation Programme*

Also, the national Innovation and TT system benefits of an Innovation Council, established in 2008 as an advisory body of the National Authority for Scientific Research for the development and implementation of policies in the field of innovation (provides support and assists the implementation of Innovation Programme)

CONCLUSIONS

It is clear that the scientific potential exists, in both human resources and institutional terms. The research infrastructure however may not be sufficient, but this could turn rather into an opportunity for investment.

The entities provided by the inventory cover all scientific fields and disciplines, comprising a good variety of institutional structures, with a relative good distribution across the regions, except, maybe, for the TTI actors in the Ukrainian territory which proved to be rather scarce or unconfirmed as availability.

As for the programmes for regional cooperation, none of the regions benefit from regional programmes (except for the CBC programmes of the ENPI) nor are the national programmes open participants from abroad.

Although each region has its "peaks" in R&D, the average level of regional competitiveness is low (to a different extent in each country) due to a series of factors:

- general low level of investment in science
- weak cooperation between R&D and the business sector
- public research is not motivated enough to apply for funding on competition basis
- private research receives insufficient funding
- research infrastructure is outdated and the
- general lack of information and assistance to beneficiaries for accessing more than national funds for S&T
- scientific production not adapted to the market needs, thus limited commercialization of research.
- lack of innovation and research supporting development of new production

As mentioned above, there are some exceptions from the general characterization, like Iasi region in Romania, or Chernivetska region in Ukraine, and Lublin region in Poland. The numerous higher education institutions and research centres in these regions, of a good scientific level, could become the backbone of an effective cooperation between the three countries. The area in question has a relatively high potential of R&D that could provide sustainable development for the regional economy and society as a whole.

Short analysis of Romania, Ukraine and Poland's research systems

- All three countries are on their way to the modernization of research systems and to integration into European/(regional) trends and policies.
- The research systems in cause are dominated by public funding, as the main common feature. The private funding for R&D remains low for Romania and Ukraine, whereas in Poland the business investment in research is the second biggest source of financing research (about 33% of GERD). However, all three countries have been affected by the economic crisis and the research systems have experienced budget cuts, R&D sector included.
- The systems are based on national research and innovation strategies consistent with the EU trends, and the R&D policy is in consistence with general policy for development. The policy making institution is quite well defined in all three systems.

As for policy implementation, Romania and Poland are reasonably advanced on their way for outsourcing the management and implementation of research policy and the processes are currently in progress. Ukraine, though, is still very much at the beginning of the process of decentralization, efforts have been made for creating new bodies to separate policy design from policy implementation, as the sources used for this material mention that the responsibilities of different R&D decision-making bodies remain unclear and they need a exact definition of competencies and the procedures for implementation still need completions.

- All three countries show lack of active plans for regional development.
- All three countries understand the importance of perfecting a TT and Innovation system, as well as the importance of bringing research closer to industry and efforts have been deployed (in Ro and PL to a larger extent) but as a general picture, all three countries mark as a common deficiency the rate of transforming science into business. A good example of close cooperation between industry and academia is in Poland, where the bulk of the business investments in R&D go to R&S structures in universities.
- The level of investments in research varies greatly in the three countries. The EU target of 3% is also among the R&D targets of these countries, though with different timing, but for now they are all way under the EU average GDP investment in research. There would also be a mention about the distribution of funding from the public budget, that in RO and PL the percentage of public funds distributed by competitive criteria is high (about 95% in RO). On the other hand, in Ukraine, the bulk of public funding for research goes for institutional support (or statutory funding, directly attributed) and from the limited data available, one can say that a mere 20% of the public funding goes for competition or project-based funding.

3 PROGRAMS WITH MAIN COOPERATION OPPORTUNITIES

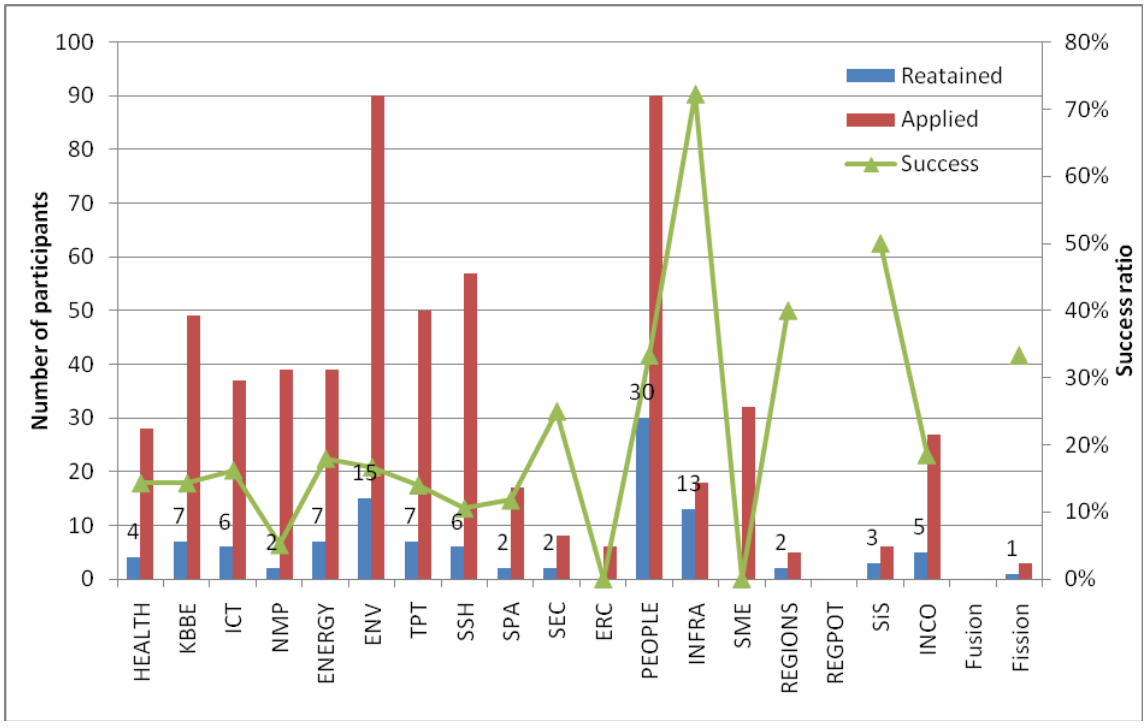
3.1 7th Framework Programme

Ukrainian participation in Framework programmes is considered poor taking into consideration the vast research capacity of Ukraine. It appears though that there is a trend for an increased participation in FP funding schemes.

In detail, in FP6 a total of 786 individual applicants participated in proposals submitted, out of which 110 received funding in 91 proposals with an overall success rate of 13,99%. It should be noted that the highest success rate (63,64%) was achieved in the Research Infrastructures activity area whereas Space & Aeronautics followed with a success rate of 42,11%.

Ukraine continued to increase its involvement in the next Framework Programme (FP7), with higher levels of applications and projects selected for funding. Some 104 Ukrainian research organizations were successful in FP7, as of November 2009, receiving some EUR 8 million of EU funding, particularly within the Marie Curie actions, Environment, Transport, Socio-economic sciences and the Humanities Themes.

Success ratio measured by the number of entities retained for funding in relation to the number of evaluated ones (for Ukraine 20.0%) does not differ significantly from the average for the whole FP7 (22.33%) but, surprisingly, it is higher than for the new EU members (18.57%).



In what concerns the regions of Ukraine subject to this analysis, the success ratio for applications is at 0% for Ivano-Frankivsk, 37,5% for Uzhgorod, 10% for Lvov and 12,5% for

Odessa (according to the paper "Ukrainian participation in FP7 - a statistical approach" Jerzy A.Supel, Warsaw – Kiev, July 2010)

Taking into account the country's determination to become associated to FP7, the current work in Ukraine in nominating and training an increased number of FP7 contact points, is positive steps in this regard. The NCP system of Ukraine consists of a network of 7 Local Information Points (LIPs) representing the geographical regions of Ukraine with the most substantial research potential. 9 physical persons provide the NCP services, mainly on a part time basis. The large geographical area of Ukraine and the distribution of universities and research institutes in almost all regions, has led to the formation of a "region based" system for delivering the NCP services. Coordination of the LIPs is performed by The National Information Centre for Ukraine - EU S&T Cooperation at the Kyiv State Centre of S&T and Economic Information (NIP) which was established by the Ministry of Education and Science of Ukraine (MESU) in 2003 to promote Ukrainian scientific community integration to ERA via the EU Framework Programmes and other R&D programmes funded by the EC.

3.2 EUREKA

Ukraine is a relatively new member of EUREKA as it joined the network in 2006 and it is a initiative that could very well tackle the general problem of transforming science into business claimed by all three countries So far, a simple search on EUREKA's website show that Ukraine is involved in some 30 projects, 11 currently running, and few of them finished even before 2006. So far, a rough 303 MEuros have been allocated by Ukraine for its participation in Eureka projects. An interesting fact and encouraging in the same time is that 15 out of the 30 projects have both Polish and Ukrainian partners, whereas only one project has a Romanian and a Ukrainian partner. It is important that Ukrainian scientists have developed a cooperation path with at least one of the target countries in an important frame like Eureka (in themes like environment, energy, materials and biological sciences)

3.3 ENPI Cross Border Cooperation (CBC) programmes

The principle of territorial cooperation is a key in many EU programmes and aims at the stimulation of the economic and social development in the programme area so that regional disparities are reduced between the eligible regions in targeted regions. The European Union has divided its attention to its Eastern and Southern external borders. The border regions with Ukraine are addressed through the following CBC programmes:

- Black Sea Basin (www.blacksea-cbc.net). Among other countries: Romania and Ukraine;
- CBC Romania – Ukraine – Moldova (www.ro-ua-md.net);
- Hungary – Slovakia – Romania – Ukraine (www.huskroua-cbc.net);
- Poland-Belarus-Ukraine (www.pl-by-ua.eu);

The overall allocation for these programmes in the period 2007-13 is of EUR 401.163 million and the main priorities are: economic and social development, including improvement of competitiveness; environmental protection and emergency preparedness;

people-to-people cooperation and increased efficiency in border management. Of course, it is the task of the regional and local partners on both (or all) sides of the border to analyze their common needs and to identify priorities and actions that are most relevant to their local situation.

All four programmes provide explicit indication for where research and innovation activities can be financed, but research organizations like universities and institutes can also participate in activities not necessarily marked as research and innovation. Good examples are the Environment and sustainable use of resources related activities that are common to all four CBCs.

The illustrations below show the four CBCs with their eligible areas, priorities and measures that explicitly finance research and innovation activities, as well as some of the results of the calls (limited though, due to limited information available.

CBC RO-UA-MD

<table>
<tr><td rowspan="2"> 
</td><td>Eligible area</td><td>Results of the programme</td></tr>
<tr><td>Romania: counties of Suceava, Botosani, Iasi, Vaslui, Galati, and Tulcea;

Ukraine: oblasts of Odesska, and Chernivetska

Rep. of Moldova: whole territory;

Adjacent regions: the Romanian county of Braila, the Ukrainian oblasts of Ivano Frankivska, Vinniytska plus ten districts of Khmelnyitska and twelve districts of Ternopilska.</td><td>Information available:

63 projects submitted after the first call for proposals; 26 recommended for further support with no(minor)/some amendments necessary

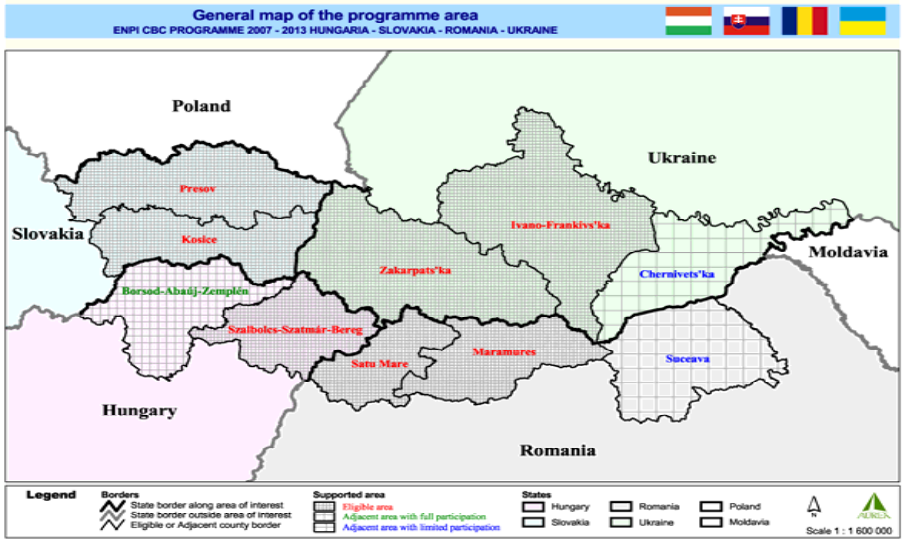
All accepted for financing for the amount of EUR 7.6 millions

37 proposals not recommended for further support (considered weak or with no CB relevance or partners found ineligible)

only 1 proposal with direct refecence to R&D recommended for further support</td></tr>
<tr><td>Priority 1 Towards a more competitive border economy
Measure 1.1: Improving the productivity and competitiveness of the region's urban and rural areas by working across borders
Call closing Jan 2012</td><td colspan="2">The development of public sector led cross–border networks between local and regional authorities, universities and businesses to develop and enhance innovation and research.</td></tr>
<tr><td>Priority 3 People to people cooperation

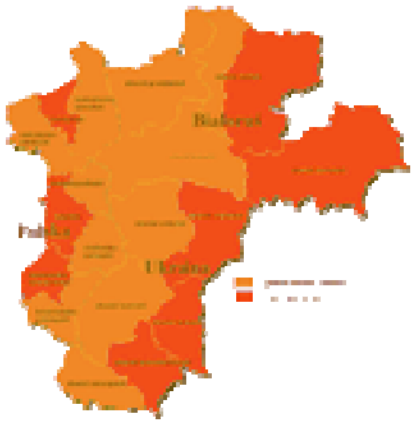
Call closing Jan 2012</td><td colspan="2">Wide definition of activities, R&D related activities can fit in a number of activities, but none specifically pointed.</td></tr>
</table>

CBC HU-SK-RO-UA

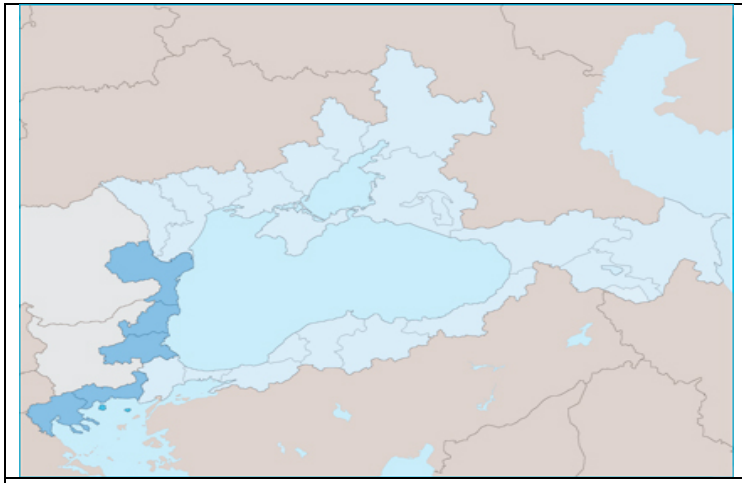
<table>
<tr><td rowspan="2"> 
</td><td>Eligible area</td><td>Results of the programme</td></tr>
<tr><td>Hungary: Szabolcs-Szatmar-Bereg and Borsod-Abauj-Zemplen,
Slovakia: Košicky and Prešovsky
Romania: Maramureş, Satu-Mare and Suceava*
Ukraine: Zakarpatska, Ivano–Frankivska and Chernivetska*
* adjacent areas with limited participation</td><td>Information available:
First call for proposals: 2009
34 out of the 48 awarded projects have been contracted (see list here).
Second call for proposals: June 2010
Third call: closing Jan 2012

Remarks: the list of the projects financed so far (see link above) show that the R&D related activities and participants are almost inexistent. Only two universities were identified in projects awarded and two projects related to industrial parks and TTI offices.</td></tr>
<tr><td colspan="2">Priority 1: Promote economic and social development
Measure 1.2 Create better conditions for SMEs and business development</td><td>Development of R&TD infrastructure (creation of R&TD centres, and developing existing ones directly serving the purpose of cross-border cooperation, dissemination research results and their use in practice)</td></tr>
<tr><td colspan="2">Priority 4: Support people to people cooperation
Measure 4.1 Institutional cooperation
Measure 4.2 Small scale “People to people” cooperation</td><td>• Promotion of R&D and innovation through the development of networks between universities, research centres and organizations supporting SMEs
• Support of know-how exchange (e.g. staff exchange programmes for local school-teachers and scientists of research or educational institutions, for local municipalities, minority groups etc., including youth exchange)</td></tr>
</table>

CBC PL-BY-UA

	Eligible area	Results of the programme
	Poland: **Podkarpackie**, Podlaskie, **Lubelskie**, Mazowieckie Belarus: Grodno Oblast, Brest Oblast, seven western districts of Minsk Oblast: Miadel, Vileika, Molodechno, Volozhin, Stolbtsy, Niesvizh, Kletsk Ukraine: **Lvivska**, Volynska, **Zakarpatska**	Available information: First call for proposals: closed March 2010 307 applications received 21 projects awarded Second call: end Sept 2011 No data avilable
Priority 1. Increasing competitiveness of the border area Measure 1.1. Better conditions for entrepreneurship	Joint actions to promote and support cooperation between research and business institutions and enhancement of research networks (universities and R&D institutions) towards their better linkages to enterprises and local and regional governments	

CBC Black Sea

	Eligible area	Results of the programme
	Poland: **Podkarpackie**, Podlaskie, **Lubelskie**, Mazowieckie Belarus: Grodno Oblast, Brest Oblast, seven western districts of Minsk Oblast: Miadel, Vileika, Molodechno, Volozhin, Stolbtsy, Niesvizh, Kletsk Ukraine: **Lvivska**, Volynska, **Zakarpatska**	Available information: First call for proposals: closed March 2009 16 projects awarded Second call for proposals: closed Sept. 2011 No data available As a measure of success, budget supplemented with €2,990,571 for the whole Programme
Measure 2.2 Promoting research and innovation in the field of conservation and environmental protection of protected natural areas	• Creation or strengthening of networks between authorities managing natural protected areas in order to exchange expertise, good practices and innovation in technical and scientific methodologies and in addition to support the monitoring, protection and conservation of natural resources and biodiversity; • Development of joint strategies, methodologies, and/or action plans to ensure the promotion of sustainable tourism in the natural protected areas of the Black Sea • Establishment or strengthening of networks for joint development of planning and management methodologies and the creation of databases for the natural protected areas of the Black Sea Basin; • Training and raising awareness for citizens living in protected natural areas.	
Measure 2.3 Promotion of cooperation initiatives aimed at innovation in technologies and management of Waste and Wastewater Management systems	Wide definition of activities, R&D related activities can fit in a number of activities, but none specifically pointed	
Measure 3.1 Promoting cultural networking and educational exchange in the Black Sea Basin communities	• Exchange programmes for students and academics aiming at the establishment of channels of cultural integration in the Black Sea Basin; • Partnerships among universities, high schools and research centres aimed at the design and development of special educational programmes based on topics of common interest in the Black Sea Basin	

3.4 EC Technical Assistance and Information Exchange instrument (TAIEX)

TAIEX is the Technical Assistance and Information Exchange instrument managed by the Directorate-General Enlargement of the European Commission. **TAIEX supports partner countries with regard to the approximation, application and enforcement of EU legislation. It is largely demand driven and facilitates the delivery of appropriate tailor-made expertise to address issues at short notice**.

TAIEX' main tasks are:

- To provide short term technical assistance and advice on the transposition of EU legislation into the national legislation of beneficiary countries and on the subsequent administration, implementation and enforcement of such legislation.
- To bring ENPI partner countries closer to the European Union, through increased economic integration and a deepening of political cooperation by sharing the experience gained during the enlargement process.
- To provide technical training and peer assistance to partners and stakeholders of the beneficiary countries.
- To be an information broker by gathering and making available information.
- To provide database tools for facilitating and monitoring the approximation progress as well as to identify further technical assistance needs.
- Technical assistance through the TAIEX instrument comes in many different forms and across a wide range of areas. Partner administrations can benefit from TAIEX's flexibility to help meet wider training needs in EU legislation by reaching a significant number of officials. At the same time, it is important to retain an awareness of and be responsive to more targeted requests. In this regard, the expert and study visit format, depending entirely on requests received from beneficiary partners, provides a complementary institution building service.
- As with other TAIEX training formats, experts and study visits are designed to provide short term assistance to beneficiary countries on the approximation and implementation of EU legislation. Study visits are visits made by a limited number of officials of the beneficiary countries to Member State administrations. They give an opportunity to the beneficiaries to work alongside Member State officials to discuss legislation, experience first-hand administrative procedures and infrastructure and see examples of best practices.
- Expert missions on the other hand involve usually one or two Member State experts travelling to beneficiary partner countries. They provide an opportunity to discuss draft legislation, present examples of best practices and lend assistance where requested. The preferred format is working sessions involving an exchange of knowledge between the beneficiary countries and the experts.

The beneficiaries of TAIEX assistance includes those sectors, both public and private, who have a role to play in the beneficiary countries in the transposition, implementation and enforcement of EU legislation or in the case of the ENPI countries, in deepening economic and political cooperation by sharing the experience gained during the enlargement process. Along many other countries, Ukraine is one of the beneficiaries of the TAIEX instrument. As

regards to Ukraine, Romania and Poland, TAIEX can be used as cooperation mean for the three countries and all the above mentioned activities of TAIEX can be explored in a future collaboration RO-UA-PL. However, the target beneficiaries are restrictively determined and the distance in time from initialization to implementation can be long. The results, however, can benefit Ukraine greatly: Romania and Poland are, to a different extent, New Member Countries with recent (and current) experiences in implementing EU legislation and Ukraine has already declared its intentions to becoming an EU member state, therefore, all positive/negative issues faced by Romania and Poland could provide a clear picture for Ukraine on its way to EU integration.

3.5 STRUCTURAL FUNDS

General provisions on the Structural Funds for 2007 - 2013 are laid down by the Regulation (EC) No 1080/2006 of the European Parliament and of the Council of 5 July 2006 on the European Regional Development Fund and repealing Regulation (EC) No 1783/1999

More growth and jobs for all regions and cities of the European Union – this will be at the heart of cohesion policy and its instruments between 2007 and 2013. During that period, the greatest investment ever made by the EU through cohesion instruments will be worth € 347 billion to support regional growth agendas and to stimulate job creation. For 2007-13, cohesion policy focuses on three main objectives:

1. Convergence – solidarity among regions

The aim is to reduce regional disparities in Europe by helping those regions whose per capita gross domestic product (GDP) is less than 75% of the EU to catch up with the ones which are better off.

Some regions in the EU as constituted before the two most recent enlargements are now above the 75% threshold simply because the EU average GDP has fallen with the addition of the newest member countries. Those regions still need help from the cohesion policy, so they now receive "phasing out" support until 2013. 82% of the total amount will be concentrated on the “Convergence” objective.

2. Regional Competitiveness and Employment

The aim is to create jobs by promoting competitiveness and making the regions concerned more attractive to businesses and investors.

This objective covers all regions in Europe not covered by the convergence objective. In other words, it is intended to help the richer regions perform even better with a view to creating an knock-on effect for the whole of the EU, and to encourage more balanced development in these regions by eliminating any remaining pockets of poverty.

Some regions, which used to be under the 75% threshold that would qualify them for inclusion in the convergence group, receive extra funding to help them "phase in" to their new objective. About 16% of the Structural Funds will be concentrated to support innovation, sustainable development, better accessibility and training projects under the “Regional Competitiveness and Employment” objective

3. European Territorial Cooperation

The aim is to encourage cooperation across borders - be it between countries or regions – that would not happen without help from the cohesion policy. In financial terms, the sums concerned are negligible in comparison with the other two objectives, but many

countries and regions would like to see that change in future. Another 2.5% finally are available for cross-border, transnational and interregional cooperation under the "European Territorial Cooperation" objective.

Operational Programme "Increase of Economic Competitiveness"
Priority Axis 2: Research, Technological Development and Innovation for Competitiveness,
Operation 212 - Complex research projects fostering the **participation of high-level international experts.**

This operation has the aim to generate results of economic interest and to initiate the transformation of the research results into new or improved products, technologies and services. The International expert can be of any nationality and will lead the project. More, he/she will be employed by the host organization for the whole duration of the project.

In the light of this document, the expert can have Ukrainian nationality and can only be employed in either Romanian or Polish organization. The scheme does not allow the participation of all three countries, but as much as it allows, it can complement the Marie Curie schemes (under FP7 People programme), which are very popular among Ukrainian scientists, as shown above at FP7 thread.

3.6 Central European Initiative (CEI)

The Central European Initiative (CEI) is the largest and oldest forum of regional cooperation in Central, Eastern and South-Eastern Europe. It is composed of 18 Member States, among which *Romania, Poland and Ukraine*.

Oriented towards policy dialogue, the CEI also focuses on economic growth and human development. Special attention is paid to capacity building, sharing experience and know-how transfer in order to achieve cohesion in areas of mutual interest and assist its non-EU Member States in consolidating their economic and social development in view of further integration to the European Union. Today, the CEI is in a unique position to act as a bridge between macroregions, such as the Baltic, Danube, Adriatic-Ionian and Black Sea Regions.
This mission is pursued by:

- Promoting political, economic, cultural and scientific cooperation;
- Supporting non-EU CEI Member States in capacity building to bring them closer to the EU;
- Building a closer relationship with the EC in order to become a privileged partner for EU programmes;
- Identifying, designing, promoting and managing EU-funded projects.

According to CEI Plan of Action 2010-2012, the following Areas of Activity have been envisaged:

- Climate, Environment and Sustainable Energy
- Enterprise Development including Tourism
- Human Resource Development
- Information Society and Media
- Intercultural Cooperation including Minorities
- Multimodal Transport
- *Science and Technology*
- Sustainable Agriculture

- Interregional and Cross-Border Cooperation

The CEI Science & Technology Network (S&TN), launched at the beginning of 2004, is composed of seven Trieste-based research centres and their partners in the CEI region.

With the aim to strengthen scientific and technological cooperation, the S&TN provides financial support for the organization of seminars, conferences, workshops and training courses.

Young scientists from CEI countries, *especially non-EU member States*, are offered the opportunity to attend such activities and carry out scientific research on various topics in one of the seven Lead Institutions (LIs).

The CEI Research Fellowship Programme

The CEI Research Fellowship Programme was established in 2005 to enable mobility across the CEI region by giving selected scientists the possibility of carrying out research in one of the Network's Lead Institutions. For 2012 Ukraine holds the Presidency of CEI.

In the time-frame 2005 - 2009, the request for fellowships has constantly increased and witnessed the effectiveness of the Programme. Taking this into account, in 2008 the CEI-ES started to explore EU funding opportunities in order to develop its Research Fellowship Programme. A joint proposal named CERES (CEI Research Fellowship Programme) was submitted to the European Commission under the Seventh Framework Programme for Research and Technological Development (FP7).CERES was approved and is currently under implementation.

The Central European Initiative (CEI) strongly supports trans-national mobility of scientists and researchers across its area. Since its inception, CERES has funded more than 20 fellows who had the possibility of carrying out research in one of the Network's Lead Institutions. CERES is based on a network of 5* research institutions/centres of excellence and foresees a total of 30 fellowships to be distributed in the time-frame 2009 – 2012 among "experienced researchers" (i.e. post-docs) from CEI countries. So far, 5 fellowships were awarded to Ukrainian scientists and 2 to Polish scientists.

***International Centre for Genetic Engineering and Biotechnology** – ICGEB (www.icgeb.org); **International Centre for Theoretical Physics – ICTP** (www.ictp.it); **International School for Advanced Studies – SISSA** (www.sissa.it); **Synchrotron – ELETTRA** (www.elettra.trieste.it); **Cluster in Biomedicine – CBM** (www.cbm.fvg.it)

CEI University Network

The CEI University Network (CEI UniNet) is a contribution of the Central European Initiative to higher education in order to enhance cooperation among universities and other institutions of higher learning in Central, Eastern and South Eastern Europe. It comprises 18 universities, one for each CEI member state. Ukraine is represented by Odessa National Maritime University, Romania by University of Bucharest, and Poland by Adam Mickiewicz University - Centre for European Integration (in Poznan).

Mobility is promoted through the implementation of Joint Programmes such as PhD and Master's courses. Summer schools, Seminars and Workshops may also be supported provided that they envisage a teaching element, a minimum duration of one week and an

awarding certificate.

Small scale multilateral projects i.e. conferences, seminars, workshops, training courses in the field of education are also co-financed through the CEI Cooperation Fund.

For 2012, for example, a Call for Proposals has been launched for the selection of Joint Programmes (PhD courses, Master's courses, Summer Schools, Seminars and Workshops) in the following Areas of Cooperation:

- Advanced Biotechnology
- Economics
- Environment and Sustainable Development
- ICT
- Infrastructure and Logistics
- Regional Development, Public Administration (including Governance Models)

A Joint Programme should involve *at least two Universities from different CEI Member States* and fall within one of the above-mentioned 6 areas of cooperation. Priority will be given to:

- the participation of CEI *non-EU Member States* (Albania, Belarus, Bosnia and Herzegovina, Croatia, Macedonia, Moldova, Montenegro, Serbia, *Ukraine*);
- mobility through "Split Joint Programmes", i.e. courses held at more than one university;
- **proposals which aim at developing into projects which would qualify for EU Funding.**

Remarks:

- *Ukraine is determined to fully participate in FP7 and extend its rights and obligations in the programme, but the competition can be overwhelming and may hinder participation from all three countries. The opportunity should be taken into consideration, but with support from the NCP systems*
- *Eureka is a good opportunity for joint projects and for transforming science into business.*
- *CBC Programmes are, probably, the most suitable for cooperation between the three countries, even if it would require and overall coordination of calls and priorities. The competition level is less comparable to FP7 and the fact that the programmes are dedicated to some regions somehow guarantees access to financing, provided that the project idea is sustainable at cross-border level and the conditions for eligibility are met. The programmes require co-financing of the activities by the participants with 10% of the total costs, of which no more than 5% can be covered by national funds. Research and innovations are present throughout all priorities, some specifically providing for this kind of activities and the rest describing broadly the activities, thus opening the participation of research entities in all measures.*
- *Environment and sustainable use of resources are common topics for all four CBCs and these particularly demand knowledge-intensive activities. Also, reasonable human and institutional resources for tackling these topics are presented in the inventories.*
- *Cooperation within common frames like Central European Initiative would be a good starting point also for strengthening the collaboration between the three countries.*

4 RECCOMMENDATIONS FOR FUTURE COLLABORATION BETWEEN ROMANIA, POLAND AND UKRAINE

- For FP7 efforts from the three sides could be synchronized with the help of the NCP systems
- UA research and innovation system can interact with the systems from the PL and RO within CBC programmes or bilateral agreements.
- Faster adaptation of UA research and innovation system to European programmes requirements can be done by facilitating the exchange of researchers (PhD or post-doc) training programs and encouraging their mobility.
- Including in the leadership of CBS programmes representatives of research and innovation system from the three countries would result in a more harmonized working programme , according the regional specificities of each country and addressing more objectively the regional needs.
- The recent membership of Ukraine to Eureka can also be exploited, taking in consideration the slow absorption of the R&S results into industry and society reported so far by the three countries.
- As a supplementary measure, the bilateral agreements described in the inventories should be updated
- increased training, information dissemination and capacity building measures, to ensure that the Ukrainian research community may fully reap the benefits offered by FP7
- the inventories show that from the resources point of view (human and institutional) the regions prove a high scientific and research potential; nevertheless, the cooperation remains low, as the results from the CBC programmes reveal. Apparently, several factors influence the regional level of cooperation, such as: general lack of information, that include the scientific environment also – there is a real need of targeted info-days and customized assistance for those entities that are entitled to participate in the few programmes available in the area, but do not effectively understand what participation means (assistance in proposals writing would also help, since many of the proposals in CBCs were rejected for weak structure, non-convincing overall plan or misunderstanding of the priorities and objectives of the call); the R&D and TTI entities should be specifically addressed in these info-days. Their participation in CBCs is the weakest, as well as of the S&T related proposals. Awareness raising events in the regions emphasizing the increasing role of the European funds and that the national financial resources are not enough for the ambitious "Europe 2020" strategy for innovation and competitiveness. To take into consideration that many public research entities rely in a high percentage on the so called statutory funding and competition based funding is not very encouraging, at either national or international level.
- People-to-people contacts: it is easier to establish partnerships and collaborations if there were previous face to face contacts. All opportunities should be used to facilitate direct interactions between the research environments of the three countries (dedicated workshops or brokerages aimed at establishing contacts – general or in a specific S&T field)
- The actors mentioned in part B of this paper (excel files) should actually meet and exchange information, find compatibilities and discuss opportunities in an organized

frame - like a thematic workshop before the publishing of a certain call for proposals – *idea, human and institutional resources* and opportunity in one place.

- EU research environment would like to know more on the opportunities of Ukraine's research (as this is still a matter for the New Members States also); therefore part of the Ukrainian efforts should focus on identifying what they have best in R&D and how to "sell" it at European level.

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