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THE CENTRAL EUROPEAN INITIATIVE AS AN ACTIVE BROKER

Abstract: CEI Science and Technology Network together with CEI University Network are a very strong pillar of the CEI's multi-faceted activities. CEI Science and Technology Network was created mainly to offer additional possibilities to the young talented people from South-Eastern and Eastern European countries in order to improve their scientific experience by financing their research in the best institutions of the CEI region. Indeed, CEI has institutional links to the seven Trieste-based centres of excellence such as the Synchrotron Laboratory Elettra, the International Centre for Science and High Technology ICS belonging to UNIDO, the International Centre for Theoretical Physics ICTP belonging to UNESCO and IAEA, the International Centre for Genetic Engineering and Biotechnology ICGEB, and other scientific institutes of international repute which are unique in this part of Europe. Their partners of the said institutions in the CEI countries already today represent a formidable network. Building on this solid basis and with the aim to even more stimulate innovation and research in the region, more favourable conditions need to be created, in particular by further expanding and promoting such CEI transnational research network. This network could bring together, on specific priorities and projects, research centres, academies of science, universities, innovative SMEs, as well as governmental and regional authorities and development agencies. It will thus represent a smart brand that will lead to capacity building fostering research and innovation, which is crucial for sustainable development, particularly for the growth of productivity and for the job market. It will also aim to reduce the barriers to mobility of researchers and to interaction between Research and Industry, thus increasing the institutional responsibility for its enhancement. We all need to better organize the highly qualified human resources available in plenty in our countries in order to ensure that adequate critical mass is reached in the priority fields of research. At the same time we need to secure easier and collective access to funding available to support R&D and Innovation in the Region, by the European Commission and by other financial institutions. CEI Secretariat is ready to play a more active role in this respect, in cooperation with the Academies of Sciences of the Member Countries and their respective scientific communities: for instance, launching an ambitious regional (and interdisciplinary) project on Next Generation Biofuels could represent an important step forward in the right direction.

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Science & Industry can be considered as the two elements for an indispensable marriage for innovation. In fact, the Conference focussed on these very two important ingredients for innovation and for a better competitiveness in our countries.

In order to achieve this winning formula, not only are traditional tools necessary – where interfacing science and industry is a professional task offered by/available to both parties – but also intermediaries, i. e. innovation centres, agencies for technology transfer, etc.

Moreover, since these activities are difficult to manage and are generally expensive but not sufficient, we must always keep in mind that as a precondition, an adequate critical mass in the priority scientific fields, and a drive to interdisciplinary are also necessary.

CEI Supports Science & Technology and Innovation in the Region in various ways through the following funds and instruments:

- a. CEI Science & Technology Network (composed of 7 centres of excellence based in Trieste and their associated institutions);
- b. CEI University Network (composed of 18 coordinating universities in the region to promote mobility and joint programmes);
- c. CEI Trust Fund at the EBRD (Financing Technical Cooperation Projects in view of future investments by the Bank);
- d. CEI Know-How Exchange Programme (Grant financing for projects of capacity building and technology transfer);
- e. CEI Cooperation Fund (Grants for seminars, workshops, training courses and similar events);
- f. European Projects

As for the *CEI Science and Technology Network* in particular, there are three Centres of Excellence which are international by statute, based in Trieste:

- International Centre for Theoretical Physics, ICTP belonging to UNESCO and IAEA;
- International Centre for Science and High Technology, ICS belonging to UNIDO;
- International Centre for Genetic Engineering and Biotechnology, independent international organisation.

And four Centres of Excellence with an international vocation, also based in Trieste:

- International School for Advanced Studies, SISSA; university for post graduate studies
- Elettra Synchrotrone Laboratory and new Fermi Free Electron Laser Facility; Italian national institution open to international partnerships
- Consortium Area Science Park; national campus for advanced technology and innovation
- Cluster for Molecular Biomedicine

The partners of the above-mentioned institutions in the CEI member countries already represent a remarkable transnational research network.

In order to successfully complete the journey from *science to innovation* and, thus, to competitiveness, good ideas and strong research potential are unfortunately not sufficient. Although there is an abundance of highly-qualified human resources in the CEI region, they ought to be better organized with an interdisciplinary vision; the establishment of an adequate critical mass – at least a few strategic (and interdisciplinary) scientific areas is crucial.

Bringing together leading groups of scientists in different countries seems to be the easiest solution, but these groups must work on really strategic projects, which would require adequate funding. The same goes for successful capacity building where a constant interaction between Research and Industry is necessary. This way, knowledge and competence developed by the former could meet the requirements and expectations of the latter.

We all are aware of the fact that making Research and Industry work together not only is a very difficult task, but according to prevailing experience, it is also quite expensive: in order to improve their efficiency and cost effectiveness, training a sufficient number of professional experts in the two „Parties” is essential.

In this regard, CEI could support specific capacity building through instruments already available to qualified partners in CEI countries. Another concrete (and ambitious) proposal for the Declaration to be adopted at the Conference, would be to launch a strategic regional Research & Development Project (at least one or, if possible, more than one) for which CEI Secretariat could be a broker, promoter and organiser.

A strategic regional project which could be taken into account is a project on *Next Generation Biofuels* for example. It would address several priorities of the CEI Plan of Action such as Science and Technology, Energy, Environment, Agriculture.

Among possible ecofriendly renewable energy sources *Next Generation Biofuels* are to be considered as an attractive option for any long-term strategy; particularly so for the 18 CEI Member States all have important agriculture and forestry sectors.

As a matter of fact, according to the prevailing educated estimate, Technologies for Next Generation Biofuels are right around the corner. Although a dramatic breakthrough in basic and applied research is still needed, *demonstration and pilot plants* have in fact already been built around the world.

An additional input in terms of interdisciplinary research (in chemistry, biology, physics, plant engineering, etc), could be provided by our scientific communities: Industry in our countries (including SMEs) could easily acquire the know-how necessary to build the facilities.

There are various reasons why starting from a Project on *Next Generation Biofuels* could turn out to be useful. It ought to be borne in mind that, in fact, Next Generation Biofuels are the best equation combining energy requirements, environmental protection, rural development and food security and that there would be far reaching market opportunities (to sell future technology).

Furthermore, Next Generation Biofuels are biofuels produced from different feedstock without competing with food or cash crops for fertile land and, at

the same time, reducing global green-house gas emissions (crop residue, plentiful where there is agricultural production; residues from sustainably harvested forest and forest undergrowth; algae or other spontaneous vegetation).

Therefore, launching a regional strategic project where the best human resources and research centres could be combined in an interdisciplinary effort seems appropriate. Not to mention the fact that many world players are turning to Next Generation Biofuels: oil majors, top Research & Technology Centres, Petrobras in Brasil. So why not the scientists in our countries as well?

How will the CEI Secretariat act as Project Leader? First, the CEI Secretariat will identify partner institutions in all member countries willing to participate in a strategic regional R&D project on Next Generation Biofuels. Second, after the definition of the project, involving the CEI Science and Technology Network and other qualified international players, the CEI Secretariat will play a proactive role in order to catalyse different instruments of financial support according to the status of its member states versus the EU.

The main features of the project would be:

- capacity building, competitive fellowships and collaborative research activities,
- research grants to all the labs available to support joint R&D projects,
- integration with research activities of European labs / industrial partners,
- network centres for innovation and technology transfer in the CEI region,
- building awareness in industry and public opinion

In summary, the final objective of the regional project on Next Generation Biofuels is to establish a portfolio of bankable projects for pilot plants from different feedstock with an indication of the grant component still necessary in order to ensure sustainability

Finally, it must be borne in mind that according to EU legislation, by 2020 Next Generation Biofuels are to reach 10% of the total fuel consumption for transportation in the Union.

Our countries have plenty of the necessary raw material (feedstock) but who will produce this quantity of Next Generation Biofuels? Where? How? Is our region to import biofuels and/or the technology to produce them, thus migrating from a foreign dependency to another one? Are we willing and ready to mobilise the necessary resources now?