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**Life sciences and Biotechnology: networking as pathway for  
common development in SEE countries**

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In the context of the Lisbon strategy, the European Commission announced in March 2001 to the Stockholm European Council, its intention to present a Communication setting out a strategic vision for life sciences and biotechnology up to 2010. The Communication "Life Sciences and Biotechnology - A Strategy for Europe" presented by the European Commission on January 2002, and the document entitled "Life sciences and Biotechnology - Towards a Strategic Vision". What is important in this document?

**Life sciences and biotechnology are widely recognized to be, after, or parallel to information technology, the next wave of the knowledge-based economy, creating new opportunities for our societies and economies.**

A revolution is taking place in the knowledge base of life sciences and biotechnology, opening up new applications in health care, agriculture and food production, environmental protection, as well as new scientific discoveries. The common knowledge base relating to living organisms and ecosystems is producing new scientific disciplines such as genomics and bioinformatics and novel applications such as gene testing and regeneration of human organs or tissues. These in turn offer the prospect of applications with profound impacts through our societies and economies.

In agro-food area, biotechnology has the potential to deliver improved food quality and environmental benefits through agronomically improved crops. Food and feed quality may be linked to disease prevention and reduced health risks. Plant genome analysis has already led to the genetic improvement of traditional cereal crop with an increased protein yield which may be used as an alternative source of protein for animal feed. Considerable reductions in pesticides use have been recorded in crops with modified resistance. The enhancement of natural resistance to disease or stress in plants and animals can lead to reduced use of chemical pesticides, fertilizers and drugs, and increased use of conservation tillage and hence more sustainable agricultural practices, reducing soil erosion and benefiting the environment.

Biotechnology also has a potential to improve non-food uses of crops as a sources of industrial feedstock or new materials such as biodegradable plastics. New ways to protect and improve the environment are offered by biotechnology including bioremediation of polluted air, water and waste as well as development of cleaner industrial products and processes, e.g. based on use of enzymes (biocatalysis).

Improving the biotechnology in 21st Century we must have a sense that we have been used the knowledge from many fundamental (basic) natural sciences (biology, chemistry, physics) and if we want to develop further biotechnology we must have a good basic sciences as the sources of new knowledge.

Having in mind such important and useful values of biotechnology, UNESCO-ROSTE experts organized in different Working groups after a few meetings, open discussions and serious selection, have been prepared the proposals concerning to the chosen priorities: the networks in different fields of basic sciences and proposals for a few infrastructures. All proposed, prepared and adopted networks are regionally important.

The networks are:

- **SEE Molecular Biology and Genetics Network**, with participating countries Bosnia & Herzegovina, Bulgaria, Croatia, Greece, R. Macedonia, Romania, Serbia and Montenegro and Turkey,

- **SEEC ADVANCED MATERIALS NETWORK ADMANET** with participating countries Bosnia & Herzegovina, Bulgaria, Croatia, Greece, Macedonia, Romania and Serbia and Montenegro
- **SEE Plant Biology and Plant Biotechnology Network** with participating countries Albania, Bosnia & Herzegovina, Bulgaria, Croatia, Greece, Macedonia, Romania and Serbia and Montenegro

### **Plant Biology and Plant Biotechnology-SEEPBN\***

Seven countries from SEE region: Greece (EU member), Bulgaria, Romania (the European Union candidate countries), Serbia and Montenegro, Albania, Bosnia & Herzegovina, Macedonia (other SEE countries) recognize the potential benefits that stem from using and applying plant biotechnology, and are joined by the necessity to unite their scientific and facilities potentials. The association of the seven countries of the region fulfills the basic criteria to be recognized and accepted as a regional network for Plant Biology and Plant Biotechnology. These criteria are: well developed plant biology, very well develop national networks in most of the countries, a few hundred researchers, existing collaboration, number of common publications\*, economic importance of outcomes, and existence of potential and users. Most of the countries included in the Network have well developed national networks in Plant biotechnology. The networked institutions employ more than three hundred researchers (mostly from Bulgaria, Greece, Romania and Serbia) fulfill research experience in plant biotechnology, representing the critical mass of resources and expertise needed to achieve the goals. The active cooperation between countries in the region and outside the region exists and the access to the facilities is possible, as a realization of common projects.

The political scene and events in the region had an inevitable negative influence on the economic development of SEE countries, and especially on the development of science and technology, as well as the 'brain drain' phenomenon. However, some of the countries of the region that have traditionally nurtured science and technology, have also managed to preserve

some of the existing developmental, infrastructural and human resources in these areas.

What are the main goals defined for this network?

- Maximum sharing and optimal joint utilization of scientific and infrastructural resources;
- Networked approach to projects and problems, and shared use of existing and new equipment;
- Personnel education, and exchange of scientific personnel in the process of idea, know-how, and technique transfer for joint programs, aiming for maximum utilization of existing potentials;
- Assistance to those less developed countries in the region as they strive to establish or strengthen their existing potentials in the area of Plant biotechnologies, (the same, or similar level of development of Plant biology and Plant biotechnology in the region, as a prerequisite for much better connection with rest of Europe);
- Continuous flow of ideas, information and consulting;
- Improving the standards of research and methodology in the area of biotechnology in order to enable joining SEEPBN with the European Plant Biotechnology Network (EPBN);
- Creating conditions and a milieu that would foster professional development of young researchers and reduce the 'brain drain';
- Establishing connections with industry with the aim of applying the research results in a variety of concrete situations to improve production (or other) process efficiency and contribute to the economic development level of the regionally networked countries;
- A well-functioning network should achieve a heightened degree of trust, open communication, democracy, and an essentially scientifically borderless region;

Why it is so important for us to network our potentials in the field of Plant biology and Plant biotechnology?

After 15 years of political and economical crisis in the region the existing gap between regional countries and rest of Europe being waster. When the country is poor, the priority for government and police-makers is not the science and technology besides declarative statements that the science is a basis of innovative society and knowledge-based economy. The “brain drain” from regional countries was great, and from the other sites the infrastructures and equipments being outdated, overused and obsolete. In such situation we must network our best potentials in researchers and facilities in the field of sciences and technology. **Networking must be a tool, or pathway to unite the best resources in human and infrastructure potentials in the region to be able to continue to work, and to be compatible with more developed countries.** From this aspect, in the region, networking has not the same meaning as a network of excellence in FP 6. We think that the formation of the regional Plant biotechnology network is more than justified from these reasons.

Two meetings which held in region this year, High level Officials meeting in Thessalonica and Meeting on the Ministers of Foreign Affairs of the SEE Co-operation process in Sarajevo have been supported very strongly the efforts to foster regional co-operation as a driving force for the promotion of good neighborly relations, stability and security, as well as economic and social development in the region. They have stressed the need for regional cooperation in the fields of research, education and training bearing in mind the key role of new technologies and human resources development for the success of all reforms and supported the ROSTE initiative in this field.

But, nobody is not ready to speak about the problems which exist in the realization of our efforts to involve in European mainstream of science and technology. From FP 6 to the other programs, Europe follows its own high standards which correspond to well develop countries. The calls for our involvement in such processes are limited by different conditions, or to limited

number of tasks which are chosen for us by this community. Existing aids are sporadic, coming from some European countries, but the organized help happen slowly with steeplechases. Having in mind that all countries in region are economically unstable and poor, we need very organized and serious help, especially financial support. I apologize for my open mind about this problem but I am scientist, and I feel very deeply that beside all our efforts, good proposals, our wishes to be a part of Europe we loose to much time. It is not good for us, but it is not good for Europe, too.