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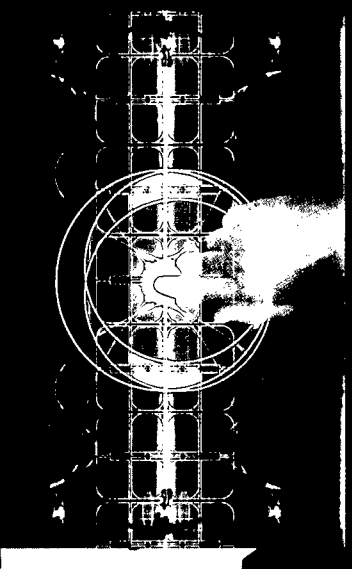

Proceedings

International conferences

Science and Technology for Sustainable Technological Development in Central European Countries

Belgrade, Yugoslavia, 9 - 10 May 2001

Trieste, Italy, 28 - 29 September 2001

In preparation for the CEI Summit Economic Forum

Trieste, Italy, 21 - 24 Nov 2001

UNIDO

2001

180 p.
diagrams
maps

INTERNATIONAL CENTRE
FOR SCIENCE AND HIGH TECHNOLOGY

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INTRODUCTION

'Sustainable Technological Development of CEI Countries'
Concerted Action for the Benefit of South East Europe

The International Centre for Science and High Technology (ICS) is an institution within the legal framework of UNIDO (United Nations Industrial Development Organization). UNIDO is a specialized agency of the United Nations dedicated to promoting sustainable industrial development in developing countries and countries with economies in transition. It harnesses the joint forces of the public and private sectors to foster competitive industrial production, develop international industrial partnerships and promote socially equitable and environmentally friendly industrial development.

The mandate of ICS relates to transfer of know-how and technology in favour of beneficiary developing countries and is justified by the perception that a competitive industrial technological capability cannot be built up without adequate scientific knowledge and commitment to a sustainable development approach that utilizes new and environmentally friendly technologies. Thus, the activities of ICS follow an integrated pragmatic approach and include action oriented research, short-term exchange between research and technologists in industry, dissemination of scientific and technological information through the creation and management of centres of excellences as focal points, consultancy and advisory services, training courses, scientific conferences, fellowships, preparation and promotion of projects.

This publication has been prepared by ICS in response to a request from the Italian Ministry for Foreign Affairs to increase activities which benefit Central European countries. In this respect, two key events were organized (regional conferences in Belgrade and in Trieste), with the strategic objective of improving industrial competitiveness of the target region by promoting endogenous capacities of local enterprises and institutions. Both conferences were attended by more that 400 participants, representatives of 17 countries from Central Europe as well international organizations. All of them are dedicated to the promotion of sustainable development policies. In addition to government representatives and academics, representatives from industry (one third of the participants) took an active part in discussions and problem identification thus recognizing the importance of establishing connections with R&D institutions.

The final goal of the conferences was the identification of technological demand through a bottom up approach and orientation to cross-border projects, networking requirements for technology innovation and dissemination, survey of problems and identification of solutions. The Belgrade conference is to be regarded as the initial act of awareness building and preparation for the more focused follow up that took place in Trieste, six months later.

For these reasons, this book of proceedings is structured along the same lines. The first part is devoted to the Belgrade conference papers focused on the presentation of a set of services and assistance already available and developed within the of R&D centres of excellence located in the northeast of Italy. The subsequent parts of the publication are dedicated to identification of problems through country survey presentations and local requests for scientific support from representatives of Central European countries. The second section is dedicated to the Trieste conference with a more focused discussion on already identified priority lines. Annex 1 is a summary of project proposals presented by local institutions seeking support both in terms of expertise and financing. The primary orientation in the selection of papers was focused on project ideas with regional significance but we have decided to publish also those that seem to be strictly bilateral, counting on the fact that they may become the beginnings for future regional cooperation programmes. Annex 2 should be considered as the initial phase of networking of institutions and experts to be further cross-linked on sector bases, focused on international cooperation with the aim of defining regional policies for

sustainable technological development in Central Europe. It will be further enlarged and updated. We are proud to mention that a part of this network consists of women entrepreneurs from Central European countries. In this way they will become an integral part of ICS's dedication to upgrading their technological skills.

To this end it is worth mentioning that the results of the Belgrade conference were submitted to the to the attention of the Ministers of Foreign Affairs of 17 countries belonging to Central European Initiative, during their meeting held in Milan on 22 June 2001. As per the statement of the ministerial meeting full political support has been achieved for the continuation of efforts. This appreciation additionally motivated ICS to increase activities contributing to the Italian presidency of CEI during year 2001 (see footnote page 9).

Finally, I would like to reiterate ICS's gratitude to the co-organizers of the conferences, the Italian Ministry of Foreign Affairs, CEI Executive Secretariat, CEI/EBRD Project Secretariat which gave great support and visibility to promoting ICS activities oriented to sustainable technological development of Central European countries. We are counting on the continuation of joint cooperation and will promote this publication at the Summit Economic Forum of the Central European Initiative expecting that the Heads of Governments of 17 member states will further support the efforts and ideas summarized in here.

Credit should be given to all the participants who by their oral contribution, which cannot be reflected here, contributed to the success of the conferences. I hope that this publication will enable them to continue exchanging views on their experiences, needs and practices.

The commitment of the Managing Director and staff of ICS made this publication possible and I would like to express my gratitude to Mr Francesco Pizzio, Ms Marisa Scopas and Ms Vesna Marinkovic for their efforts in preparing it. Special thanks to Mr Gianfranco Cicognani-coordinator of the Trieste conference, for his valuable support at all stages of the preparation of the conference and the proceedings.

Marina Holodkov
Belgrade Conference Coordinator

SECTION 1

BELGRADE CONFERENCE

9 – 10 May 2001

BELGRADE CONFERENCE

FINAL STATEMENT

'Sustainable Technological Development of CEI Countries'
Concerted Action for the Benefit of South East Europe

1. In response to the call of the Italian Ministry of Foreign Affairs to strengthen activities for the benefit of Central European countries, the conference on 'Sustainable Technological Development of CEI countries' was held in Belgrade on 9-10 May 2001.

2. The conference was organized by ICS-UNIDO with the co-operation of the Italian Ministry of Foreign Affairs (MAE) and in collaboration with the Central European Initiative (CEI), the Ministry of Agriculture of the Federal Republic of Yugoslavia and the Ministry of Science and Technology of the Republic of Serbia. The conference was attended by close to 300 participants from seven CEI countries (Bosnia and Herzegovina, Bulgaria, Hungary, Macedonia, Moldova, Romania and Yugoslavia) – representatives of governmental bodies, R&D institutions and universities, industries, as well as international organizations like UNECE, and funding bodies like EBRD, EIB and Cooperazione Italiana per Sviluppo.

3. The overall objective of the conference was to show the capacity of R&D for industrial development when managed properly by governments. It has been recognized that competitive industrial and technological capability cannot be built-up without adequate scientific knowledge and participation in the development and utilization of new and advanced technologies. The conference underlined the strategic objective of improving the industrial competitiveness countries with transition economies particularly by promoting the endogenous capacities of their beneficiaries (SMEs, national institutions, governments).

4. On one side, the conference was oriented towards promotion of existing possibilities developed within international scientific communities, but at the same time was a venue for understanding requests and ideas from representatives of academia, industry and government of the countries in South East Europe. However, all discussions focused on: sustainable technological development in the region, bottom-up approach and orientation to cross-border projects and regional economic development, investment in environment and biotechnology and information society as a factor of development.

5. It has been pointed out that inter-university relations are expected to play a very important role within the Adriatic-Ionic Initiative in the creation of telematic networks (such as project UNIADRION) and in promoting scientific activities in line with economic sustainable development. ICS has consolidated co-operative experience with a number of universities in Italy (i.e. Ancona, Bologna, Perugia and Trieste), and is thus in a position to offer significant contribution in this area. Fields of actions and goals were discussed taking into consideration the extensive opportunities offered by modern information technologies, which include territorial information systems and techniques of data collection and elaboration, process simulation and decision support systems, techniques of optimization, and the need for vocational training. This innovative approach may guarantee adequate tools for the implementation of project proposals.

6. For the year 2001, the total expected value of joint ICS - CEI activities related to emerging economies of countries within the region is US$650M. The total contribution is foreseen and detailed in the document 'Framework Programme for Sustainable Technological Development of CE countries'. This programme focuses on technological aspects, networking requirements for technology

innovation and dissemination, survey of problems, advisory/decision-support services for transfer of technology and know-how, training and consulting services – all for the benefit of CE countries.

7. The conclusion of the conference will be a development strategy for the sector, differentiated by country, but focused on the benefit of regional co-operation. This will contain a plan of action for the development of project ideas for presentation to donor communities, including international organizations, financial institutions, and also potential investors. The following months will allow the development of these proposals, establishment of pilot schemes and the necessary partnerships for participation in internationally supported programmes, particularly those of the European Union.

8. The main outputs of the conference can be summarized as follows:

- establishment of a network of scientific and technological institutes and experts that will be able to define the technological demand for sustainable industrial development in the region
- identification of a number of project ideas to be developed during the following months on a regional or sub-regional basis, and at the required level (conceptual, pre-feasibility, feasibility) to be proposed to potential donors, and then put forward for funding in order to allow their implementation
- transfer of knowledge and capacity-building of local R&D institutions and industries in order to increase competitiveness with respect to the preparation of projects and programmes eligible for funding from international donors
- conclusions and recommendations for dissemination to relevant high-level meetings to be organized by CEI and Adriatic-Ionic Initiatives during 2001 (in particular, ministerial meetings and the Summit Economic Forum)

9. The participants called for the holding of a follow-up conference at both national and international levels. It was suggested that an international conference be held on 28-29 September 2001 in Trieste involving all CEI-member countries and that the most significant project concepts be collected in the four main areas of:

- information technology for sustainable development
- new technologies for sustainable agriculture and exploitation of renewable resources
- new technologies for environmental protection and pollution control/reduction
- renewable energies development and related policies

10. The participants acknowledged the importance of addressing high-level political decision-makers within CEI countries in order to support the creation of harmonized regional strategies for sustainable technological development. To this end it was suggested that the CEI Executive Secretariat present this statement to the meeting of the Ministers of Foreign Affairs (to be held in June 2001 in Milan, Italy*). The finalized document focused on recommendations for regional sustainable technological development should also be prepared for the meeting of the Head of the Governments of CEI member States (to be held in November 2001 in Trieste, Italy).

May 2001

*This Final Statement was submitted to the attention of the ministers of Foreign Affairs of the 17 member states of the Central European Initiative that was held in Milan, Italy on 22 June 2001. As a result, the ministers welcomed the scientific co-operation established between CEI and ICS - UNIDO and in the Final Document of the ministerial meeting included the following sentence: "In particular they took note with appreciation of the results obtained by the Regional Conference on Sustainable Technological Development in CEI countries held in Belgrade on 9-10 May 2001." They encouraged the continuation of the related follow-up.

MAIN RESULTS AND FOLLOW-UP OF THE BELGRADE CONFERENCE

'Sustainable technological development of CEI countries'
concerted action for the benefit of south east Europe

1. General overview of the conference

The regional conference, 'Sustainable Technological Development of CEI Countries' was held in Belgrade on 9-10 May 2001. The conference was organized by the International Centre for Science and High Technology of the UNIDO (ICS-UNIDO), in co-operation with the Central European Initiative (CEI) and promoted by the Italian Ministry of Foreign Affairs (MAE). It was attended by close to 300 participants of which about 30 were formally invited as representatives of 10 CEI countries. These countries are identified as belonging to the southeast European sub-region that are target beneficiaries of concerted actions being carried out by ICS-UNIDO in accordance with the special convention signed with MAE and CEI.

The conference was devoted mainly in discussing various scientific, technological and industrial aspects related to sustainable agricultural development, taking into account activities of ICS-UNIDO and the contribution of two specific CEI Working Groups – the Science and Technology WG and the Agriculture WG. In addition, the role of the Universities of – Ancona, Bologna, Perugia, Trieste, and Udine – was highlighted as they co-operate on the same programme lines with ICS-UNIDO and MAE in the different regional, multilateral and bilateral programmes.

The participants were welcomed by Mr Vujanovic, President of the Serbian Chamber of Commerce. Opening addresses were given by the minister of the Yugoslav Federal Ministry of Agriculture, Mr Sasa Vitosevic, Mr Giovanni Caracciolo di Vetri the Italian ambassador in Belgrade, Mr Paul Hartig, CEI-ES General Director, Mr Dragan Domazet, minister of the Serbian Ministry for Science and Technology, and Jelica Minic, Yugoslav CEI national co-ordinator.

Mr Francesco Pizzio, ICS-UNIDO Managing Director, presented in detail the scope and expected results of the conference. The conference is expected to match the R&D services developed by ICS and its partner institutions with the technological demand of institutions within the region of interest. In this way the conference is considered to be one of the events organized within Italian Presidency of CEI aiming to collect project ideas to be put forward for support and financing.

General reference papers were presented by: Ms Marina Holodkov and Ms Sanja Vranes (ICS consultants), on ICS-UNIDO promotional, scientific and technological activities; Mr Gabriele Gatti (AREA-Science Park) presented the programmatic role of the Trieste Science Park; Mr Vincenzo Calogero (CEI-EBRD) and Mr Gianluca Sambucini (UNECE) both offered a general outlook of the CEI Summit Economic Forum (SEF) to take place in Trieste on 21-24 November 2001, as well as the procedures to be followed in submitting projects proposals for financial support to the SEF; and Mr Gianfranco Cicognani (CEI-ES expert for S&T) presented a general view of co-operation programmes promoted by Italy on both bilateral and multilateral basis.

More specific technical presentations were focused mainly on two aspects, namely:

- country status reports presented by representatives of each of the invited countries, aiming to offer the necessary informative platform for identifying common programmatic interests
- inter-university co-operation introduced by the rectors and pro-rectors of the Universities of Belgrade (Mr Ivan Juranic), Ancona (Mr Marco Pacetti represented by Mr Giovanni Sergi), Bologna (Mr Roberto Grandi, pro-rector of International Relations), Kragujevac (Mr Milos Kojic) and Perugia (Mr Francesco Bistoni, represented by Mr Adriano Ciani).

Of major interest and deserving of recognition are the presentations of: Mr Ciani and Ms Michela Ascani (University of Perugia) on integrated rural development in central south Europe and related networks; Mr Sergi (University of Ancona) on inter-university co-operation within the Adriatic-Ionic Initiative (AII); Mr Andrea Segrè (University of Bologna) on environment and sustainable development activities in the Adriatic-Ionic basin; Mr Cicognani, on behalf of Mr Roberto Guidorzi (University of Bologna), on the status of the UNIADRION telematic network and its expected developments, which is now to be considered a major tool for implementing activities foreseen within the AII and fully open to future enlarged co-operations.

2. Round table discussion

Having in mind the general outcome of the conference from the various presentations heard, a round table discussion was organized with the contribution of about 50 officials/experts and moderated by Mr Cicognani. The discussion focused attention on both the foreseen follow up activities and the presentation of further projects ideas/proposals of regional interest. In this respect, the round table is of major importance to the conference as it gives the opportunity to further enlarge portfolio ideas produced by the conference itself. The most relevant contributions to the discussion are briefly reported below.

2.1 Ms Suzana Djordjevic-Milosevic, Assistant Minister of the Yugoslav Federal Ministry of Agriculture, presented the comprehensive 3-year regional project, 'CEI Sustainable Safe Food Agro-industry Development' which is practically open to all countries in central south Europe. The project is divided in 10 sub-projects, covering all main scientific, technological, industrial and legal matters. The aim of the project is the development of a real sustainable agriculture economy through R&D activities, modelling and networking, as well as promotion towards policy-makers in different countries.

2.2. Ms Snezana Oljaca and Ms Marija Todorovic of the University of Belgrade presented the main activities carried out by the Faculty of Agriculture in different sustainable development related fields – technology transfer on renewable energies, R&D of environment-friendly technologies, food-chain analysis, environment-compatible farming system strategies.

2.3. Ms Liliana Comic of the University of Kragujevac basically developed the agro-tourism related aspects, giving evidence to the importance of both the valorization of local products and the protection of bio-diversity. The use of advanced informatic tools has to be regarded as a necessity for the proper implementation of this important programmatic line.

2.4. Mr Jadranko Simic of the Yugoslav Federal Ministry of Health and Mr Vrosevic of the Health Institute in Belgrade, underlined the necessity for a unique international effort in achieving the necessary level of human health protection in a number of territorial hot spots heavily contaminated by chemical, physical and radioactive pollutants as a consequence of war-related events.

2.5. Mr Predrag Stefanovic and Mr Simeon Oka both of the VINCA Institute in Belgrade focused their attention on energy related matters, of major importance should a real sustainable development policy be implemented. In that respect, biomass deserves to be considered as an important, territory-related energy source. Thus, there is a need to carefully consider its potentials.

2.6. Mr Andrzej Zaliwski from the Soil Science IUNG Institute of Pulawy, Poland called to mind the importance of the development of advanced information systems applied to agricultural production. The proposed model, presented in the Poland country status report, can be considered of general interest and is available for wider applications in different countries.

2.7. Mr Istvan Feher of the University of Godollo, Hungary, presented a basic message in his country status report – calling for the necessity of a highly pragmatic approach focused on well identified agricultural products on which a competitive food processing industry should be addressed, aiming to reach higher levels of competitiveness.

2.8. Mr Sladic of the University of Belgrade pointed out the importance of research on natural products and in particular on chemical investigation of selected species of marine and terrestrial organisms.

2.9. Mr Branka Vasiljevic, IMGGI Director, recalled the importance of R&D activities in the field of advanced genetics including genetic engineering research.

2.10. Finally, Mr Dragan Skoric of the Institute of Field and Vegetable Crops in Novi Sad, Yugoslavia, discussed the on-going co-operation with the Universities of Udine and Pisa, focused on improving the quality and resistance of sunflowers plants.

As a final comment on the discussions, Mr Cicognani lauded the high level of the presentations, covering a great number of subjects, even if not all of them fell under the specific scope of the conference. The outcome, however, can be considered of general interest, thus calling for further discussions within the different co-operative programmes. Without doubt, the round table discussions will contribute substantially to follow-ups to the conferences.

3. Closing Remarks

The closing session of the conference allowed Mr Pizzio, ICS-UNIDO Managing Director, to draw the main conclusions in terms of both obtained results and expected follow-up. He underscored the high level of outcomes obtained from both the official presentations and the round table discussions. He recalled once more the importance of the Belgrade conference, considered as one of the major S&T related events organized on the occasion of the CEI Italian Presidency as preparation for the November CEI-SEF.

ICS-UNIDO is strongly committed to the SEF event, on the basis of the activities foreseen by its programmatic duties and in accordance with the S&T co-operative protocols established with both the Italian MFA and the CEI. It is primarily for this reason that it organized the conference and also to give assistance to any follow-up. On this basis, it appears evident that conclusions will be drawn bearing in mind the institutional mandate of ICS-UNIDO. This circumstance will probably limit the number of the project ideas on which ICS-UNIDO intends to concentrate its attention in the coming months, independently by their intrinsic validity. On the other hand, this will allow assurance that any possible help in the very delicate phase in which the selected project ideas will produce clear project proposals to be submitted during the SEF to potential national and international operators and donors.

All that being said, the main outcome of the conference can be summarized as follows:

3.1. In the presentation of Mr Ciani, 'Integrated Rural Development Perspective in Central South European region: Experience and Future Trends', the demonstration of an integrated rural development based on the full valorization of local agricultural products, bio-diversity conservation and agro-tourism promotion should be considered as reference model. Should this idea be further developed as a kind of pilot project proposal to be submitted to SEF attention, ICS-UNIDO is ready to help by offering its scientific services and expertise at the pre-feasibility study level. ICS-UNIDO is ready to follow procedures proven successful in the development of some case studies presented at the 3rd SEF in Budapest last year, as an example of environment related projects in terms of monitoring, pollution prevention and remediation.

3.2. The papers given by Mr Sergi and Mr Cicognani (on behalf of Mr Guidorzi) underlined the importance of the UNIADRION informatic network to be considered as one of the major tools for implementing inter-university co-operations in terms of professional education and project development. The establishment of individual 'focal points' in the network of each of the countries that belong to the AII, appears to be a necessary first step in the UNIADRION project. Even if at present this Project does not represent a typical CEI-SEF event, the special commitment given to ICS-UNIDO by the Italian MFA calls for direct help of the Centre. This help can be referred to the experience gained by ICS-UNIDO in the project 'Technological Foresight for Latin America and the Caribbean' in which a number of focal points were created within that region in terms of both hardware/software implementation and professional education of the technical personnel. Thus, ICS-UNIDO is ready to offer some contribution to be defined precisely and agreed upon with the identified AII Institutions. However, as a first hypothesis, the following development lines of common interest can be mentioned: modern Information and Communication Technologies (ICT) applied to co-operative learning, advanced techniques of self-evaluation, and identification of well established programmes of professional education.

3.3. A strong interest from ICS-UNIDO is anticipated in the project presented by Mr Segrè on 'Environment and Sustainable Development Related Activities with the Central South European and Adriatic Countries', where a multi-criteria evaluation of the coastal and agricultural-rural areas is foreseen. The ICS-UNIDO engagement on the development of high-level scientific and technological services (process simulation, image engineering, decision support systems, etc.) will offer a sound basis to the development of this project. In addition, the methodology developed for the implementation of specific environment related projects can be proposed and adapted to the specific needs of this activity.

3.4. The frame project 'CEI Sustainable Safe Food Agro-industry Development' illustrated by Mr Djordjevic-Milosevic during the round table discussions, presents a clear programmatic priority for Central South European Countries. Having as main objective the assessment of the sustainable and rational use of natural resources, the project is specifically focused on safe food production, counting on market promotion of high quality and certified local products. At least three sub-projects appear to be of specific interest to ICS-UNIDO, namely:

a) indigenous knowledge, nature protection and bio-diversity management – in particular, ICS-UNIDO activities on medicinal plants proper exploitation can be regarded as an important part of this, thus identifying clear possibilities of co-operation

b) sustainable land management and environmental protection – the ICS-UNIDO commitment on modern informatic systems (GIS, data banks implementation, identification of regional maps indicating polluted hot-spots, etc.) shows important synergies, thus calling for common lines of development

c) safe food processing and related marketing – along this line of major industrial interest, ICS-UNIDO can offer important support in terms of both process simulation and advanced decision support systems application

However, a number of suggestions deserve to be proposed aimed towards better project preparation. The number of identified sub-projects (10) seems too high, with the risk of producing undue difficulties during the evaluation procedures. Thus, their reduction is strongly recommended through a coherent clustering of similar items. The strong engagement of SMEs in the sector is crucial due to the necessity of having the highest impact on the territory-related economy. Finally, the adhesion of Moldova to the project, though at present not considered, seems necessary bearing in mind that the project scope can be regarded as a clear priority for this country.

3.5. The project mentioned in 3.4 is comprehensive enough to be proposed as a kind of general frame for other project ideas presented in the round table. Therefore one suggestion is to take into account

at least a few points from the presentations of Ms Oljaca, Ms Todorovic and Ms Comic. The proposals of Mr Stefanovic and Mr Oka on biomass, a typical agriculture-related energetic source, could also be partially considered. However, it has to be recalled that energy related items have been not considered in the Belgrade conference, as they will be properly examined in another international meeting.

Before the closure of the conference, Mr Pizzio announced that a second important event in preparation for the CEI-SEF would be held in Trieste on 28-29 September 2001. This is the international meeting on 'Science and Technology for the Sustainable Development of the CEI Countries'. This Meeting, again organized by ICS-UNIDO, will see the participation of all the main international R&D centres and institutions in the Trieste region. The main objective is to merge the 'demand' of S&T support to a comprehensive 'Sustainable Development Strategy', coming from the CEI countries, with the 'offer' available at those excellence centres. The meeting will be organized through a number of parallel sub-sessions in which a few relevant aspects of this strategy (information technology development, new technologies for a sustainable agro-industry, environment protection and pollution remediation, environmental friendly and economically attractive energy-related sources) will be properly discussed, starting with the priorities identified by the CEI countries themselves. Without doubt, follow-ups to the Belgrade conference will be an important element for the better organization of the above-mentioned Trieste international meeting. Therefore, these two events are recognised as important steps in the preparation process of the CEI SEF.

4. Conclusions of the conference

The final conclusion of the conference relates to the immediate steps to be taken focusing on clarification of project proposals presented by the representatives of the institutions within the region of South East Europe.

All the project proposals discussed during Belgrade conference should be prepared in the electronic form (font 11, maximum 4 pages) and submitted to the attention of APRI d.o.o. (apri@ptt.yu) before 8 June 2001 to allow the preparation of the comprehensive conference proceedings. The project proposals should consist of background project idea, objectives, partners, expected outputs and general evaluation of required support. The projects considered to be bankable should follow the mini POM form (as per examples distributed during conference), indicating also the expected revenues.

ICS-UNIDO is ready to examine the project proposals and to put forward for further promotion those that have the most significant regional interest and scope with the technical areas and strategy of the Centre itself.

ICS-UNIDO will establish a network of national consultants (starting from 3 countries within South East of Europe) that will define the regional strategy of sustainable development as a recommendation for policy-makers. These recommendation will be further discussed and clarified during the international meeting, 'Science and Technology for the Sustainable Development of the CEI Countries' to be held in Trieste, Italy on 28-29 September 2001. Finals proposals will be submitted to CEI SEF on 21-24 November 2001.

May 2001

PRESENTATIONS

ICS-UNIDO – OVERVIEW AND STRATEGY 2001

Mr Francesco Pizzio

The International Centre for Science and High Technology (ICS) was established in 1988, as an idea of Nobel Laureate Abdus Salam, in Trieste, Italy, in order to provide developing and emerging countries with an efficient tool for scientific know-how and technology transfer. The Centre operates under the aegis of UNIDO, the United Nations Agency for Industrial Development. It is funded totally by an annual contribution of Lit 7 billion from the Italian Ministry of Foreign Affairs and by an additional fund, which for the year 2001 totals Lit 350 million specifically committed to the promotion of the co-operation with the countries of Central South and Eastern Europe.

ICS operates through the support of multilateral projects, mainly regional – involving partners belonging to both small and medium-sized enterprises (SMEs) and institutions in beneficiary countries. The Centre takes an advisory role in supporting project pre-feasibility phases, and at times providing seed money. Viable projects are then put forward for international donor funding as project proposals. A wide range of training courses, seminars, workshops and other meetings are of major importance in identification and formulation of those projects. To support all stages of this effort, both ICS and UNIDO offer a set of services. UNIDO focuses on modules with the categories: competitive economy, sound environment and productive employment; while ICS meshes into this framework by offering a set of IT-based complementary service modules. Examples are: technological assessment, technology management, industrial site planning, drug and catalyst design, coastal zone management, and technological system design. ICS also co-operates with UNIDO through joint projects and other activities such as the establishment of networks and databases.

Underpinning the IT-based services at ICS is a series of decision-support systems (DSS), built up by an expanding in-house capacity. As core services, these systems are used in training technical experts from developing countries. They are also applied diagnostically to assist in the formulation of project proposals by enabling technical, economic and ecological pre-assessment of viability. Examples include: database of best available technologies economically viable and assessment software, geographic information systems, mathematical models for simulation of industrial processes and chemical compounds, and software for image processing.

The strategic approach adopted in the formulation of ICS activities is to promote a policy of sustainable development that takes into account both the endogenous industrial capacity of developing and emerging countries as well as environmental issues. This approach is closely in line with indications emerging from the 1992 Rio Conference, the consequent Agenda 21 and ensuing international forums, and in particular with the recommendations of the Italian Ministry of Foreign Affairs and of UNIDO Headquarters.

In particular, the principle of pollution prevention and the promotion of technologies based on renewable resources are taken into account in the formulation of programmes: intervention within the industrial cycles is proposed rather than 'end-of-pipe' solutions. This approach is applied to the majority of ICS programmes carried out under the three main technical areas – chemistry, environment and high technology/new materials. Nevertheless, some activities are still based on post-factum interventions in view of their relevance in addressing environmental problems: examples are bioremediation, waste-water treatment, and recycling of plastic materials. In applying this strategy, each ICS activity is tailored to the objectives of the individual beneficiary, focusing on the prevailing industrial background of the targeted countries.

The activities carried out by ICS are implemented through a number of scientific and technological co-operations, not only with UNIDO and other members of the UN family (UNESCO and UNEP) but also with a number of national and international organizations and R&D Centres.

In particular, ICS is continuing to reap benefits from a deepening co-operation with its host: the AREA Science Park in Trieste, which has a long experience in technological transfer and management, in business alliances as well as in SME clustering.

Alongside these activities and technical areas, a strong programme in technology transfer management is led from UNIDO Headquarters in Vienna. Focus lies on technology management for competitiveness, business alliances, and technology foresight.

Countries of operation (or interest): developing and transition-economy countries

Sectors of activity/ expertise: technology transfer; sustainable development; advanced IT-based technical services; regional projects with upstream solutions; areas of chemistry, environment, high-tech, new materials; technology management and transfer skills; wide range of training activities, study grants.

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Contacts: Mr Francesco Pizzio, Managing Director

Past/current/proposed CEI co-operation: Joint co-operation agreement with CEI (2000-2002); co-organizers of six joint workshops; participant in CEI SEF 1999 and 2000; ICS-CEI joint work programme for 2001 on sustainable development of South East Europe foresees co-organization of 18 scientific meetings and a network of national consultants.

Available for/offering: partnership on projects; training activities in the areas of operation (workshops, training courses, seminars); web-based databases and networks on technologies, contact institutions, expertise, etc. available in the region.

Looking for/requesting: Potential projects, project partners, focal points for network, funding sources.

ICS FRAMEWORK PROGRAMME
for the Sustainable Technological Development of Central Europe Action Plan for the Benefit of Southeast European Countries

Ms Marina Holodkov

The goal of this programme is to identify well-defined tasks and steps for transferring technology and know-how for the sustainable development of the sub-regions of CE countries. It represents a platform for various scientific activities, aiming to contributing to the sustainable development of the sub-regions that share industrial potential within the region of Central Europe.

The general objective is development of the local capacities in CEI countries through investigation of the most promising technologies in various industrial sectors, taking into account economical, political, ecological and social condition of the region as well as EU requirements for sustainable development.

The target beneficiaries of this initiative are all the various policy- and decision-makers. These include those at national governmental level involved in European integration processes; local policy-makers creating environment for investment opportunities and industrial transformation and privatization; and entrepreneurs in small industries aware of the need to use the links through local and international R&D institution.

The actors involved will be:
- government – policy-makers at government level
- R&D institutions and universities
- local industry

According to the programme architecture it can be divided into two phases. The initial phase consisting of following steps:
- establishing relevant focal points in the region
- promoting the project objectives
- networking the actors involved to achieve the status survey and indication of major problems

This phase also refers to preliminary work for reinforcing the consensus, capacity and political support at governmental level. The second phase, parallel with the first and open in time is where practical results will be achieved:
- creation of different databases of sectoral actors, projects, technologies
- elaboration of analysis
- distribution of first suggestions

Networking, expert meetings, workshops, and seminars will be considered as tools in the core of the methodological approaches. The appropriate methodology or approach varies according to the nature, objective and phase of the programme. Networking will start with existing networks. For example, the CEI network organized on the basis of WG for S&T, environment and agriculture should be a starting point. The upgrading of this network can be carried out on creation of sectoral networks. The expert meetings, workshops and seminars are organized to bring together representatives from business, science base and government who should consider the future trends and makes recommendations for action. They will have a double context:
- thematic approach – addressing broad social and /or economic issues which might drive wealth creation and affect quality of life in the future
- sectoral approach – focused on business/industrial sectors

The result of EGMs and other related activities are fed into the ICS Infotech as a knowledge pool as a unique resource that uses the very latest knowledge management technology. It is also a direct way for the new actors to access the structure, by posting questions, problems, comments, needs and solutions onto the network. A 'pigeon-hole' could be arranged as a kind of mailbox arrangement for the SMEs (small- and medium-sized enterprises), other business-oriented companies, intermediary organizations or experts.

ICS project partners:
CEI, EBRD, Italian Ministry of Foreign Affairs, Area Science Park, University of Ancona, University of Bologna, University of Perugia, national focal points within the region chosen on the national basis and satisfying requirements of scientific/technological excellence:

- quality and volume of scientific/technological activities
- experience with networking activities
- infrastructure and working environment
- links with local economic and social environment

Funding is achieved by ICS Budget for 2001-2003 and additional contributions from:

- funds from the Italian Ministry of Foreign Affairs expected for the next few years
- national funds of the Italian government (Balkan Fund)
- EBRD funds and credits
- EU funding programmes related to third countries
- European Regional Development Funds (ERDF) and Cohesion Fund

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IT-SUPPORTED SERVICES WITHIN THE CONTEXT OF SUSTAINABLE DEVELOPMENT

Ms Sanja Vranes

Sustainable development requires innovative solutions for improving our welfare that are derived from practices and technologies that satisfy our functional needs, and work harmoniously with environment and across diverse groups of stakeholders. ICS-UNIDO mission in this regard is to advance the understanding, development and application of technologies and methods for preventing, removal, and control of environmental risks to human health and ecology. The aim of this presentation is to emphasize those services provided by ICS that are directly related to the above mission, having also taken advantage of networked society and emerging information technologies – Internet programming, decision support systems (DSS), geographic information systems (GIS), remote sensing, etc. – either for service implementation or delivery purpose:

Preventive services
- DSS for land allocation and industrial siting
- Internet accessible DSS for technology assessment and selection
- integrated toolkit for Technology foresight
- life cycle analysis

Removal
- soil remediation technology selection
- spent oil regeneration
- waste management

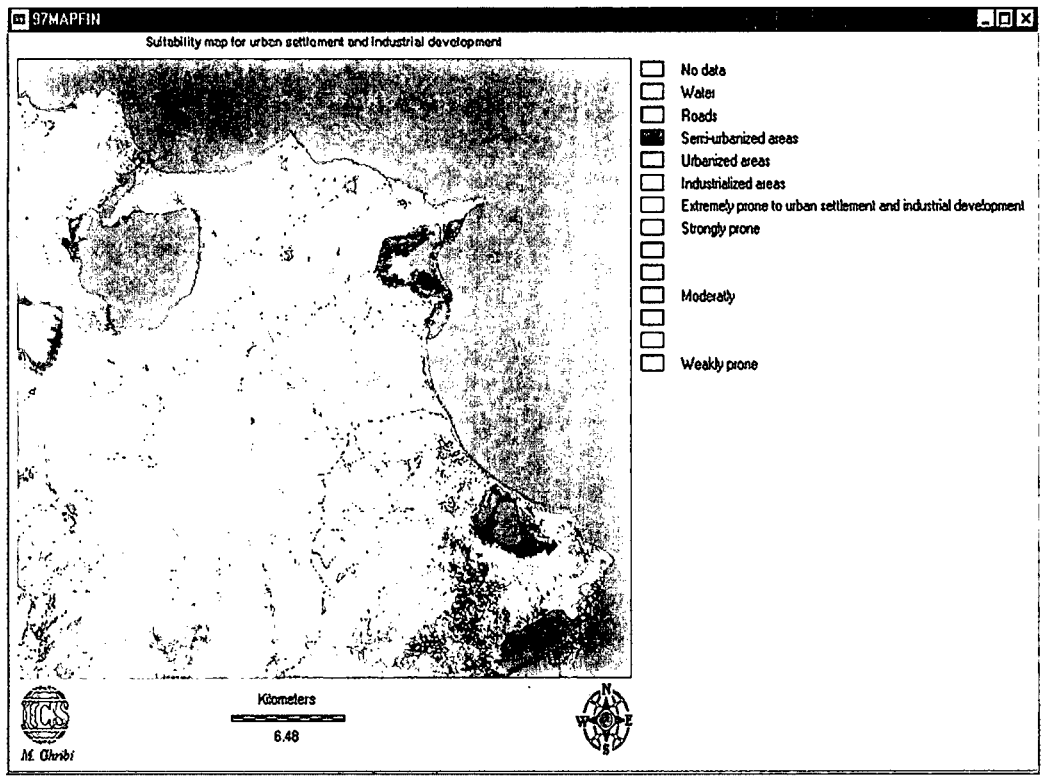
Control
- remote sensing
- process simulation
- environmental engineering, etc.

The objective of ICS is to strengthen the decision-making process at policy/regulatory level in developing countries related to the formulation and implementation of national or sub-national (area-wide) policies, strategies and action plans for sustainable industrial development. ICS-UNIDO seeks to address the problem by integrating and transferring to developing and transition economy countries the tools of decision domain (GIS, RS, IP, ES and DSS) to help them plan their development. A few of them will be presented here in more detail.

Industrial siting

For sustainable industrial development, the need of the hour is judicious, reasonable and planned use of the finite resources of land, according to their natural environmental properties. To cater to this need, ICS is using GIS, RS and DSS techniques to help proper siting of newly planned industries and industrial estates, especially in developing and transition economy countries, where the process of sustainable industrialization is still in its initial stage. In these countries, the siting of industries appears to follow a random pattern that does not consider the available infrastructures, the allocation of water resources and the prevention of pollution of water, soil and air. Strategic plans have to be developed in order to improve the plant allocation within industrial areas in such a way to optimize the land use, the transportation system, the water use and the waste treatment. Therefore, ICS suggests the use of Spatial Decision Support System (GIS enhanced with multi-criteria analysis) as a proven tool for achieving sustainable industrial siting. Site selection based on environmental criteria (proximity to protected forests, national parks, water sources) with the objective of

minimizing adverse environmental impacts is, therefore, a vital prerequisite. Of course, other important criteria (proximity to main industrial sites, to main roads, residential areas, etc.) are simultaneously taken into account. Some real world example of Spatial Decision Support Systems and multi-objective land allocation will be presented in detail.



An example of a suitability map

Technology assessment

Having chosen a proper site for a new plant, the best technological process of production should be selected. It is also of crucial importance for South East European countries, mostly with transition economies and rather constrained budgets, that technology selection decisions are made well and that decision-makers use the best information, methods and tools available. Existing tools and techniques often focus on particular areas of concern or meet specific needs of targeted stakeholders (investors, technologists, policy-makers, environmentalists, etc.). By capitalizing on this synergism, our software tool, called DEBATER (Decision-aid for Evaluation of Best Available Technologies, Ecologically Respectful) offers the opportunities for interaction between perspectives and for incorporation of the environmental considerations and sustainable development concepts into the decision-making tools for broader application. In a good 'sustainability approach' technical, social, and environmental goals are treated together with economic goals as a core of the holistic technology sustainability assessment. DEBATER enables technology selection decisions that do not have long-term negative impacts, and help all sorts of stakeholders to assess both impacts and benefits prior to undertaking technology implementation actions.

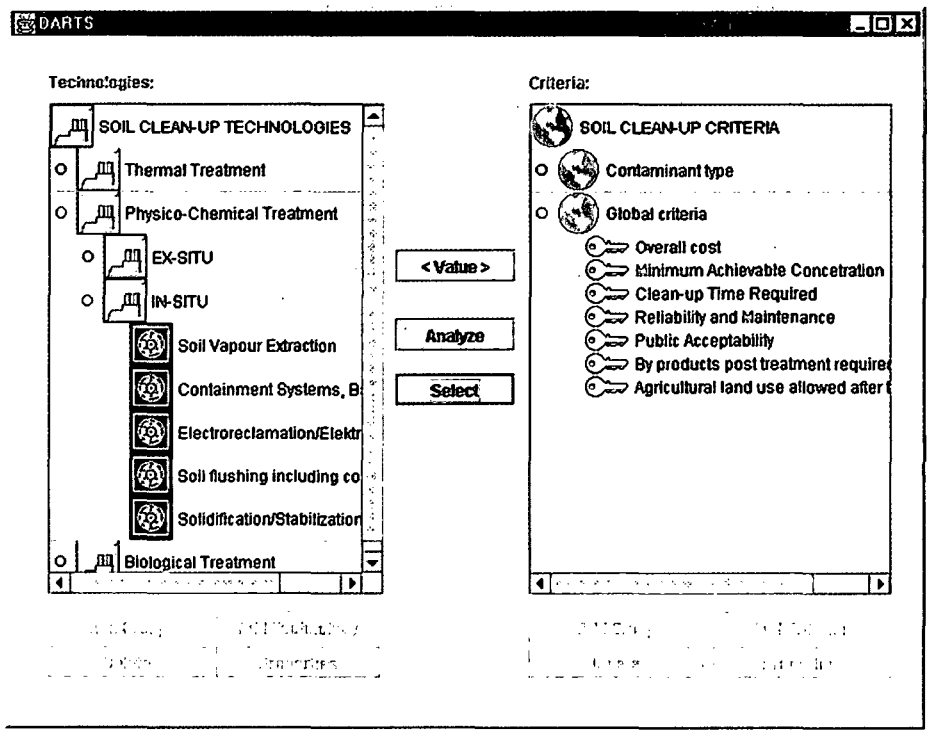
With our decision support system, we try to make technology assessment as holistic and multi-disciplinary as possible, by grouping skills and competencies of various experts together in a realistic software application, that is efficient and is accepted by all parties concerned. The comparative assessment of the efficiency of the various available technologies made by our DSS includes comparisons of costs, technical performance, compliance with environmental standards, and social impacts. Some other criteria (legal, fiscal, etc.) could easily be incorporated during the interactive technology assessment session without any intervention in the underlying software.

In the nearest future, the tool will also essentially comprise an analysis of return on capital investment and on potential long-term sources of funding mobilized by the implementing agents themselves in order to financially sustain the selected projects.

DARTS (Decision Aid for Remediation Technology Selection), enabling comparative analysis of available soil clean-up options, depending on pollutant type and user's specific choice of criteria and their weights, will be shown as an illustrative example.

Soil remediation technology selection

Soil remediation is a difficult, time-consuming and expensive operation. A variety of mature and emerging soil remediation technologies are available and future trends in the remediation industry will include continued competition among environmental service companies and technology developers, which will definitely result in further increase in the cleanup options. Consequently, the demand has developed for a decision support system that could help decision-makers to select the most appropriate technology for the specific contaminated site, before the costly remedial actions are taken. Therefore, we have developed DARTS (Decision Aid for Remediation Technology Selection), which works closely with human decision-makers involved (site owners, local community representatives, environmentalists, regulators, etc.) to assess the available technologies and select the preferred remedial options. The selection is based on technical, financial, environmental, and social criteria. These criteria are ranked by all involved parties to determine their relative importance to a particular project.

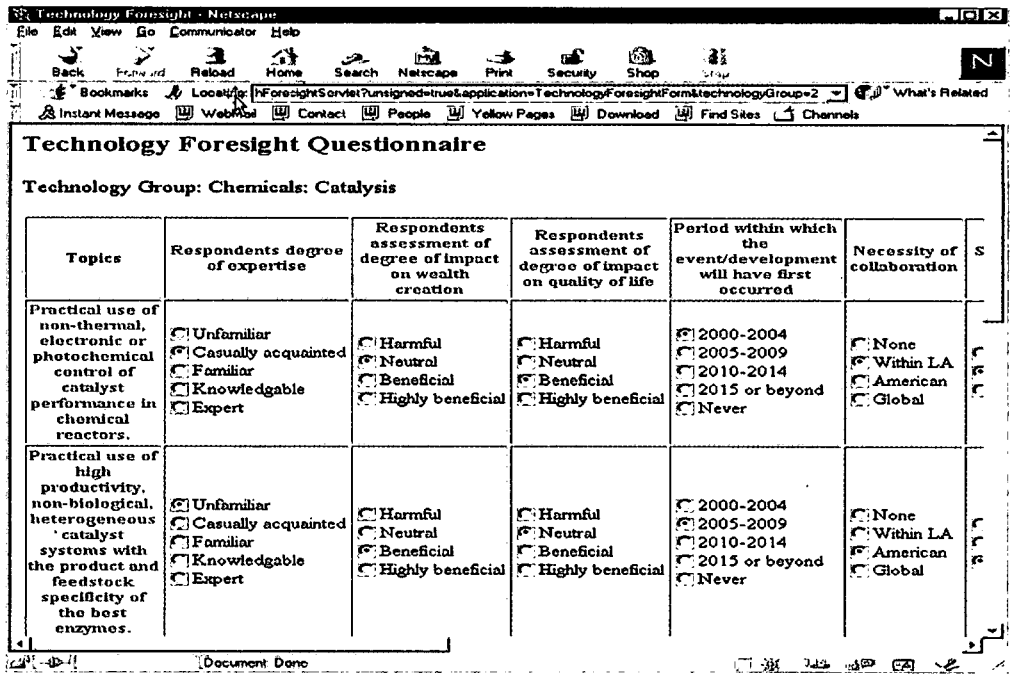


DARTS screen shot

Internet accessible version of DARTS is currently under construction. When completed, it will help the authenticated users all around world to solve their soil clean-up problems. The client-server architecture adopted for the Internet version, assumes that all the analysis and database administration is done at the server side, while a light client (i.e. a distant user) needs only a standard web browser and proper authorization to access and use the DARTS.

Technology foresight

Another service that will be presented in more detail is a provision of a software tool assisting in technology foresight exercise. The technology foresight process seeks to identify technologies that will be key to national and/or regional economic development in the longer term and to make recommendations to address the opportunities and challenges associated with these technologies. International experience demonstrates that technology foresight is rather complicated and time and resources demanding. Therefore, technology foresight exercise of one type or another has been undertaken mostly by leading industrial countries, while the developing and transition economy countries were left aside of the process. To remedy this situation, the ICS-UNIDO has opted for the development of a software toolset, which will help its target beneficiaries to perform the exercise in a more cost effective and less time consuming manner. This software also represents an effective platform for harmonizing various foresights methodologies into a consistent composite.



Technology Foresight - Netscape

File Edit View Go Communicator Help

Back Forward Reload Home Search Netscape Print Security Shop Stop

Bookmarks Location: hForesightServlet?unsigned=true&application=Technology/ForesightForm&technologyGroup=2 What's Related

Instant Message WebMail Contact People Yellow Pages Download Find Sites Channels

Technology Foresight Questionnaire

Technology Group: Chemicals: Catalysis

Topics	Respondents degree of expertise	Respondents assessment of degree of impact on wealth creation	Respondents assessment of degree of impact on quality of life	Period within which the event/development will have first occurred	Necessity of collaboration	S
Practical use of non-thermal, electronic or photochemical control of catalyst performance in chemical reactors.	○ Unfamiliar ◉ Casually acquainted ○ Familiar ○ Knowledgable ○ Expert	○ Harmful ◉ Neutral ○ Beneficial ○ Highly beneficial	○ Harmful ○ Neutral ◉ Beneficial ○ Highly beneficial	◉ 2000-2004 ○ 2005-2009 ○ 2010-2014 ○ 2015 or beyond ○ Never	○ None ◉ Within LA ○ American ○ Global	
Practical use of high productivity, non-biological, heterogeneous catalyst systems with the product and feedstock specificity of the best enzymes.	◉ Unfamiliar ○ Casually acquainted ○ Familiar ○ Knowledgable ○ Expert	○ Harmful ○ Neutral ◉ Beneficial ○ Highly beneficial	○ Harmful ◉ Neutral ○ Beneficial ○ Highly beneficial	○ 2000-2004 ◉ 2005-2009 ○ 2010-2014 ○ 2015 or beyond ○ Never	○ None ○ Within LA ◉ American ○ Global	

Document Done

An example of CyberDELPHI web questionnaire

Having assessed strengths and weaknesses associated with various approaches to technology foresight, we have concluded that whatever methodology is chosen (or even if the integrative route is taken, combining some good aspects of various techniques), it is essential nowadays to take advantage of emerging information technologies, which could significantly simplify the technology foresight process and reduce its cost accordingly. We have therefore opted for the creation of an original multi-perspective, integrative approach, supported by a powerful, Internet-based, software toolkit. It enables a multi-paradigm foresight exercise, based on both panel activities (scenarios, recommendations, policy proposals, etc.) and a large-scale 'via-net' survey.

As the 'panel only' technique would have widely recognised disadvantages ('one-off' basis, results biased by the opinion of panellists, etc.), our suggestion is to organize panels in order to reach consensus on the structure of the questionnaire and topics to be covered in each sector, and then undertake much wider consultations using an Internet-based Delphi Survey (facilitated by the CyberDELPHI software tool from our toolkit). With such a tool, a wide base of experts from academia, government and industry could be consulted easily, and results fused and integrated using computerised Mediator/Facilitator, implemented using a Group Decision Support Paradigm. As a result, a new revised questionnaire would be posted on the network for the second round of consultations using the same wide expert base.

AREA AND CEI EBRD PRESENTATIONS

AREA SCIENCE PARK – OVERVIEW AND STRATEGY

Mr Gabrielle Gatti

AREA Science Park of Trieste is the foremost multi-sector science and technology park in Italy. The Park covers 55 hectares on the hills overhanging Trieste, in the well-known Italian North-east area. Presently, 60,000 square metres of equipped laboratories, offices and services are available and leased out to hi-tech enterprises and scientific institutions that develop technologies and services to be transferred to market.

The Park tenants are over 60 public and private, national and international organizations that employ more than 1,500 technicians and researchers and include: scientific research institutes and training centres; hi-tech enterprises (in some cases they are research spin-off companies); research and development laboratories and service centres which are branch offices of external companies.

The activities carried out in the Park concern a number of different technology sectors connected to a wide range of industrial applications, namely: biotechnology; biomedical engineering, physics and new materials, electronics and factory automation, electro-optics, informatics and multimedia, telematics and communication, environment. Know-how and technology transfer, knowledge and information management, research spin-off, and sustainable business development are some of the areas the AREA Science Park deals with.

AREA is managed by the Consorzio per l'AREA di Ricerca – a public research institution that operates under the vigilance of the national Ministry of University and Scientific and Technological Research. Its members are the Friuli-Venezia Giulia Region, the Province and the Municipality of Trieste, the National Research Council, the regional Universities of Trieste and Udine, as well as several scientific and economic institutions. The Consorzio is committed to manage the Park infrastructures and equipment; to promote and support the settlements of R&D centres, institutes and companies in the Park as well as the creation and development of new hi-tech enterprises; to encourage co-operation among its tenants and external companies managing innovation and technology transfer; to supply the tenants with marketing, financial and legal assistance as well as specialized information services; to promote the image of the Park, to support internal R&D projects and to develop specific training programmes.

The strategic approach adopted in the formulation of AREA activities is to develop science and technology, to promote technological innovation and to foster industrial development by exchanging know-how, methodologies and experience and setting up alliances to the largest international extent. AREA operates mainly through support of multilateral projects, involving partners in small and medium-sized enterprises and institutions in several regions.

The internationalization process can be meant as an action aimed at creating strong and operative relationships, as well as institutional links, between AREA and foreign scientific and economic institutions as well as research centres and enterprises.

The international action developed by AREA follows two basic directions: the first one, which is science and technology-based, is undertaken by the international research and technological centres settled in the Park as well as by the hi-tech businesses interested in external markets; the second one engages the Consorzio per l'AREA di Ricerca and concerns promoting and supporting co-operation with research institutions and foreign enterprises to exchange know-how, technologies and innovation.

Basically, international co-operation carried out by AREA Science Park is ranged in science and technology, in technology promotion and innovation diffusion and in technology business development.

Author details, affiliation, and activities

Mr Gabriele Gatti has a degree in electronic engineering obtained at the Polytechnic Institute of Turin. Following a multi-year experience in hi-tech electronics development for military equipment, in planning and developing industrial technologies and industrial automation systems and in planning and managing applied research and technological innovation programmes in national and multinational industrial groups, at the end of 1992 he joined AREA Science Park of Trieste. He is presently Planning and Development Director, with the responsibility for managing and promoting the science park growth and development and managing international relations as well as fostering technology transfer and new enterprise creation.

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CEI-EBRD CO-OPERATION

Mr Vincenzo Calogero

The Central European Initiative (CEI) and the European Bank for Reconstruction (EBRD) were both set up at the time of the historic collapse of Communism and, because of their complementary objectives and functions, the two institutions agreed on a promising partnership. In order to make this co-operation effective, in 1991 the two partners established the office of the Secretariat for CEI Projects at the EBRD, and a CEI trust fund managed by the Secretariat under the guidance of the CEI National Co-ordinators. The principles and procedures of this partnership are provided by a co-operation agreement between CEI, EBRD, the Italian Government, with provisions for CEI funding also from sources other than Italy, and for co-operation of the Secretariat for CEI Projects with other international organizations.

The EBRD mandate to support the development of market economies in Central and Eastern Europe includes investments that help to reconstruct industry and to develop infrastructure. The EBRD can use its own funds to provide loans, repayable with normal interest, or equity participation, to be resold a few years later, hopefully at a profit. Therefore, EBRD's projects must be 'bankable'. On this basis, the Bank invests more than EUR 2 billion every year.

Profit is not the main objective, but rather the transformation of the economies and institutions in the Bank's countries of operation (which include all CEI beneficiary countries), with a reasonable return on investment to keep the Bank financially viable. This requirement for the EBRD to be financially self-sustainable and at the same time to work in financially poor countries and difficult conditions creates a special need for additional support and grant funds.

In these cases, CEI co-operation becomes most valuable. The Secretariat for CEI Projects can finance project preparation on a grant basis. Later, at the construction stage, the Secretariat can arrange for additional support, with the help of government departments and relevant organizations in CEI countries. Various schemes also exist for financial support to SMEs, and the Secretariat assists with the preparation and follow-up of project proposals, and the provision of advisory services.

These are the main uses of the CEI Trust Fund at the EBRD, provided by the Italian government (past lodgements have totalled up to US$25M – 80% spent up to now), and also open to contributions from other CEI countries. So far, these other contributions have been made directly to projects and activities of the CEI, not through the Fund.

History of the CEI

Since its inception, the CEI has grown from the original 4 to the present 17 members. It was in November 1989 in Budapest, that the Deputy Prime Ministers and Ministers of Foreign Affairs of Austria, Hungary, Italy and Yugoslavia gave birth to the Quadragonale. This initiative had the aim of developing wide political, technical, economic, scientific and cultural collaboration between the four countries. The idea flourished:

1990: With the entry of the then Czechoslovakia it became the Pentagonal Group
1991: Poland joined and it was renamed the Hexagonale Group and its members agreed to establish operational links with the EBRD
1992: With the entry of Bosnia and Herzegovina, Croatia, and Slovenia, it assumed the name Central European Initiative
1993: Macedonia became a member and the two new independent Czech Republic and Slovak Republic took their seats

1995: The CEI Summit agreed on guidelines for activities and rules of procedure. Co-operation on Bosnia and Herzegovina and Croatia was agreed
1996: The number of members swelled with the addition of Albania, Belarus, Bulgaria, Romania, Ukraine, and Moldova
2000: Federal Republic of Yugoslavia joined in November on the occasion of the CEI Summit in Budapest

The Economic Dimension of CEI

The CEI mandate in the economic field is restated and developed every year within the CEI Summit of Prime Ministers and Ministers of Foreign Affairs, also with input from the Ministers of economic sectors who participate in the CEI Summit Economic Forum. It is part of the Final Document, the CEI Strategy, and the Plan of Action, produced at the Summit.

The operational structure of CEI includes regular meetings of Prime Ministers (Summit Meeting) and of Ministers of Foreign Affairs, Summit Economic Forum (SEF), National Co-ordinators, Working Groups (also at ministerial level) and Project Groups, Parliamentary Dimension, and Central European Chambers of Commerce Initiative.

The CEI Presidency coordinates CEI activities and committees, and rotates among the member countries at the beginning of the calendar year. The Chairman-in-office with the former and next Chairmen, constitute the CEI Troika.

CEI Member Countries: Albania, Austria, Belarus, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Hungary, Italy, Macedonia, Moldova, Poland, Romania, Slovak Republic, Slovenia, Ukraine, Federal Republic of Yugoslavia.

The Committee of National Coordinators meets frequently and regularly, to direct CEI activities, to ensure the smooth running of the CEI co-operation and structures, to organize high-level meetings, and to propose and review projects.

The CEI structure is assisted in all its activities by the CEI Executive Secretariat located in Trieste. This permanent structure provides assistance in the full range of the technical, political and cultural activities of the CEI. The function of the Secretariat is to assist the CEI Presidency and to serve as a secretariat for the preparation and follow-up of the many meetings and conferences taking place in the framework of the CEI. The Executive Secretariat is hosted by Italy and has a legal status of an international organization.

The operational body of the CEI devoted to the economic dimension is the Secretariat for CEI Projects based in London at the offices of the EBRD and in Trieste in close co-operation with the CEI Executive Secretariat. The Secretariat for CEI Projects assists the National Coordinators, Working Groups, CEI national and international partners, government agencies, Chambers of Commerce, private sector associations, etc., in the identification, promotion, documentation, of economic strategies, programmes, and projects.

The priority in the CEI economic agenda is the development of infrastructure, of industry, of investment. The main challenge for the Secretariat is to transform investment project ideas originating from the CEI, into 'bankable projects', even though the Secretariat does not have the large financial resources needed for investment and infrastructure construction.

The investment strategy of the Secretariat for CEI Projects is to associate any contribution from the CEI with an approved investment 20-30 times larger in value, usually an EBRD bankable project.

Contributions from Italian funds are normally used for consultants and suppliers from Italy or from other CEI beneficiary countries. Other IFIs can be involved in this approach too.

A special 'amplification formula' is needed: to associate CEI contributions with much larger contributions from other partners and from International Financial Institutions (IFIs). The CEI co-operates with IFIs such as the World Bank group, the European Investment Bank, and EC financial programmes. But its closest relationship is with the UK-based European Bank for Reconstruction and Development (EBRD).

The Secretariat for CEI Projects promotes and supports the co-operation between CEI countries, starting from solutions and capabilities which have been successful in a CEI country, to transfer them to another less advanced CEI country, through institutional strengthening programmes, information and technology transfer, training. These activities are called 'International Events' in CEI language, organized and financed throughout the year by the Secretariat in co-operation with several partners in different CEI countries.

Examples of investment projects in the CEI-EBRD co-operation

The CEI- EBRD co-operation formula implemented by the Secretariat has been very rewarding, as shown by the following examples:

- Pan-European Transport Corridor 5

A CEI-EBRD feasibility study of the Kyiv to Western Border road link has been completed, one of the first projects of the CEI.

- EU Transport Corridor 8

A CEI-EBRD expert has contributed to the identification of road projects in Albania, and CEI has offered a grant contribution of EUR1.8 million to the Albanian road section of Corridor 8. This investment would be co-financed by the Albanian government, Italian government, IDA, EU PHARE, EIB, and Kuwait Fund. The EBRD is considering a loan of US$12.5 million.

- Ukraine Air Navigation

The Ukrainian authorities, recognising the need for the modernization of air traffic services, requested the EBRD to assist in the preparation of the air navigation system modernization project. The overall investment project value is US$43.4 million, and the EBRD loan covers US$25.4 million. Following the review of the air navigation operations, a technical co-operation (TC) programme for the required accounting and management information systems was arranged in the framework of CEI-EBRD co-operation, employing a joint venture of Italian-Ukranian specialist firms.

- Sarajevo Airport Rehabilitation

In December 1997, a Loan Agreement was signed between the EBRD and Bosnia and Herzegovina for the Emergency Transport Reconstruction Project with a total value of US$94.3 million. The project has components covering the land transport and aviation sectors, including the rehabilitation of Sarajevo Airport. This component is estimated to cost US$22.6 million and is co-financed by the EU, and several donor countries, with the EBRD acting as the lead financier. The planning phase has been initiated by the CEI providing consultants for the preparation of an airport master plan. The CEI has then provided priority lighting equipment, essential for airport safety, on a grant basis.

- Bosnia and Herzegovina: Power Sector Reconstruction

The EBRD plays a leading role in the reconstruction and rehabilitation of the electric power sector in Bosnia and Herzegovina co-ordinating the use of several funding sources in the form of grants and loans. An essential part of the Bank's involvement in Bosnia and Herzegovina has been the CEI Technical Consulting Team made available by the CEI to assist with the engineering aspects of this programme.

Agricultural Wholesale Markets

The limited agricultural market infrastructure in CEI countries is a major constraint for the development of efficient systems for food distribution and producer-to-consumer flows. The EBRD has responded favourably to requests for financial support to build and operate modern wholesale market facilities for fresh food products. The Bank has approved a programme, which includes six CEI countries – Belarus, Bulgaria, Croatia, Hungary, Poland and Romania. The total value of these investments exceeds ECU 244 million, of which EBRD has contributed ECU 105 million. CEI Investment Assistance has been provided in two ways:

- In June 1998, the CEI created a facility of US$1.8 million for the development of agricultural wholesale markets in Croatia. The purpose of the reimbursable CEI facility is to finance detailed engineering design for six markets; the EBRD project contribution has been agreed at DEM 33.5 million.
- A number of newly established agricultural wholesale markets in Central Europe have formed a CEI Wholesale Markets Foundation, to strengthen their co-operation, supported by the EBRD through its Agribusiness Team, and by the CEI through its Agriculture Working Group and its Project Secretariat.

Examples of CEI International Events

Let us look now at some examples of CEI international events.

- CEI Seminar on 'Macroeconomic Policy in Transitional Economies': 3-5 June 1999, Zagreb, Croatia
- Training course for international youth leaders, Macedonia: a course to establish closer co-operation between the national youth organizations and national youth councils from CEI member countries
- Second International Conference 'Through Twinning to Sustainable Social and Ecological Development' (CEI International Event): 10-12 September 1999, Belarus
- CEI Conference on 'Diplomacy for the Twenty-First Century: Knowledge Management': 8-10 October 1999, Dubrovnik, Croatia
- International Workshop: 'Regional and Local development and small business promotion', 5-8 October 1999, Otocec, Slovenia
- Women's Entrepreneurship – East West Co-operation: a CEI International Event in co-operation with OECD, UN/ECE and Croatian authorities/ institutes, 20-21 October 1999, Brijuni, Croatia
- Industrial Districts – East West Co-operation: a programme of visits and seminars in co-operation with the OECD, end of 1999
- Co-operation Belarus - Czech Republic on Agriculture: agribusiness companies from the Gomel region receive Czech know-how as part of a training programme for approximately 100 agricultural managers from the Gomel region
- Commercial law training programme: a five-year CEI training programme encompassing 30 workshops and several connected developments in co-operation with EBRD and implemented by IDLI; the programme is intended to create a more favourable investment environment and to speed up the transition process

The essence of CEI co-operation in the economic field

The areas of economic development, investment, institutional strengthening, are so wide and rich of specialized organizations in the CEI region, that the question often arises: what can the CEI and its Project Secretariat do, in essence, with their limited resources available.

Over the past ten years, the CEI has developed specific tools to assist the public and private sectors in project preparation, infrastructure investment particularly transport, information systems particularly Internet. It helps SMEs in their quest for financial and technical assistance. It brings

people together across borders to improve their skills and develop joint economic interests, in a variety of events, particularly the CEI Summit Economic Forum (as in Zagreb, 1998, in Prague, 1999, in Budapest, 2000, and in Trieste, 2001).

These activities have created a co-operation network of institutions and people motivated by a special enthusiasm to develop not only markets and projects in Central Europe, but also good living conditions, understanding, human values of freedom, of dignity, of tolerance. They have a vision of Europe without war, crime, disparities, and without frontiers. These are the unwritten, shared values of the CEI-EBRD co-operation, and of the many partners who make it a practical reality.

CEI Project Opportunity Methodology for Project Presentation

The CEI Project Opportunity Methodology (POM) illustrates the procedures for documenting 'CEI Project ideas or opportunities', useful for developing these projects within CEI and for submitting project ideas/proposals to the EBRD, to other investors and also to other institutions and donors.

The POM methodology has been designed by the CEI, in co-operation with the United Nations Economic Commission for Europe (ECE), to promote investment ideas but can be also useful for Technical Co-operation (TC) project proposals, in particular if these ideas are related to investment projects.

For this reason, a selection of projects leading to a Sustainable Technological Development in the South East Europe and, more in general, in CEI countries, can be also be promoted through the POM system. The POM methodology does not guarantee the final project approval, which is due to several factors, more linked to the project itself. However, the POM system represents a practical tool to facilitate both the project sponsors in inserting all main details on their proposal in a few pages and the recipients to understand if the project received may raise their interest and, therefore, start a dialogue or a negotiation. It may also be useful as preliminary contact, before filling in more detailed forms, with international donors to verify if the idea is meeting main requirements and may be eligible for funding.

To summarize the POM system, we mainly refer here to investment projects but the same forms can be used for the presentation of projects more related to Technical Co-operation.

The emphasis of this procedure, and certainly the first step for co-operation with financial institutions (FIs), should be the identification of an 'Investment Project'. First of all, the investment should prove interesting to the Fis or other institutions on the basis of information given on the Project Outline Profile (POP) and Organization Profile (OP) forms. At the Secretariat for CEI Projects at the EBRD, we can then discuss the possible need for Technical Co-operation (TC) i.e. feasibility studies, surveys, information systems, seminars, training, etc. A brief description of any suggestions for possible TC work can be given in a suitable summary within, or attached to the POM forms.

Fis, and EBRD in particular, will normally consider these TC activities only after a directly related and specific investment is clarified ('Concept Clearance'). The more general proposals for TC activities that can support a wide range of investment and development objectives do not normally allow the use of the CEI technical co-operation fund at EBRD. TC support, studies, training, information systems, etc., must be used with a direct link to a specific (potential or on-going) investment project at the EBRD, described by the POP and OP forms, and only if such an investment project has a pressing need for the TC activity in question.

The attached OP form can be used in two situations:

- in order to describe a company or other type of organization which acts as sponsor, partner, borrower, manager etc., in connection with a proposed investment project
- as an input to the CEI Directory of Experts, in the case of consulting firms or other institutes and organizations (from CEI countries) which offer their expertise and services for project preparation or implementation support

Investment projects usually considered for direct financing by EBRD may start from amounts of around EUR 30 million of total project value, so that the minimum participation of EBRD may be in the region of EUR 10 million. These are comparatively large projects (i.e. infrastructure, factories, telecommunications, energy, etc.), which can be developed and financed 'individually' by EBRD. In other cases, SMEs and 'small projects' are supported through 'financial intermediaries' (i.e. 'local' banks and investment funds) so that one financial operation, from the point of view of EBRD, is a large 'aggregate' of several smaller projects ('sub-projects') or clients.

Of course, project ideas to be considered must show prospects of a viable economic and financial return. Projects to be treated with the POM procedures and supported by the Secretariat for CEI Projects must be located in one or more of the following CEI beneficiary countries: Albania, Belarus, Bosnia-Herzegovina, Bulgaria, Croatia, the Czech Republic, Hungary, Macedonia, Moldova, Poland, Romania, the Slovak Republic, Slovenia, Ukraine, FR Yugoslavia.

Sponsor organizations and investors can come from any country in the world, as long as the projects to be supported are located in CEI countries. Preference is given to private sector projects and projects which involve international co-operation among CEI countries.

The CEI POM System for Project Presentation

The CEI Project Opportunity Methodology offers companies an opportunity to market their investment project ideas for CEI countries. Companies wishing to do this are invited to present details of their project/s following as closely as possible the CEI examples given in the appropriate forms available in this document, or in the CEI and ECE Internet addresses. These forms can also be obtained on paper or diskette at the addresses given below.

Received project proposals will be aired on the World Bank's IPANET, on CEI's Internet database, and on various publications and disks. Please do not include any information which may be confidential or restricted, because your project ideas will be promoted worldwide. Please write on the form 'available for unrestricted publication', and sign it. POM forms gives an overview of the steps required in order to transform a project idea into a bankable project.

The Summary Chart shows the structure for project opportunities presentation and the kind of information you are required to provide in the first step. Written forms or computer files containing information on projects and organizations in the appropriate format (see document forms and examples) should be sent to one of the offices which can support and promote project ideas as a permanent CEI facility:

Secretariat for CEI Projects
Trieste office:
Ms Slavena Radovanovic, Administrative Officer
CEI ES
Via Genova 9
34121 Trieste - Italy
Tel: +39 040 7786 740
Fax: +39 040 360 640
E-mail: cei.ebrd@cei-es.org

London office:
Mr Vincenzo Calogero, Head of the Secretariat for CEI Projects
EBRD
One Exchange Square
London EC2A 2 JN - UK
Tel: +44 207 338 6636
Fax: +44 171 338 6488
E-mail: CalogerV@ebrd.com

United Nations Economic Commission for Europe (UNECE)
Mr Gianluca Sambucini, Focal Point for CEI Projects
UNECE
Palais des Nations
1211 Geneva 10, Switzerland
Tel: +41 22 9171175, Fax: +41 22 9170718
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On-line forms and general information:
http: //www.ceinet.org
http: //www.unece.org

REGIONAL PROGRAMMES AND INITIATIVES

SUSTAINABLE DEVELOPMENT RELATED CO-OPERATION
Promoted by Italian Institutions on Bilateral and Multilateral Basis

Mr Gianfranco Cicognani

Central East Europe (CEE), together with South America and the Mediterranean basin, is clearly recognised by the Italian government as a higher priority region for the development of a real partnership focused to implement a comprehensive political and economical policy. The fostering of the scientific, technological and industrial co-operation is regarded as a kind of necessary step for achieving the expected results in terms of proper economic and social development, thus offering an important contribution to the stabilization and integration processes promoted by the European Union. Therefore, Italy is devoting an increasing attention to the implementation of the S&T co-operation in the bi-lateral, multi-lateral and 'regional' frame. Leaving aside the contribution of Italy to the co-operation Programmes promoted and implemented by the Union (INTERREG, INCO-COPERNICUS etc.) the attention will be focused on the possibilities directly offered by the Italian government, through the committed Ministries – the Ministry of Foreign Affairs (MAE), the Ministry of the University and of the S&T Research (MURST), the Ministry of Foreign Commerce (MINCOMES) among them – and, as well, by means of both laws and initiatives to be specifically referred to this part of Europe. A synthetic outline of this picture is given here below.

The Italian Ministry of Foreign Affairs (MAE) operates mainly through three general directions: Cooperazione allo Sviluppo (MAE-DGCS), Promozione Culturale (MAE-DGPC) and Cooperazione Economica e Finanziaria Multilaterale (DGCE).

The MAE-DGCS covers a number of different geo-political areas worldwide, with specific attention to developing countries, aiming to support their economies and institutions, as well as the peace-building and peacekeeping processes. The Balkan region, a clear short-term priority, counts on about EUR 190 million (some 11% of the total budget) for the period 2001-2003. The co-operative programmes are normally established on a bilateral basis, but the possibility of a multi-bilateral approach is also considered.

The scientific and technological co-operation is basically promoted by the MAE-DGPC in a strict contact with the MURST, through the operative protocols, which implement specific bilateral inter-government agreements. Italy has S&T Protocols with a relevant number of countries of Central Eastern Europe, and this is a relevant point. In fact, even if the bilateral protocols cannot provide fresh money for the project implementation (normally the financial support is limited to assure the mobility of the experts and researchers, as well as the organization of workshop, seminars and professional education courses), it represents a kind of institutional umbrella for the co-operation promotion, thus offering the general frame for a number of S&T relations between universities, R&D centres and high-tech enterprises. The MAE-DGPC also assures specific financial supports to a number of international scientific Institutes (including a few UNESCO and UNIDO excellence centres) operating on a multilateral and regional basis: a typical example of this arrangement is the ICS-UNIDO annual budget, performed through an ad hoc institutional agreement.

The general direction for the multilateral economic co-operation, in co-ordination with MINCOMES, deals with the multilateral co-operation in the fields of energy, environment and sustainable development, having the specific duty of increasing the presence abroad of the Italian industrial system, through both the committed institutes and companies (ICE, SIMEST, FINEST) and international financial organizations (FMI, World Bank, BERS). The two Ministries, in

particular, have the responsibility of promoting the application of Law 212/92, to be regarded as one of the reference tools for the economic and technological development in this part of Europe.

Together with Law 212/92, it is important to recall the very recent Law n.84 of 21st March 2001, demonstrating the special attention of Italy towards the stabilization and reconstruction of the Balkan countries. This law foresees: a) the availability of fund amounting to about EUR 100 million for the years 2001-2002; b) an additional fund of ECU 60 million for the period 2001-2003 for co-operative activities promoted by the MAE; and c) a special, additional fund of EUR 3.3 million for monitoring the environment from chemical and radio-active polluting agents.

Two major regional initiatives promoted (and practically 100% financed) by Italy can be mentioned here: a) the Central European Initiative (CEI), engaging 17 countries of the region; b) the Adriatic-Ionic Initiative (AII), in which 7 countries of the sub-region will co-operate on different development lines, with a strong involvement of the universities. Mr Paul Hartig, General Director of the CEI-Executive Secretariat, will give all the necessary information on the first initiative. As for AII other speakers will present a few examples of the foreseen activities in this conference. However, it deserves to be emphasized that despite the two initiatives having a broader programmatic scope, both of them give a central role to sustainable development strategy.

The majority of CEE countries recognises that sustainable development has the highest priority in assuring proper economic growth and helping the stabilization processes. The related activities, even if carried out through modalities and time schedules, which cannot be the same in all the different countries, present common interests and call for the commitments of important resources in terms of both investments and competencies. It is therefore of greatest importance to focus the operative S&T programmes on very well identified targets, taking into due account the real priorities indicated by the beneficiary countries themselves. All that being said, no doubt that a relevant part of the economical difficulties faced by the greatest part of the CEE countries in the last decade can be referred to the unsatisfactory performance of agriculture-related activities, in terms of poor technology, property related aspects, total production, quality control/certification, food safety, conservation and distribution systems. The negative consequences on the market, both internal and foreign, have generally been important. It is even difficult to believe that a few of those countries, despite their beautiful and fertile landscape, have been ready to import basic agriculture products from western countries, with catastrophic consequences on their domestic economies. On the other side the recovery of the productive systems does not necessarily requires to copy the same logic followed by Western Europe a few decades ago: no proper territory exploitation, intensive culture and breeding, uncontrolled use of chemicals, and absence of balanced rural development. A number of western countries, facing increasing problems (water pollution, soil acidification, eradication of the rural communities with consequent urban over-development, unexpected consequences of pure profit-driven policies) are reconsidering the development models. The new trend is encouraged by the market demand, now oriented towards high quality, safe and certified typical products. In short, sustainable agriculture will be an important part of the sustainable development strategy. No doubt that new technologies (informatics clearly included) and the development of territory-related SMEs, will play a major role in the proper implementation of this innovative strategy.

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ENVIRONMENT AND SUSTAINABLE DEVELOPMENT RELATED ACTIVITIES
in cooperation with the central south European and Adriatic countries

Mr Andrea Segrè

1. Background on Environment and Sustainable Development

All societies aspire to achieve economic development to secure rising standards of living and most of them, after achieving an acceptable level of welfare, aim to protect and enhance their environment. Unfortunately, many forms of economic development impose demands upon the environment: they use natural resources, which are sometimes in limited supply and generate by-products of pollution and waste. The seemingly conflicting goals of economic development and environmental protection have generated a tremendous amount of literature and while a comprehensive framework for joint consideration and trade-off remains to be attained, policy-makers now make use of "good practice" guidelines based on the concept of "sustainability" or "sustainable development".
The term sustainable development has been coined to describe the appropriate means of integrating economic development with the environment in view of the detrimental effects upon the physical condition of the natural environment associated to economic growth. Leaving aside initial attempts to integrate environmental issues in social and economic strategic evaluation, the Brundtland Report (World Commission on Environment and Development, 1987) bluntly rejected the argument that economic growth and environmental quality were mutually exclusive and the received wisdom that economic growth could only be achieved through a trade-off with the environment in terms of resource exploitation and quality. The idea is that sustainable development is an approach to development that involves maximising the net benefits of economic development subject to maintaining the services and quality of natural resources over time. Thus, incorporating sustainable development in decision taking requires a fundamental shift in our understanding of the processes associated with economic development and progress.
Sustainability goes beyond a mere integration of environmental goals into social and economic evaluation, as it incorporates a time dimension associated to limits to the availability of certain natural resources and threshold levels in environmental quality, which cannot be surpassed. Sustainable development also encompasses a simple notion of attempting to express and secure equity between people, but involves a complicated balance of economic imperatives and environmental capabilities.
Finally, sustainability assessment for a given spatial area requires to incorporate action from all actors in all sectors whose responsibility converge upon that particular area. In practice, an outright consideration of the sustainability of a policy or strategy would mean the redesign of each and every of the phases of a classical planning process, from goal formulation, to generation of alternatives, evaluation and integration of the general public into the process.
As it is obvious, the concept of sustainability implies not only the preservation of the quality and balance of the environmental resources affected by the proposed strategy but, what is equally important, a redefinition of criteria and evaluation tools of costs and benefits at short, medium and long range as to reflect through them the actual effects on the socio-economic environment, the relative importance between consumption and preservation and a equitable distribution of resources among regions, nations, and the world as a whole. In brief, the assessment of sustainability requires a much broader approach in time, space and social groups affected by a proposal.

2. Activities in Cooperation with Central South European and Adriatic Countries

In this general framework two related activities with Central South European and Adriatic Countries will be presented:

a) the results of the Working Group on "Environment and Sustainable Development" that gathered participants representing all the countries involved in the Adriatic-Ionian Initiative, e.g. Slovenia, Croatia, FR Yugoslavia, Bosnia and Herzegovina, Albania, Greece and Italy (*Culture as a bridge: Interuniversity cooperation in the Adriatic-Ionian Basin*, Ravenna, December 15-16, 2000);

b) the proposal of activating a (I.) Master Programme on "Sustainable Development of Agricultural, Environmental and Rural Systems" and of implementing a (II.) Research Project on "Rural Areas Sustainability in the Adriatic-Ionian Basin: Multicriteria Evaluation of the Agricultural and Coastal Systems (the Albanian Case) in the framework of Interuniversity network UNIADRION (Adriatic-Ionian Initiative).

The report of the UNIADRION Working Group on "Environment and Sustainable Development" can be found on www.uniadrion.unibo.it
, while the outlines of the Master Program and of the Research Project are as follow:

I. Master Programme on "Sustainable Development of Agricultural, Environmental and Rural Systems"

Description and strategy
Sustainability in agricultural, rural and coastal areas has al least three interrelated dimensions: ecological, social and economical. Just referring to the economic dimension WTO rules do not allow any more projectionist policies to intensify production, while sustainability coupled with multifunctionality may represent an occasion to multiply additional source of incomes (organic and natural farming, agritourism, recreational use of parks, and the like) promoting as well employment in rural areas.

This approach would also better answer to the dynamic of consumers' demand. Present societies, both in the West and in the East, are looking for safe food, high quality products, wide range of varieties, a better protected environment, preserved rural and coastal landscapes, as well as a strong concern is arising in relation to the animal welfare. In exchange it is clear that one should accept to pay for high quality products as well as to compensate farmers for their active role in preserving public goods.

The offer
The Master Program seeks to:
- offer a deep approach of the theoretical, legal and operational aspects related to planning and management of agro-environmental systems, and, on this background,
- develop sound methodologies for an active policy of sustainable development in the rural and coastal areas of the Adriatic-Ionian Basin.

Interdisciplinarity and inter-regional approach
The Master Program, linking the scientific community of the different countries involved in the Ionian-Adriatic Initiative (but also other countries may be involved in a second stage), aims to deal sustainable development of agricultural, rural and coastal areas with an interdisciplinary approach. The main issues relate to sustainable development will consider demography, environment degradation, income and production, the role of institutions at local, national and international level. Moreover, each Country/Focal Point involved will have a specialization.

Target of the master
The Master Program is addressed to young fellows (having already a three years degree) as well as officers (already working in local or national agencies) belonging to the countries of the Adriatic-Ionian Initiative.

These 'students' will be employed in a later stage having a strong competence in managing and planning agricultural-environmental and rural systems at various levels in local, national, international governmental and non-governmental organizations.

Program: cycles and modules

The Master Program is divided into 3 cycles and 60 university credits.
The first cycle includes a certain number of "virtual" preparatory (basic) modules given in each Focal Point (e-learning with tutor = 15 credits - October/December)
The second cycle includes some application modules in each Focal Point according to its specialization (face to face with teacher = 25 credits - January/April).
The third cycle is devoted to the field work and to a short dissertation (field work in different Countries = 20 credits - May/September)

Intermediate and final objectives

The intermediate objectives of the project are the activation of the Master by October 2002 and the recognition of the Diploma/Title the year after (by October 2003).
The final objective if the continuation of the program from October 2004 with own resources (sustainability of the program).

Realization and management of the program

Establishment of an Association of Institutions: UNIADRION ASSOCIATION FOR SUSTAINABLE DEVELOPENT representing the countries involved (each associated Institution is linked to the national Focal Point)
- Establishment of a Steering Committee composed by representative of each Institution (with the aim to manage from a scientific and logistic point of view the Master program)
- Establishment of a Scientific Committee including high-qualified external experts (evaluation, monitoring and control).
- Project Coordination and Management: Italy and FRY (Central Focal point).
- Country focal points in: Italy, Greece, FRY, Slovenia, Albania, B&H and Croatia.

Status of the project

- Seed money for starting the MS project will be provided by Italian Ministry of Foreign Affairs.
Further support expected from other donors (for additional information contact Mr Andrea Segrè, asegre@agrsci.unibo.it)
II: Research Project on "Rural Areas Sustainability in the Adriatic-Ionian Basin: Multicriteria Evaluation of the Agricultural and Coastal Systems (the Albanian Case)

Project description objectives

The main objectives of the project are the following:
a) realization of a territory information system (SIT);
b) calibration of simulation models on a sample area for their subsequent use on a national scale;
c) diffusion of knowledge (agronomy and agricultural techniques) for their utilization for technical support and professional training;
d) cooperation among experts in the agroenvironmental field;
e) development of a decision support system (DSS) for planning and management of the local agricultural systems.

Outputs

1) First two-year period activities:
a) construction of the data base with the existing hydrological, pedological, agro-environmental and managerial parameters necessary for the application of the models;
b) integration of the existing data base with on field surveys;

c) development and implementation of the integrated management model, the territory information system and the decision support system;
d) preparation of the first base and thematic maps;
e) application of the chosen simulation model to a sample area.
2) Last year activities:
a) further investigations necessary for the model validation with reference to the sample area;
b) application of the models on a national scale;
c) production of the definitive thematic maps.

Market potential

Public and private institutions committed with environmental protection and sustainable development of the territory could be interested in this product, as well as experts and technicians involved in activities such as technical support to the farmers and professional training and updating.

Existing partnership

The existing partners are the following:

- UNIADRION countries: all UNIADRION countries are involved in the definition, realization and management of the project. The net UNIADRION will coordinate periodic meetings aimed at the diffusion of the acquired knowledge, the monitoring and the evaluation of the results.
- University of Udine, Department of Crop Science and Agricultural Technologies – Mr Giovanardi: the University of Udine will participate by means of a team of experts who deal with the multicriteria evaluation of cropping systems and coastal territory and the use of previsional models and decision support systems; there will be a collaboration with the Universities of Bologna and Ancona.
- University of Tirana – Mr Peçuli: The University of Tirana will collaborate to gather all available information about the different aspects of the territory, to choose a suitable area for the calibration of the previsional models and to identify the most important impact indicators.

Expected partners

We expect to find new partnership with scientific institutions and local administrations of other East European countries in order to broaden our knowledge and increase the impact of the project. In particular, a similar case study would be of much importance in Croatia, for the same reasons that led us choose Albania as indicated in the introduction of the project description.

COUNTRY STATUS SURVEYS

STATUS OF COMPETITIVENESS OF SELECTED FOOD SECTORS IN HUNGARY

Mr Istvan Fehér

Introduction

The food industry is the most important customer of Hungarian agriculture. Eighty percent (80%) of the total agriculture sales is realized in the food industry. Agriculture contributes 5-6% and food industry 4-6% to GDP.

Recently, 20% of output from the food industry was exported. According to the year, the figure varies between 12-15% of the total export of the country. Around 85% of the agricultural and food exports are to the rest of Europe, and from that approximately 45% are destined for EU market, with a positive trade balance of US$700-800 million. The total Hungarian yearly agricultural and food products trade surplus fluctuated between US$1.5 and 2 billion.

During the last ten years important foreign investment was made in the food industry, mostly from EU-based companies who invested in dairy, vegetable, meat, poultry, canning, deep freeze, beer, vine, soft drink, confectionery and sugar sectors. The share of foreign ownership has reached approximately 60%, and the share of the state decreased to 2%.

In Hungary, about 9,000 food industry plants are operating, 410 of which employ more than 50 employees; and 7,600 has less than 11 employees. It is important to mention that 84.6% of food production is represented by the top 383 companies.

Interestingly enough, the 10 million inhabitants of Hungary consume about 95% of the Hungarian-made food products, of which are purchased 28% in hyper and supermarkets, 26% in discount or wholesale stores and 37% from small retail or discount shops. The catering industry is made up of more than 40,000 operating units. The total agri-food sector yearly export contribution is US$2.5 to 3 billion, and the import bill is US$0.8 to 1.0 billion.

Several international companies have acquired stakes in the Hungarian food sector during privatization and have brought with them cutting edge practices of production. These companies have embarked on large-scale investment projects and their marketing function has been definitely superior to that of their Hungarian competitors. The ratio of foreign presence is substantial first of all in the dairy and poultry sectors from among those analysed, but there are major international stakes in meat processing as well as in the processing of fruit and vegetables.

Foreign presence in the sectors covered by the project will not automatically guarantee the international competitiveness of these sectors. Almost all of the branches of the food sector suffer from surplus capacity and the five sectors studied are no exception. All the more so because a majority of these plants – mainly the small and medium sized operations with Hungarian owners – use obsolete technology.

High quality and efficient food processing capable of producing goods that meet world market requirements is a major driving force in the improvement of the competitiveness of agriculture. The future of Hungarian food processing and of the five branches studied depends on attaining higher levels of competitiveness.

Results and facts

1. The Meat Sector

The meat sector is one of the most important branches of the food sector in Hungary and as such, is the major market for animals for slaughter. The meat sector employs the largest number of people in food processing with more than 700 operations pursuing meat processing as their core business.

The number of plants with USDA and EU export certificates is substantial in the meat sector. These plants comply in all respects with international requirements of hygiene. More than two thirds of both pig and cattle slaughtering capacities are licensed to export to the EU. About half of the plants are certified under ISO and/or HACCP.

In contrast with the aforementioned factors that boost competitiveness, there is a cluster disadvantages burdening the Hungarian meat sector in the face of Western European competition. The sector suffers from low capacity utilization, which drives high, the ratio of fixed costs to total production costs. The utilization of slaughtering capacity is especially disadvantageous and capacity utilization below 80% even in manufacturing. Plant concentration and specialization is more significant in EU countries that are considered more competitive in terms of benchmarking and they are capable of utilizing the advantages of economies of scale more efficiently.

The plants sold to foreign owners have implemented large-scale development projects in Hungary. Nevertheless, the technical and technological level of Hungarian meat processing plants falls short of that of the competition in Western Europe. The low profitability of meat processing disallows major capital expenditure.

Hungarian exports are typically goods with low added value, whilst the products manufactured for the domestic market are made using old recipes and contain decreasing amounts of meat, which epitomizes outdated modes of food consumption. Although innovative and successful products are few and far between there are some signs of improvement triggered by intensifying competition. In contrast, higher added value products obviously sold at higher export prices dominate the export portfolio of competitors in Western Europe.

The competitiveness of the Hungarian meat sector suffers from inferior productivity ratios in raising pigs in contrast with those in developed countries. The majority of large pig farms meet Western European standards. Small and medium sized plants show vast differences in terms of weight gain and feed conversion. The ratios of small private farms are even worse. Meat yield ratios are also poorer than in developed countries. Improving the technology of pig and cattle raising for the beef sectors as well as in rearing sheep is of fundamental interest so as to be able to improve competitiveness. The progeny in sheep farming is low, which is a consequence of the fragmented nature of the stock of animals and the general reduction of the level of professional know-how.

2. Poultry Sector

The international competitiveness of the poultry sector is more favourable than that of the other sectors. Hungarian agriculture is deeply interested in maintaining the competitive position of this sector after European integration. Its innumerable products, commercial relations and structural features may help the poultry sector enters the group of countries that lead the European Union in producing poultry meat. Yet, this sector also displays the symptoms of structural disorders typical of Hungarian agriculture at large.

The genetic bases of the poultry sector are sound. Hungary has decade-long ties with international breeding organizations and hence Hungarian breeding stock is sufficient in terms of

quality and quantity as well as choice to meet market demand. Despite the good breeding stock, the efficiency of raising poultry for slaughtering purposes is by far not satisfactory. The fattening ratios of the broiler variety that represents the mainstream of raising poultry fall short of international standards of output.

Veterinary circumstances are appropriate in Hungary and are not any worse than in EU countries. A comparative study reveals that the competitive edge Hungary used to have in the cost of broiler production and processing over countries with developed and highly efficient poultry farming sectors no longer exists.

The surplus slaughtering capacity poses a greater problem. The utilization of poultry slaughtering lines is a mere 63 per cent. The factors of economies of scale are hardly present in this sector either. That is why the concentration of plants should be increased so as to allow the Hungarian poultry-processing sector to face its Western European competitors.

The tradition that Hungarian plants process several species in contrast with the foreign practice of focusing on a single species could be seen as an advantage for a number of reasons: it allows greater flexibility in accommodating the seasonal changes of market demand, it flattens the fluctuation of profit generation due to the differences of the species and to seasonal changes and it reduces unit overhead. These are competitive advantages to be maintained.

The purchasing price of broilers in Hungary shows no advantage in contrast with the producers that dominate the EU market, moreover, Dutch and Danish prices have remained lower in the long term than Hungarian producer prices. In certain years, even German and Belgian prices stayed below Hungarian ones.

The competitiveness of Hungarian poultry processing seems to be favourable in this respect. Our European competitors suffer similar drawbacks to us, as poultry producing countries have to import protein, and their climatic conditions or transport distances are not more favourable. However, the productivity ratios are superior in the leading poultry producing countries of the European Union than in Hungary, and the macroeconomic environment is also substantially more favourable. Hungary's price and cost advantages over western competitors have thinned away. Hence, heavy reliance on the competitive advantages described above and the elimination of drawbacks are both required for the Hungary poultry sector to compete successfully against Western European market participants in both the domestic and export markets.

3. Egg sector

The international competitiveness of the Hungarian egg sector is uneven. Hungarian egg farmers realize relatively low prices as compared to the price of eggs internationally. Egg prices in Hungary are even lower than in neighbouring countries of Central and Eastern Europe, which creates favourable opportunities for exporting into these countries. The fact that the price of eggs is lower in France and the Netherlands than in Hungary may come as a warning and is indicative of the lower total production costs of French and Dutch producers. Imports from France and the Netherlands are expected to strengthen after EU accession.

Current feed prices are lower than the international average. Maintaining this situation may create substantial competitive advantages for Hungarian egg farmers. It is important however to ensure that the price advantage does not flow from the inferior feed quality. Feed quality and conversion are of extreme importance in terms of competition as feed cost is the single major cost element of producing eggs.

The profitability of egg farming, however, is completely different from the costs incurred. The profits made by Hungarian producers are much inferior to the international average, which effects competitiveness adversely, as low profit margins block the necessary capital expenditure and

modernization projects. On the cost side, there is no room for cutting feed prices; on the contrary, they are expected to increase in the long run. The curb to any increase in the price of eggs is the expected downturn of demand. Improvements in competitiveness and profitability should come from higher cost efficiency and better economies of scale.

As compared to developed countries, Hungary has a significant backlog in egg grading and packaging. The number and total capacity of egg grading and packaging machines are disproportionately low if one considers the total capacity of egg production. The European Union boasts high capacity egg grading and packaging machines operated by large-scale egg farms. In addition, small and medium capacity packaging units are operated to grade and package the eggs produced by a number of producers in toll arrangements or after purchasing. Regulations on commercial distribution provide the rules of egg grading and packaging. Hungarian producers will need to complement the system of egg farming with grader and packaging machines so as to be able to improve competitiveness and to achieve compliance with EU regulations.

The value added by Hungarian egg processing is much smaller than in developed countries. The higher rate of egg processing and the much larger volume of sales of processed egg products in the EU and in developed countries can be seen as the consequence of more stringent food security requirements.

4. Dairy Sector

The competitiveness of the dairy sector also shows a mixed picture in Hungary. Per capita consumption is much lower at present than the EU average, which also influences the demand for dairy products. The difference is particularly striking in the area of cheese consumption. Improvements in the standard of living and proper marketing can contribute to a marked increase in the consumption of dairy products. The choice of products available in Hungary is medium. There are only a few unique products with a much better potential for competitiveness upon EU integration. The technical standard of processing capacities needs further improvement. Furthermore, it would be practical to scale down some production capacities with economies of scale in mind. The existence of large-scale and efficient dairy farms capable of providing raw material of excellent quality to processing plants is considered to be a competitive advantage for the dairy sector.

Although the average yield of milk is lower in Hungary than in countries with developed dairy farming, the yield of top-of-the-list Hungarian producers match even the most competitive counterparts. The quota system in effect in the EU may put a cap on any significant increase in milk yields.

Recent years have brought a substantial rise in the price of milk in Hungary, but even so, the price is still much lower than in the countries of Western Europe. The increase in the price of raw milk influences the competitiveness of dairy farms favourably but works against processing operations as they can embark on fewer and fewer capital investment projects due to the flattening of profit margins. The low level of consumer income is a barrier to increasing the price of dairy products.

The quality of raw milk produced by corporate farms meets international standards both in terms of germ count and somatic cell count, whilst germ count is still too high in private farms. Small private farms should therefore exert effort to convert into hygienic and clean dairy operations. In terms of fat content, Hungarian dairy farming ranks below developed European standard, but protein content show marginal deficiencies only. The structure of Hungarian milk production deviates substantially from that in European countries. Milk processing in Hungary shows an abundance of operations in contrast with the number of units in EU countries. There, the level of concentration is substantially higher, although the tendency to concentrate is observable in Hungary too. The average daily turnover of milk at Hungarian processing plants is a fraction of that in large Western European

operations. Hence, the ratio of fixed costs to unit cost of production is much higher in this country than with the leading processing operations of developed countries.

The efficiency of live labour (number of employees/annual amount of processed milk) is much lower in Hungary than in the EU. Major improvements are needed in this domain to reach higher levels of competitiveness. The percentage share of dairy products from food expenditure is not at great variance with the figure typical of developed countries, yet the difference is large in absolute terms. The structure of consumption in Hungary is also slightly different from that in Western Europe. There, the consumption of cheeses is much higher, whilst the consumption of fermented products and drinking milk dominates in Hungary. The utilization of raw milk obviously follows this pattern.

5. Fruit and vegetables sector

In food processing, distributors and consumers expect to see reliable certificates on the origin of primary agricultural products. In the fruits and vegetables sector, attention is focused mostly on methods of producing fruits and vegetables, both fresh and processed, on food security, and on quality.

There are three forms of producing fruit and vegetables: the traditional, the integrated and the organic. Traditional agricultural practices tend to have supremacy in developed countries and are also the typical form of production in Hungary. On the other hand, integrated production, which is a form of transition from traditional farming to bio-farming, is beginning to play a much greater role in EU countries. The goal of integrated farming is to reach good yields while expenditures are kept at a minimum. Quality assurance and good farming practices play an important role in integrated systems. The production of fruit and vegetables depends on a number of climatic and agronomic factors, one of which is suitable soil. Farming for fruit and vegetables tends to be seasonal, which also influences the utilization of processing capacities. On the other hand, food chain stores have a preference for offering fresh fruit and vegetables all year round and hence source their raw materials from different locations. Hungarian farmers play an important role in supplying fruit and vegetables in Hungary despite the increasing share of imports. The volume of Hungary's exports to the European Union is insignificant in comparison with the total output of fruit and vegetables in the EU; nevertheless, the EU is a major and important market of Hungarian farmers.

The processing of fruits and vegetables is subject to a set of manufacturing standards. The standard requires that each operation be clearly defined, controlled through a system of quality assurance and performed in an environment, which guarantees that the product will meet the requirements both in terms of food security and quality. Processed fruit and vegetable commodities are produced by high capacity operations using highly mechanized and centralized lines in the European Union. That offers great advantages in economies of scale by keeping procurement and specific costs low. Small and medium sized operations tend to produce more of specialty products that require unique product development solutions and packaging. In this respect, Hungarian plants qualify as medium sized or small. Whilst small and medium sized operations can excel in the EU market by offering distinct, unique and local products, such plants and products are limited in number in Hungary. Preserved and quick-frozen products occupy a major position in food consumption in Europe and Hungary. The sector of quick frozen products has great future potential and opportunities in the EU. Yet, the producers of these products must observe stringent hygienic requirements and have proper technological know-how and equipment.

Conclusion

Quality should be the central element of the business strategy, which can be formulated on the level of individual farms and companies in a given sector, including the whole product chain. Without

a successful quality-oriented development, Hungary cannot be integrated successfully into the European Union. This is one of the main key elements in the sector strategy and sustainability policy to accelerate the implementation of the latest technologies in the selected sectors and developing the knowledge level in the field of human resources. Local and international investors have to examine the consequent influence of the EU in policy development and implementation and to evaluate what must be done or changed (in both policy and implementation measures) in order to realize sustainable development.

MOLDOVAN AGRICULTURE – GENERAL STATUS

Mr Vasile Bumacov

Development and revitalization of Moldovan agriculture is very important for us from both the economic and political point of view. Moldova is a country, which specializes mainly in agriculture, and any small changes in the Common Agricultural Policy of the European Union may affect emerging trade between EU and Moldova.

After the disintegration of the former Soviet Union and since gaining its independence in 1991, the Republic of Moldova started to implement economic transformations that are common to all post-socialist countries from the region.

Most of the problems that are common to countries in transition are present in Moldova too. At the same time, the Moldavian agricultural sector is moving out of serious problems that lasted for several years. The actual government is making significant efforts to revitalise the economy. First of all, during the last year, important steps were taken in the field of privatization of enterprises. The government is working also on creation of a new supportive institutional framework. The strengthening of public institutions and improvement in the provision of public goods and services for privatized agriculture is an essential condition for ultimate success of the reforms in agriculture.

In the past, Moldova had an intensive agriculture. This was mainly due to a huge amount of subsidies paid by former Soviet System to agricultural producers. After the disintegration of the FSU, agricultural sectors of the country stagnated for a long period because of lack of financing as well as slow privatization and restructuring processes. Due to the transformations and stagnation that took place, agricultural production in Moldova decreased by half. Now, the Government is facing the difficulties caused by the transition process on the one hand, and is trying to rebuilt the agricultural sector by promoting sound development policies, on the other hand.

Moldova disposes of the necessary legal framework for agricultural development. The government provides for liberalism in the development of macroeconomic reforms. The prices for agricultural production and inputs are totally liberalised. Republic of Moldova is one of the first former Soviet Union countries, which implemented a real land privatization, the land was transferred into the private property. After the land privatization process, the land market has become functional. Agricultural land is being sold and purchased by physical and legal entities. The processing industry is almost totally privatized. Recently, the parliament has made the decision to privatize the wine industry and tobacco processing plants, the only plants which were partially owned by the state. The market concentration in food, drinks and tobacco industry is still high. Most of the former state companies after the privatization process had kept their market share. Moldova has 130 wineries, 27 canneries, 9 sugar beet processing plants, 9 large meat-processing plants and a number of small processing plants.

During last years, a big differentiation of the technical and economic status of the processing enterprises mainly created during the planned economy has occurred. After privatisation, many of these enterprises have installed modern equipment, improved organization and management as well as raw material supply and trade channels. Many of them have significant development potential with the condition of capital flow for equipment modernization.

The agricultural policy promoted by the government at present is to accelerate the process of reforms and to shorten the transition to a market economy. In the past, we had quantity agriculture making it highly intensive, environmentally unfriendly, and even sometimes destructive. Now, the emphasis is put on promotion of quality agriculture, which will also be environmentally friendly. It is

linked to control of fertilizers and pesticides, conservation of landscapes, organic agriculture, etc. This is imposed also by climate conditions and other factors that are favourable for an environmentally sound and organic agriculture.

Fertile black soil covers more than 80% of the country and makes agriculture highly productive. The country has a temperate continental climate, with short and relatively warm winters and long hot summers. Moldova's fertile land and accessible labour can support an agricultural sector specializing in high yielding labour-intensive crops for export markets. In order for the sector to continue to develop in this direction, policies are being pursued to create an open and competitive economy based on private ownership.

One of the aspects that should to be mentioned – taking into account the rich soil, skilled and relatively cheap labour force and availability of labour force at the moment – is the production of organic agricultural products. Taking into account the increase of the demand of organic agricultural products on the western markets, this can become a huge opportunity for Moldova. We believe that this aspect is being paid less attention than it deserves at the moment, and can become one of the most important in the future.

The Republic of Moldova is now in the process of accession to WTO. Membership in the World Trade Organization will have advantages. Of course we will have to face some disadvantages as well such as decreasing protection of local agricultural producers by decreasing customs duties (a small protection offered to farmers), and leaving them to face all problems arising from that, especially when the Moldovan Government cannot pay subsidies. At the same time, we are confident that only by developing organic agriculture, which emphasizes sustainability, human health, and is reducing the human and environmental risks will become competitive on the EU market.

Our permanent attention is focused not only on the decisions made by the EU on Common Agricultural Policy, but also on the problems caused by BSE, Foot and Mouth disease. Under these circumstances it is necessary to take necessary actions in order to re-orient the policy of livestock production and breeding, as well as feed safety.

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SUSTAINABLE SAFE FOOD AGRO-INDUSTRY DEVELOPMENT IN MACEDONIA

Mr Toni Dovenski

Facts and Figures about Macedonia and Macedonian Agriculture

Republic of Macedonia	
Total area (in sq km)	25,713
Population	2.010,000
Import (in billion dollars)	1.710
Export (in billion dollars)	1.320
Trade balance (in billion dollars)	-0.390
Current exchange rate of NBM in MKD per US$1	70
Inflation Rate	4%

Macedonian agriculture
Macedonian Agriculture accounts for 13-15% of GDP (only in production sector)
Annual trade exchange of agricultural products is over US$500 million
Labour force in Agriculture: 23-25%
Arable land: 650 000 ha (80%private property, 20% former State Agricultural enterprises)
Irrigated Land: 123,000 hectares
Average farm size: 2.4 hectares

Structure of arable land	
Cultivated Soil and gardens	554,162 ha (84%)
Orchards	19,663 ha (3%)
Vineyards	9,298 ha (4%)
Meadows	4,596 ha (9%)

Main field crops	
Wheat	270,000 t.
Corn	120,000 t.
Barley	98,000 t.
Sugar beet	82,000 t.
Whole rice	23,000 t.
Sunflower	21,000 t.
Tobacco	18,000 t.

Main fruit and vegetable crops	
Tomatoes	150,000 t.
Peppers	120,000 t.
Watermelon	150,000 t.
Apples	70,000 t.
Plums	22,000 t.
Sour Cherry	7,500 t.
Grapes	215,500 t.

Main livestock products	
Lamb meat	6,588 t.
Cheese	22,000 t.
Pork meat	8,709 t.

Beef meat	7,987 t.
Chicken	3,343 t.

Sufficiency in export products
Fresh and processed fruit and vegetable
Rice
Tobacco
Cigarettes
Wine
Lamb meat
Eggs

Deficiency in import products
Cereals
Beef meat
Pork meat
Chicken
Milk and dairy products
Animal Feed

Export markets	
Lamb meat	EU Market, Croatia
Wine	EU Market, Slovenia
Tobacco	EU Market, USA, Japan
Tomato	Yugoslavia, Bosnia, Croatia
Peppers	Yugoslavia, Bosnia, Croatia

Livestock breeding

- Cattle breeding

Number of animals in 2000	
Cattle, total	295,000
(private sector 92%)	
Cows and pregnant heifers	175,000
(private sector 95%)	
Index (1999 = 100)	99
Index (1995 = 100)	90
states farms	56
22 Farmers Associations	10,000 cows

- Sheep breeding

Number of animals in 2000	
Sheep, total	1,250,000
(private sector 92%)	
Ewes for breeding	890,000
(private sector 91%)	
Index (1999 = 100)	97
Index (1995 = 100)	70
(state farms)	72
32 Farmers Associations	300,000 sheep

- Goat breeding

Total in 2000	79,000
(private sector 99.5%)	

Index (1999 = 100)	90
• Horse breeding	
Total in 2000	56,500
(private sector 99.5%)	
Mares and fillies in foal	13,300 (23%)
Index (1999 = 100)	99
• Pig breeding	
Number of animals in 2000	
Pig, total	204.000
(private sector 62%)	
Sows and pregnant gilt	29.000
(private sector 65%)	
Index (1999 = 100)	90
Index (1995 = 100)	106
(state farms)	111
• Apiculture	
No of bee families	75,500
(private sector 98%)	
Index (1999 = 100)	101
25 Keepers Associations	

Subproject: Livestock Production and Management for Safe Production
Aim: Sustainable and profitable livestock production using new techniques and technologies
Sheep breeding: Establishing and utilization of data basis, selection, improvement of reproductive capacities, diagnostic and prevention of contagious diseases, education of farmers, farm systems and management, milk proceeding systems.
Goat breeding: Establishing and utilization of data basis, selection, improvement of reproductive capacities, diagnostic and prevention of contagious diseases, education of farmers, farm systems and management, milk proceeding systems.
Cattle breeding: Establishing and utilization of data basis, selection, improvement of reproductive capacities, diagnostic and prevention of contagious diseases, education of farmers, farm systems and management, milk proceeding systems.
Additionally, could be included: bee keeping, pig breeding, and horse breeding.

Team for management and implementation of the subproject

- Veterinary Institute – programmes for reproduction, herd health management, quality control of final products, and education of veterinarian practitioner.
- Ministry of Agriculture, Forestry and Water Economy (Veterinary Department) – to monitor the epizootiological situation, collection of samples for quality control.
- Ministry of Agriculture, Forestry and Water Economy (Project Implementation Unit) – will be in charge of overall project coordination, cover financial and procurement issues, contracting local consultants, support and development of advisory service within the farmer associations, establishing a training centre for innovations in sheep and goat breeding, etc.

Target group
Private farmers, members of regional and local farmers associations

Performers

All project activities will be realized by the local veterinary station and private advisors – engaged by local/regional farmer association. Selection will be carried out upon criteria maintained by team for implementation, and announced as an open competition.

Expected outcome

Building and establishing of Genetic Centres for different domestic species and breeds, and pilot models for sustainable farm systems. For example, 1) 150-200 dairy sheep for intensive production, in average 300-400 kg./lactation, or 2) 500-1,000 sheep of indigenous breed (Pramenka), double purpose – milk and meat, for extensive or semi-intensive production.

Both models could be applied for organic production in mountain areas. By using advanced biotechnological methods in animal reproduction, it will be possible to increase the number of offspring/dam/year (i.e. two lamming in one year or three lamming in two years).

Goat breeding: The most suitable farm system is probably a farm with 150-300 goats in hill-mountain areas, using modern technology. Support of pilot models for production of food with standard quality, including organic production.

Building and providing equipment a Centre for training and innovation of knowledge, whose purpose will be to educate and train to apply advanced techniques and technologies in sheep and goat breeding on farm level.

Cattle breeding: Support of farm systems for semi-intensive production, 10-30 cows of indigenous breed (Busha) or crossbreed (Busha x double purpose breed) in hill-mountain areas.

Activities

Activities and timetables for the realization of this project will be prepared according to the previously established development programmes for particular branches of the livestock production and in compliance with project objectives and expected outcomes.

An experts' council will establish instructions and criteria for selection of private advisors who will deliver the development programmes (vet stations and private advisors). The selected advisors are expected to submit quarterly progress reports to the Expert's Council. Their performance will be permanently monitored.

International collaboration

Collaboration between participant countries in this project will be realized on several levels:

- between farmers and farmer associations – through joint training courses, study tours, excursions, as well as electronic communication.-
- between institutions engaged in development of agriculture will comprise – work together on research activities, education of experts, and mutual exchange of experiences
- between higher educational institutions – short courses and specializations
- between Ministries, mutual visitation and verification of contract for collaboration

Author details, affiliation, and activities

Veterinary Institute of Skopje is a veterinary research and applicative scientific institution and all its activities are result of the functioning in these fields of the veterinary medicine, stock-breeding as well as other branches of production. The Veterinary Institute activities comprise:

- Research and educational work in the field of veterinary medicine and stock-breeding.
- Application of the research results in practice.
- Care for the training and advanced studies of the young researchers.

- Diagnostic examination in regard to infectious, parasitic, breeding an organic diseases of domestic animals, birds, fish, bees, game etc., offering appropriate expert suggestions for their prevention and eradication.
- Hygiene control an supervision of plants for food production and processing of foodstuffs of animal origin.
- Bacteriological, hygienic and technological quality of products of animal and other origin and consumer goods as well.
- Analyses and superanalyses of possible bioresidues present in foodstuffs of animal or other origin (pesticides, arsenic and heavy metals, antibiotics, sulfonamides, hormones, polychlorinated biphenyl's etc.)
- Hygienic-bacteriological analyses and superanalyses of fodder and waists used for domestic animal nutrition.
- Checking and permanent control of a degree of radioactive contamination of domestic animals, foodstuffs of animal and plant origin, as well as fodder.
- Examining of the characteristic and pathogenity of the pathogenic lines-carriers of infectious, parasitic and other diseases, taking participation in production of appropriate protective biological preparations (vaccine, serums, antigens and hormones), as well as chemotherapeutics

The Institute is the owner of the 'Rainbow Quality Food' trade-mark which includes implicitly food produced in the republic of Macedonia without residues: antibiotics, radionucleides, pesticides, hormones, heavy metals etc. It is for the purpose that laboratories in the Institute perform random testing of those products in competition of receiving this mark.

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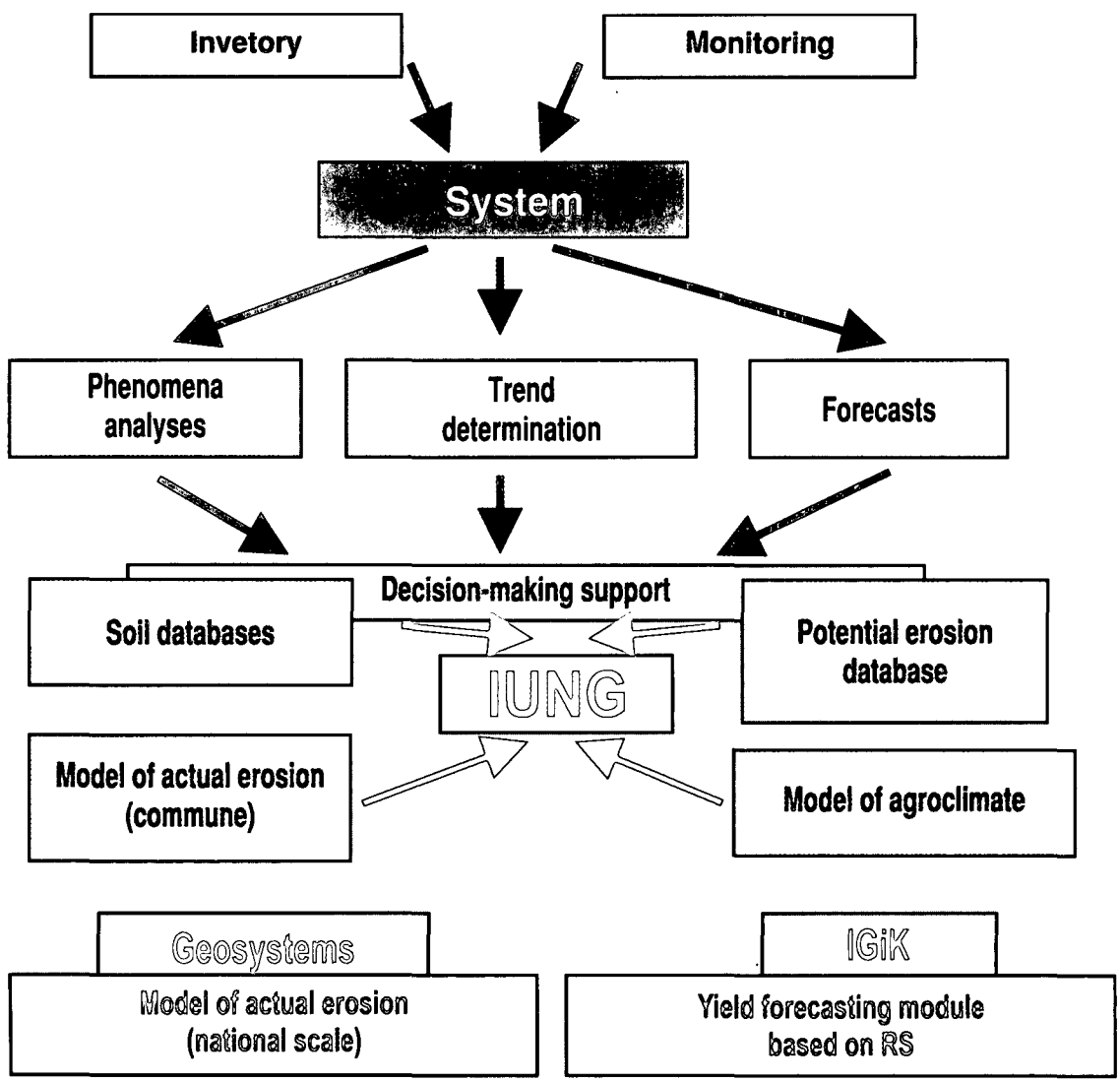
INFORMATION SYSTEM ON AGRICULTURAL PRODUCTION SPACE IN POLAND

Mr Andrzej Zaliwski

The system has been built at the IUNG in the years 1996-2000. The Model of actual erosion of Poland comes from co-operation with Geosystems in Warsaw (a private company). Yield forecasting module based on remote sensing has been built at the Institute of Geodesy and Cartography (IGiK) in Warsaw. The basic goal of the system is to collect and process agricultural data together with information about the natural environment so that rational decisions can be made with regards to agriculture production areas and the relating rural areas at the national and regional scale. In order to meet the objectives, the system has two components for data acquisition, inventorying and monitoring. It contains algorithms and models needed to process data, useful for supporting the decision making process. The main models are – the model of agroclimate, the fluvial erosion model and models of crop yield prediction based on remote sensing. Other components are spatial databases of soil quality classes, soil complexes, utilization of soils, potential erosion, digital terrain models, soil properties, soil pollution, quality of plants etc. With the aid of pilot applications the system makes possible to automate complex, environmental and agricultural quantitative analyses. An important component of the system is an interface developed to allow access of users to basic information in the form of thematic maps. The system creates a base for decision support in the scope of agricultural production and food economy at the national and regional scale (vojvodship, county, commune). The potential users of the system are planners, designers, policy-makers, scientists, advisors and farmers.



Functions of the system

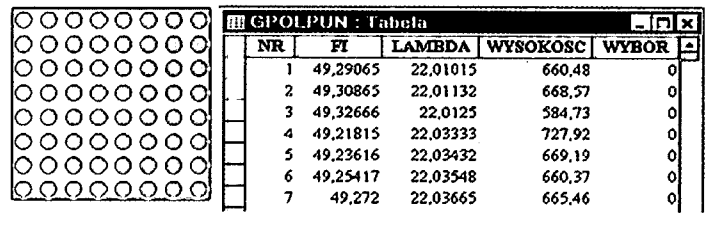
Modules of the system. Soil databases, potential erosion database, model of actual erosion for commune and model of agroclimate have been built at IUNG. Model of actual erosion at national scale has been built at Geosystems (a private company). Yield forecasting module based on Remote Sensing has been built at the Institute of Geodesy and Cartography (IGiK).

Examples of the use of the system

The system presented could be used, among others, for:

- isolation of regions of intense pollution
- indication of regions of special quality with regard to specific production goals
- determination of regions threatened by degradation, erosion, requiring land reclamation etc.
- evaluation of potential volume of production
- solving tasks of site location and spatial planning

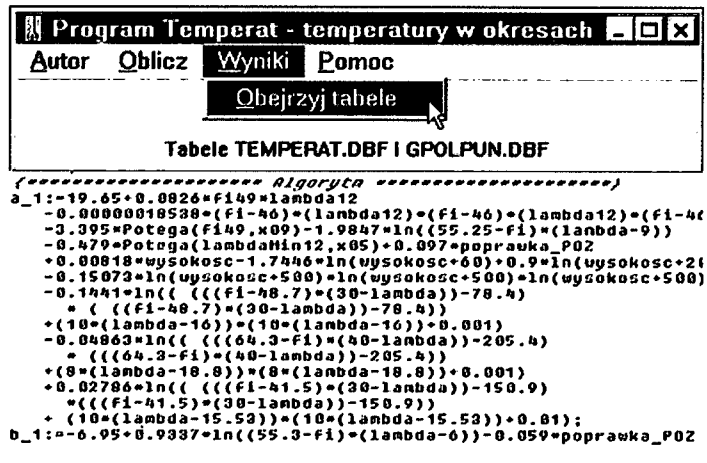
Data



GPOLPUN : Tabela

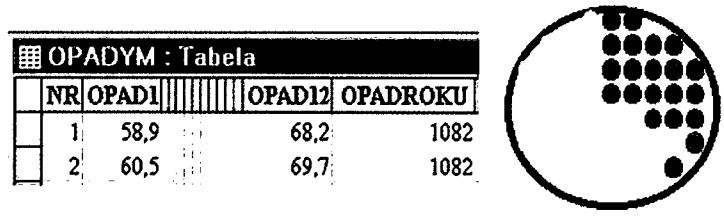
NR	FI	LAMBDA	WYSOKOSC	WYBOR
1	49,29065	22,01015	660,48	0
2	49,30865	22,01132	668,57	0
3	49,32666	22,0125	584,73	0
4	49,21815	22,03333	727,92	0
5	49,23616	22,03432	669,19	0
6	49,25417	22,03548	660,37	0
7	49,272	22,03665	665,46	0

Programmes




```
{********************* Algorytm *********************}
a_1:=-19.65+0.0826*fi49*lambda12
   -0.000000010538*(fi-46)*(lambda12)*(fi-46)*(lambda12)*(fi-4(
   -3.395*Potega(fi49,x09)-1.9847*ln((55.25-fi)*(lambda-9))
   -0.479*Potega(lambdaMin12,x05)+0.097*poprawka_POZ
   +0.00018*wysokosc-1.7446*ln(wysokosc+60)+0.9*ln(wysokosc+2(
   -0.15073*ln(wysokosc+500)*ln(wysokosc+500)*ln(wysokosc+500)
   -0.1441*ln(( (((fi-48.7)*(30-lambda))-78.4)
     * ( ((fi-48.7)*(30-lambda))-78.4))
   +(10*(lambda-16))*(10*(lambda-16))+0.001)
   -0.04963*ln(( (((64.3-fi)*(40-lambda))-205.4)
     * (((64.3-fi)*(40-lambda))-205.4))
   +(8*(lambda-18.8))*(8*(lambda-18.8))+0.001)
   +0.02786*ln(( (((fi-41.5)*(30-lambda))-150.9)
     *(((fi-41.5)*(30-lambda))-150.9))
   + (10*(lambda-15.53))*(10*(lambda-15.53))+0.01);
b_1:=-6.95+0.9337*ln((55.3-fi)*(lambda-6))-0.059*poprawka_POZ
```

Results



OPADYM : Tabela

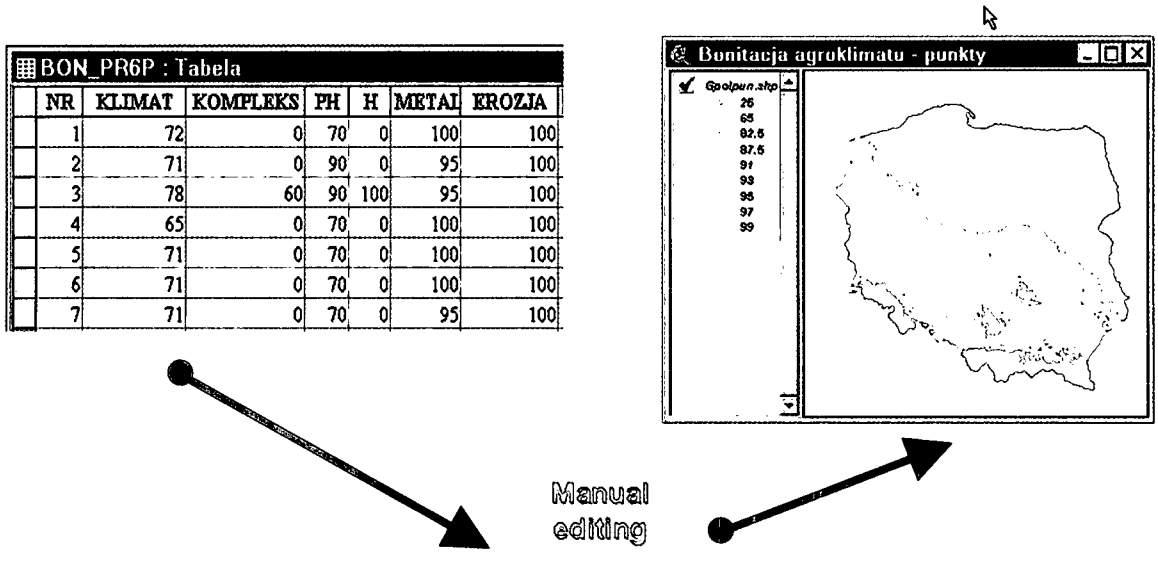
NR	OPAD1	OPAD12	OPADROKU
1	58,9	68,2	1082
2	60,5	69,7	1082

Model of Agroclimate for climatic map construction consists of three parts, the data (point cover), programmes that compute elements of agroclimate and tables with results. The input (co-ordinates of points) for calculations is taken from the point cover. On the basis of the tables with results climatic maps may be created.

Agroclimate

Due to lack of space only the model of agroclimate out of the whole system is presented here above and only very briefly. The model of agroclimate constructed at the IUNG has two variants: one is for calculating elements of agroclimate in a point and the other for climatic map construction. The same algorithms are used in both variants.

The model of agroclimate for calculating elements of agroclimate in a point has the form of one computer programme whereas in the model of agroclimate for map construction a separate programme is used for computing each element of climate. These latter programmes couple the algorithms of statistical distribution of climatic elements with a digital model of terrain (DMT), which has the form of a point cover. The points of the DMT are evenly spaced over the area of Poland in a mesh 2 by 2 km. The output from this variant of the model may be in the form of point and polygon covers of climatic elements on the basis of which maps that present distribution of elements of agroclimate over a given area may be created. In the model of agroclimate for climatic map construction the programmes use the same data from the point cover, but the results go to different tables. Each table with results of computation can be related to the point cover and used for map creation. Maps might be produced directly from these tables and the point cover, which procedure gives especially satisfactory results with maps of small format (i.e. A4). However, larger maps are produced from polygon covers created by interpolation of the point cover.



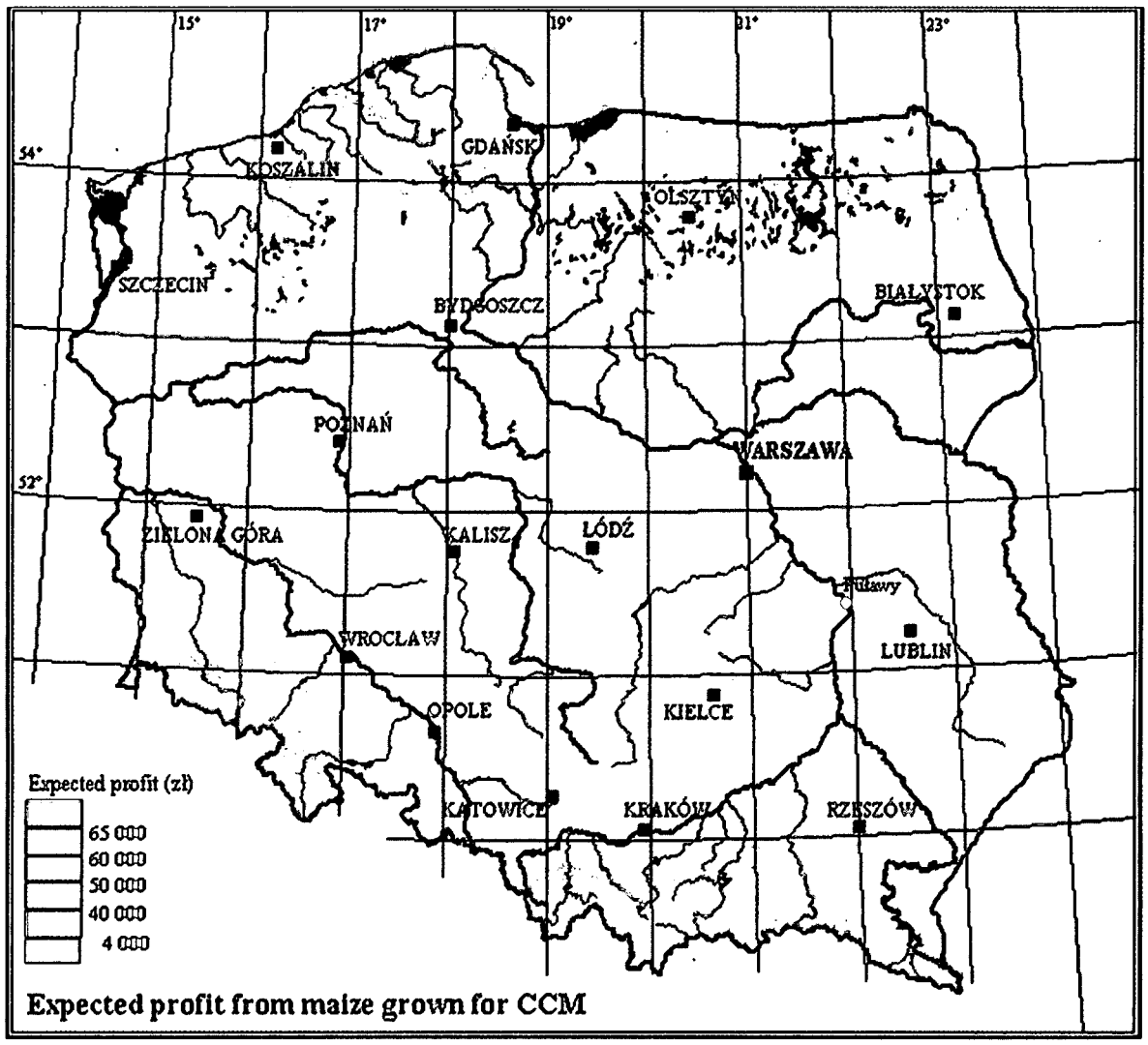
Climatic map production is now easy due to the use of the Model of Agroclimate. Here the cover of valuation of climate in Poland is made automatically. The map needs only adding other necessary information.

Elements of the climate represented in the model so far are as follow:

- temperature: mean monthly and yearly values, other periods (vegetation period, industrial period, winter, summer, any period), derived values
- precipitation: mean monthly and yearly values, other periods, probability of precipitation
- sunshine duration: mean monthly and yearly values, other periods
- phenological periods: probability of maize ripening, dates of maize sowing and ripening, dates of hops ripening
- relative humidity of air: relative humidity of air at 1300 hours

Application of the model of Agroclimate

The model makes it possible to present mean values of an element of climate in an arbitrary period as well as to determine the resultant action of selected elements and even add other information, i.e. economic data. In an example shown below, the results obtained from the economic analysis of a technology of maize production were used as input to the climate model. The information in the map shows spatial variation of profit to be gained from production of one utility type of maize and can be used for instance for advisory purposes.



The map of expected profit from maize for CCM (20 hectares area).

An example of the end product of the model is the Agroclimate Atlas of Poland (available on CD) which contains 87 climatic maps. The model of agroclimate for calculating elements of agroclimate in a point is available in the form of a computer programme. The end users of this variant of the model as well as of the Atlas can be farmers, agricultural advisors, planners, institutes, universities and schools.

Author details, affiliation, and activities

The Institute of Soil Science and Plant Cultivation (IUNG) is a research institute established as a service for the Polish Ministry of Agriculture and Food Economy. It is the largest and the oldest agricultural research organization in Poland. In the IUNG, there are 376 employees of which 140 are scientists. The research is directed at sustainable development of agricultural production and protection of terrestrial ecosystems. The IUNG presents multidisciplinary approach in all areas of agricultural research. The organizational structure is based on 13 research departments. The main focus of research activities is on understanding principles and biological mechanisms of crop production and developing strategies for appropriate use and protection of agricultural ecosystems against various forms of degradation. The Institute covers research and technology development, extension and education including an extensive postgraduate programme at the Ph.D. level. The IUNG serves the farming community through development of crop production systems that include both ecological and economic considerations.

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RURAL TOURISM IN SERBIA
as a Factor of Integrated and Sustainable Development of South Eastern Europe

Ms Ljiljana Chomich

Destructive approach to the development of rural regions should be necessarily replaced by a constructive one so that overall resources could be included in trends of local as well as global sustainable development.

The creation of a national strategy is the basis for the development of rural tourism whose realization should enable affirmation of overall resources in rural regions for the improvement of the economic sectors, environment, management of the natural resources and quality of life of the rural population.

South Eastern Europe's unique geographic area with significant natural potentials for integrated and sustainable rural development, characterizes the existence of greater number of mutually unconnected and economically poor entities. Rural tourism can be an important economic diversifying factor in the development of this region. The scene in South Eastern Europe rural tourism is also characterized by many small-scale entities, limited financial resources and marketing know-how.

Main features of the rural tourism in Serbia

The basic characteristic of former development of rural tourism rank Serbia as region with significant resources, but without enough tradition in development of tourism.

The development of rural tourism as an organized activity in Serbia started more than twenty-five years ago. The beginnings of the development of tourism in the country are connected with intensive urbanization and spontaneous movement of tourist from urban, ecologically polluted towards ecologically preserved rural environment. At the beginning, only individual households were occupied with this form of tourism. After some time, rural tourism became more massive in character. In the eighties rural tourism developed in Serbia as an organized activity whose aim was affirmation of agricultural farms, strengthening of economic structure of rural areas, the development of market production and enrichment of classical tourist supply. In that period about 800 households in 50 villages were occupied with tourism in Serbia. Every year new households or the whole villages joined rural receptive basis.

The period of isolation of Yugoslavia, which lasted for several years, was not an adequate environment for carrying out the viable development and tourist supply in accordance with real possibilities. The result of such circumstances resulting in a series of negative processes was the decrease of supply of rural tourism towards the end of the nineties.

There are numerous potentials, which enable forming of structurally different and high-quality rural tourist supply in Serbia:

- traditional agricultural production, together with traditional methods of exploiting forests and other natural resources
- low population density and relatively small size of settlements
- preservation of natural ecosystems and biodiversity
- traditional social structure and general acceptance of social values, a situation that no longer prevails in larger urban centres
- monasteries, historical cultural monuments, craft workshops, country fair days and other things that bring the tourist into direct contact with the spiritual life of the rural population

There are also many weaknesses connected with rural tourism development:

- insufficient financial sources
- weak infrastructure
- inadequate age structure of population (many elderly people)
- missing co-operation among local people, local government and local entrepreneurs
- the lack of marketing, management and information system

The application of modern European principles and co-operation at broader regional level makes the basis for creating the strategy of sustainable rural development. Expected effects on the development of rural tourism are:

1. Revitalization of depressed rural areas, which have problems of employment, resources and economic diversification.
2. It slows down migration of rural population towards cities and influences with young people staying in villages with which rural population becomes rejuvenated and the structure of working population are improved.
3. Improvement of the quality of life and material status in economically undeveloped rural regions which, leads to the equilibrium of regional development.
4. Preservation of natural ecosystems, which is inseparably connected with preservation of biodiversity and controlled turnover of forest fruits, medicinal and aromatic plants.
5. Reaffirmation of cultural, ethnologic, historical and other potentials.

Sustainable rural development include such main tasks:

1. Joining international and other national associations for rural tourism by reason of information and experience exchange and adoption of new methodologies.
2. Identification and promotion of ecological and rural potential taking into consideration existing varieties. Plantations of plums and other fruits, vineyards, monastic economy, mountainous regions with extensive cattle-breeding and specific agricultural production, farms in Vojvodina are only some of the potentials which are possible to be affirmed through the development of rural tourism.
3. Organization of education and training programmes for all participants in rural tourism at micro as well as macro level.
4. Create one or more integrated and sustainable models of developments, repeatable and transferable.
5. Formation of regional association and regional information centre.

University of Kragujevac and AEERT have scientific and skilled potential. They can create and realize the strategy of sustainable rural development in Yugoslavia and in South Eastern Europe. This could be possible in inter-university co-operation, in co-operation with international research centres and with appropriate financial support.

Author details, affiliation, and activities

University of Kragujevac is a part of whole system of higher education in Republic of Serbia. Apart from co-operation among other constituents of that system, the development of University of Kragujevac is based on the needs of region in which it is situated. Today, in 10 faculties, which belong to the University, more than 40 programmes of basic studies are realized. The University has approximately 1,000 employees, of which more than 650 are specialists with various profiles (B.Sc., M.Sc., Ph.D.) actively joined in educational and research programmes.

Association of Experts in Eco-Rural Tourism (AEERT), Kragujevac is a free association that promotes culture, development and business in Rural Tourism under the Sustainable Development Strategy in Yugoslavia.

Sectors of activity/ expertise: sustainable development, regional project with upstream solutions, areas of environment, chemistry, wide range of training activities, study grants.

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Past/current/proposed CEI co-operation: Joint co-operation agreement with CEI (2000-2002); ICS-CEI joint work programme for 2001 on sustainable development of south east Europe

Available for/offering: partnership on projects; training activities in the areas of operation (workshops, training courses, seminars); web-based databases and networks on technologies, contact institutions, expertise, etc. available in the region.

Looking for/ requesting: Potential projects, project partners, focal points for network, funding sources.

ASSESSMENT OF LINKAGE OF ENVIRONMENT CONTAMINATION IN YUGOSLAVIA
Monitoring and Prevention and Food Production

Mr Andjelka Mihajlov, Ph.D. Chem Eng

Abstract

One of Serbia's most significant resources is its soil. It has huge potential for the development of agricultural production. The area of cultivable land in Serbia is 57,154.6 km2. From the. ecological standpoint, the state of environment in Serbia was estimated as good until the bombardment in 1999. Moreover, this environment had represented an oasis of precious protected species and habitats in Europe.

That is why Serbia has been significant producer of food not only for its population but for the world market as well.

Setting free of numerous pollutants, substrates of the environment, by chemical and other industrial plants during the NATO bombing, has endangered natural resources to a great extent. Certain limited examinations of the consequences of this action, performed by our specialists and their foreign colleagues, have shown that the consequences of the NATO bombing had not been as great and hazardous as anticipated at first. Although first estimated had spoken about catastrophic consequences to the environment, soil had not been influenced had been insignificant. Intensity and scope of those had been slighter than anticipated at first. Identified pollutants, especially these made by transformation of primary chemicals (PCDD/ PCDFs, PAHs. PCBs, etc,) as well as heavy metals (Hg, Pb, etc,), have not been found in greater concentrations in the wider scope of the source of pollution. That is why we may speak about black strips and endangered zones instead of polluted area as a whole.

State of soil and water contamination

A general conclusion can be made that the environment in the Federal Republic of Yugoslavia, before bombing in 1999 had been relatively well preserved and less threatened than in West, Central and East European countries. The said assessment is best confirmed by the "Evaluation on Europe's Environment" prepared in the course of 1997 and 1998 by the European Agency for Environment.

An important indicator on the state of the preservation of the environment is the fact that bio-diversity in FR Yugoslavia is among the biggest in Europe. This bio-diversity is mainly the result of the versatility of environmental and geographic characteristics of the territory and evolution of the nature in this region that, due to natural-historical circumstances has great versatility in a relatively small space. Present in the Yugoslav territory are various elements of natural ecosystems, flora and fauna of the Mediterranean-Sub-Mediterranean warm-weather coniferous forest vegetation, various mesophyll, xerophyll and frigorophyll deciduous and coniferous forests of the Euro-Siberian-North American region. High-mountain vegetation with elements of Alpine-High Nordic region flora and fauna is developed on high mountains. Flora and fauna elements and ecosystems of the Adriatic Sea give special contribution to the overall bio-diversity.

The total forestland in the FRY territory covers 3,337,700 hectares, and forests cover 2,858,000 hectares (85%). Absolute forestland accounts for 28%, which is within the European forestland limits (the European average being 29%). It is an encouraging data that the damage afflicted in forests, by almost all causes, is somewhat lower in the last years of observation relative to the previous years, to which intensive management method and forest protection have contributed considerably.

In FR Yugoslavia, approximately 1,800 especially valuable natural sites enjoy various forms and degrees of protection. The total area of protected and especially valuable natural areas amounts to over 400,000 hectares or approximately 4% of the FRY's territory. Especially valuable are 9 national parks located in all of the three geographic macro-regions: the Panonian, mountainous and coastal. They include Fruska Gora, Djerdap (the Iron Gates), Kopaonik, Tara, Mt. Sara, Biogradska Gora, Durmitor, Lovcen and Lake Skadar.

Under UNESCO's criteria, the following from the territory of FR Yugoslavia have been included in the List of World Natural Heritage: the Tara River Canyon, the Kotor-Risan Bay and the Durmitor National Park.

Despite numerous wars that resulted in the destruction of buildings, the territory of FR Yugoslavia, as a melting pot of various cultures and religions, abounds in highly valuable cultural monuments. Some of the most valuable sites (Stari Ris with Sopocani, the Studenica monastery complex and the Kotor cultural area) are included in the UNESCO`s List of World Cultural Heritage.

On the other hand, it is a fact that indicators of environmental pollution and degradation, despite sporadic stagnation and decline, are evident, and that potential environmental risks and threats are increasing. After bombing of industrial facilities in country in 1999. Different national and international Missions and Reports reported existences of "environmental hot spots".

Along with post-bombing consequences, there are numerous causes of soil damage and degradation. The most frequent include open-pit mining of ores and coal, various waste dumps, waste waters, heavy metals, radio-active matters, soil salting and acidification processes, urban, rural and weekend settlements, various sports facilities, airports, roads, industrial facilities and various chemicals used in agriculture above the allowable quantities. The main concentrated sources of water pollution originate from human settlements (with or without industry), dislocated industries and industrial zones, as well as agriculture (livestock farms, farming estates, etc. Pollution caused by traffic on navigable waterways should also be taken into consideration.

The measurements performed indicate that the quantities of harmful substances are within the tolerable limits and their presence in foodstuffs is not health hazardous. The general assessment is that the soil quality and state in the FRY enable an intensive health food production.

Integral Environmental Protection

In order to meet the short- and long- term needs for food, water, fresh air, soil, employment and well being for the people, the development strategies must envisage environmental protection, alongside with economic objectives, which in the long run are not contradictory.

The goal of the countries in transition is not only to improve the economic situation, but to follow as well the principles of sustainable development, to reduce and prevent environmental damages. If we find an optimum way to link the atmosphere (carbon dioxide, nitrous oxide, methane, gases with greenhouse effects, ozone, aerosols, acid deposition, urban population), soil and sediments (heavy metal contamination, contamination with organic substances, acidification, radio nuclides), water (drinking, acidification, eutrophication, nitrates, pesticides, coast and sea water), climatic changes, forests and woodlands, plants and animals, food and agriculture, population, development, economy, human health, energy, industry, transport, waste, disasters, industrial incidents and accidents - we shall set up an *environmental matrix*. An integrated, cross-media approach to preventing and resolving environmental problems must be promoted, rather than the traditional, old-fashioned, medium-by-medium approach. The integral and complex nature of the environment must be recognized.

Life Cycle Assessment approach to the environmental protection with monitoring of the whole "life cycle" of materials is a necessary basis for establishing the environmental management.

Within such an established matrix, it is particularly important, both on the global level and on a case-by-case level and based on a properly and scientifically examined situation, to point out the predominant matrix components; the components should not be viewed formally, but in the sense of the crucial impact on solving the problem, applying the index coefficient which reflects the essence. The themes and variations in the form of the strategic matrix for environmental protection, similar to music and poetry, science and engineering, must be such as to allow one to enjoy the forest whilst watching the trees. Environmental protection must become integral part of decision-making process prior to making any other decisions in the fields of production and development, instead of taking it into account only after the harm is done.

Multimedia exposure analysis and food chain
The main prerequisites for the health of the population include adequate water supply, nutrition, living and working conditions, including heating, and adequate state of the health care system.

Multiple Exposure Analysis is the efective tool in choosing the environmental management option, together with an Environmental Impact Assessment Study and Analysis of Risk of Chemical Accidents and of Environmental Contamination.

Chemical influences have to be managed in an integrated manner, considering all the component of environmental matrix. An approach that does not recognize and integrate these many dimensions of the system can only produce partial solutions at best.

Solving only a part of the problem is not a solution - it could be just first approximation. Of all chemicals used, solving the problems from the use, release and disposal of substances harmful to human and ecological health are some of the greatest challenges. The major findings of the analysis suggest the need to study subsystems of environmental policy in *interaction* and *balance* between them, in order to develop a full understanding of pollution control efforts on the whole.

Integrated management approach is not an easy task but a very complex one. In facing this complexity, professionals have to take the problem in whole in order to meet specific short- and long-term needs.

Simple conceptual components of risk assessment include: source assessment with hazard identification, toxicity assessment (connection between risk and dose), risk characterization (calculated risk and acceptable risk), and - exposure assessment (basically in air, water, soil and food, tracking movement, dispersion and degradation of pollutant).

Monitoring capabilities
The state of the environment has been monitored in Yugoslavia for many years now. However, in view of the non-harmonized methods of monitoring the state of the environment, as well as the disregard for the importance of this area shown by some institutions (which should have information relevant to the protection of the environment), it is not possible to get a full insight into the state of the environment in FRY. Even so, the available data do allow a partial insight into the matter. The major polluters of the environment are industrial facilities, a lot of them (120) bombed and at some extend destroyed in 1999.

Remediation
Post bombardment contaminated sites are presented in different kinds of reports pointing out the fact that remediation of these cites is one of the conditions of sustainable development.

Priority projects

Capacities at all levels are with the shortage of funds. The potential interactions among source term, environmental media, exposure media and exposure routes must be addressed in a multimedia, multiple pathway exposure assessment. Available exposure medium indicators (air, wather, soil, food) should be collected and analyzed by medical doctors; however, these data should be read by people with technical and chemical literacy (chemical engineers) in order to transmit available data to useful information to correct management option and / or waste classification process and / or remediation measures.

Relevant project proposals*

ENVIRONMENTAL HOT SPOTS:

Bor Mining and Smelting Complex,
Pancevo wastewater treatment plant design,
Urgent sanation of the Kriveljska reka Collector,
Danube - Djerdap II accumulation several years after the war ending,
Improvement of the water protection and exploitation of the Danube in the condition of the backwater effects in Yugoslavia;
Utilization of lignite fly ash in production of insulting materials

FOOD & ENVIRONMENT:

Ecological zoning in the function of safe agricultural production,
Healthy food Farm Padej,
Eco-regions-transition from conventional to organic and sustainable farming systems,
Trace elements in foodstuffs and its dietary intake in different regions in Yugoslavia,
Investigations of bioaccumulation and biomagnification of organoclorine contaminants in aquatic ecosystems applying mathematical methods,
Low-external-input-farming systems-strategies for environmental protection,
Processing of organic waste from animal farms with larvas of domestic flies,
Prevention, assessment & management of environmental pollution by pesticides and influence of pollutants on oxidative stress in biosystems,
Development of centre for reproduction of salmonidoe and other autochthonous fish species,
Long term environmental monitoring and labelling program for products, processes and services.

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FOCUS Assessment Mission 2 to the Federal Republic of Yugoslavia - Ecology (1999).FOCUS, Bern, Switzerland

* Available from Directorate for Environmental Protection of Serbia; In additional, there is a list of available project proposals

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UNEP/UNCHS Balkan Task Force Report: *The Kosovo Conflict- Consequences for the Environment and Human Settlements* (1999), Geneva, Switzerland

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INTER-UNIVERSITY CO-OPERATION

INTERNATIONAL CO-OPERATION OF THE UNIVERSITY OF BOLOGNA
Focused to the Sustainable Development of the PECO countries

Mr Roberto Grandi

The University of Bologna is strongly committed to the development of scientific/technological activities and professional education programmes on the strategic line of sustainable development with specific reference to the environment and human health protection, integrated territorial analysis, information society development and the full valorization – under both the cultural and the economic aspects – of historical heritages. The available know-how of our University offers major opportunities also in the perspective of an increasing international co-operation which is specifically addressed towards the three geo-political areas considered of a highest priority by the Italian foreign policy: South America, the Mediterranean basin and Central Eastern Europe. More specifically it is well recognised that the countries of this part of Europe (PECO, Paesi dell'Europa Centro-Orientale) have in the territory their most important resource; a proper use of this resource has to be fully sustainable, thus giving due importance to both the environment and the quality of life related aspects. On that line, the University of Bologna plays a relevant role in the bilateral, multi-lateral and regional co-operations promoted by the Ministry of Foreign Affair (MAE) and the Ministry for Universities and Scientific and Technological Research (MURST), offering its expertise on a number of sectors: new technologies (informatics and bio-technologies among them), integrated and sustainable agro-industrial development, protection of the marine and terrestrial ecosystems, bio-diversity conservation, recovery and restoring of the historical and artistic heritage. A comprehensive network is also established through the on-going relationships of the University of Bologna with other Universities, Research and Development Centres, High-tech Enterprises on both the national and the international basis.

Out of this general frame, it deserves to be underlined the specific role of the University in the activities implemented in the frame of the Adriatic-Ionic Initiative (AII), where seven countries of this region (Albania, Bosnia-Herzegovina, Croatia, Greece, Slovenia, Yugoslavia and Italy) joined together aiming to implement a number of programmatic lines, where inter-university co-operation has a relevant position. An important step in the practical implementation of this co-operation has been taken in the Conference of Ravenna (15-16 December 2000), jointly organized by the Universities of Ancona and Bologna. On that occasion, about 20 Universities of the above-mentioned countries agreed on the common position reported by the Ravenna Declaration, engaging themselves on the development of three programmatic lines of major importance for the Adriatic-Ionic sub-region, namely: Information Society; Cultural and Environmental Inheritance Protection; and Sustainable Economic Development. In particular, the decision was taken to realise the telematic Network UNIADRION, counting on the support of the MAE and the MURST on both the political and financial side. The UNIADRION Network and the related activities (common projects and professional education courses) will be basically presented at the general meeting of the AII scheduled in Split (24-25 May).

The presence of the University of Bologna in the implementation of bilateral S&T protocols established by our MAE and MURST with parallel institutions of a number of PECO countries is very significant too. It is worthwhile to recall here that those protocols, based on specific inter-government agreements, represents the institutional frame in which co-operations between different institutes (universities, R&D centres, high-tech enterprises) can be promoted and implemented. We remind here, just as one out of the many examples, the S&T Protocol between Italy and the Federal Republic of Yugoslavia, signed in the year 1997 and now nearing renewal. The protocol allowed the carrying of common activities and mobility of researchers and experts, despite the very difficult

political situation. In particular, it made it possible for the establishment of a convention between the Universities of Bologna and Belgrade, mainly focused on bio-medical applications of nuclear particle accelerators.

The engagement of the University of Bologna in this part of Europe is also underlined by a number of specific initiatives related to the professional education. A typical example in that line is given by the activities carried out in the University Centre of Bertinoro (Forlì) by a company (SER.IN.AR) of which the University of Bologna covers the majority of the shares. Full professors and experts of our University are engaged in organizing high level, full immersion professional courses on advanced matters such as: Territory-related Information Systems; Industrial Design; and Design for Quality. Participants attending each course (typically 30-40) are locally selected from the different PECO countries based on clear professional requirements. In our experience, the gained experience is very positive, not only on the education side, but also considering the importance of calling around the same table young people coming from different countries of the region, thus helping the mutual understanding and the establishment of new friendly relationships.

As a conclusion, the University of Bologna confirms its intention to strengthen the co-operations with other PECO Universities as well as with different national and international R&D Centres. The presence of our Rector in the ICS-UNIDO Scientific Committee should be considered a clear signal of the intention to assure an active presence of the University of Bologna in the process of scientific, technological and economical development in this part of Europe.

Author details, affiliation, and activities

Founded in 1088, the University of Bologna, with about 110,000 students and 3,000 professors and researchers, should be considered one of the largest in the country. The University represents the most important example of higher education and research integration on a wide local basis. It practically covers Bologna itself and the Romagna (the eastern part of the Emilia-Romagna Region) sub-region, where Ravenna, Forlì, Cesena and Rimini are located. The overall annual budget is in the order of 620 million euros, coming from Government grants, student contributions (20%) and different kind of contracts. Nine centuries of history and unbroken tradition, contributing to both the European and World culture, makes of the University of Bologna an outstanding seat of learning and research in a wide range of disciplines. The Rector of the University, since the Academic Year 2000-2001, is Mr Pier Ugo Calzolari.

Sectors of activity/ expertise: The University of Bologna counts 19 Faculties: Agriculture; Cultural and Conservation Studies; Economics; Education; Engineering; Foreign Languages and Literature; Industrial Chemistry; Law; Literature and Philosophy; Mathematics; Physics and Natural Sciences; Medicine, Pharmacy; Political Science; Psychology; School for Modern Languages Interpreters and Translators; Statistics; Veterinary Medicine; Physical Education Sciences.

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INTER-UNIVERSITY CO-OPERATION WITHIN THE ADRIATIC-IONIC INITIATIVE
on-going activities and future strategies

Mr Giovanni Sergi

Founded thirty years ago, the University of Ancona has always focused its energy on the technical and scientific sector, first by establishing the faculties of engineering, economics and medicine, followed by the faculties of agriculture and science. Today, the university has a student body of 15,000, with over 500 professors and 500 technical and administrative staff members.

According to a survey of the Italian university system conducted in 2001 by one of Italy's leading daily newspapers, Rome's la Repubblica, together with Censis of Rome, a major accredited social research and study centre, the University of Ancona is the third leading University in Italy, after the Turin Polytechnic and Siena University.

Since it was founded in 1969, the University of Ancona – which has firmly established its roots as part of Ancona, an ancient port city in the central Adriatic area, and as part of the region of the Marches – has shared the tradition for intense exchanges that the areas along the Adriatic have always maintained with the countries on the east coast of the Adriatic and Ionian basin.

In the year 2000, the University of Ancona, in close collaboration with the University of Bologna and as part of the Adriatic-Ionian Initiative promoted by the Italian Government, worked toward establishing UNIADRION, the virtual university of the Adriatic and Ionian region.

This new university must be examined based on a dual meaning: a modern system of collaboration and integration between the universities that are part of this important quadrant of South Eastern Europe, but also an innovative instrument to pursue the objectives of cultural and scientific co-operation and of technological transfer.

By making a politically meaningful choice, in recent years the University of Ancona has succeeded in maintaining a collaborative rapport with former Yugoslavia and with Albania, even during difficult times, thanks to its research groups.

The University of Ancona and UNIADRION. Initiatives under way with other Universities across the Adriatic

First of all, a major role is played by the numerous scientific and educational collaborations that have already been established for some time by the Universities of Ancona and Bologna, both as bilateral conventions with other universities across the Adriatic and as research projects. Among these, we would like to recall the national research projects co-financed by MURST Ministry of Universities and Scientific Research, the research projects financed by the individual Italian Universities, the research projects financed by the National Research Council CNR, the research funded by MAE Ministry of Foreign Affairs as part of the Scientific and Cultural Collaboration Protocols, the research projects funded by the European Union, such as Tempus and many others research initiatives promoted and financed by EU.

Special consideration goes to the many initiatives set up by local Italian organizations and non-government organizations (NGO), which have both political and cultural importance that cannot be overlooked and that, at least in some cases, may also find that UNIADRION is a useful point of reference.

Another important instrument for achieving the objectives of UNIADRION is the journal owned by the University of Ancona and published over the Internet: Adriatico. Online journal for cultural and scientific co-operation (www.adriatico.unian.it). It was founded by a research group of the University of Ancona working within Columbia University of NY in May 1997 and it is published by the server of the Italian Institute of Culture in New York, a branch of Ministry of Foreign Affairs, and by the server of the University of Ancona.

In the past four years, this communications tool has carried out important work to support the activities of research groups of the University of Ancona, making it possible to test and perfect the use of the information and telematic technologies that have only recently started to be used widely in many Italian universities. Another important feature of this pilot experience has been the tested collaboration between the research facilities of the University of Ancona with MAE officials and with different Italian cultural institutes.

Studies are now under way in order to bolster this instrument, using both the IT capabilities present at the University of Ancona and other skills that are part of UNIADRION.

Adriatico. On line journal for cultural and scientific co-operation: from a journal to a portal

Following various work meeting held at the Ministry of Foreign Affairs to define the UNIADRION project, we are convinced that it will be possible and desirable for the Adriatico. Online journal for cultural and scientific co-operation to be transformed gradually into a portal that can contribute to the growth of the virtual university of UNIADRION. The University of Ancona has the technical-scientific capabilities as well as the experience necessary to develop this project in collaboration with the Ministry of Foreign Affairs.

What objectives can be set for the Adriatico journal once it is transformed gradually into a portal to support UNIADRION

- To foster forms of scientific and cultural co-operation and the dynamics of technological transfer among countries along the Adriatic and Ionian, in order to make the economic growth objectives compatible with the maintenance of the existing cultural identities. This objective is considered essential in order to achieve balanced and long-term development throughout the entire area.
- To contribute to implementing the timely and in-depth information activity of the Ministry of Foreign Affairs with regard to the entire area of the countries across the Adriatic, creating an innovative model of synergy between the ministry and the universities.
- To implement forms of communication among the universities, academies and research centres of the Adriatic and Ionian, creating a journal/portal model that has now been tested successfully and that clearly differs from traditional journals, which tend to reproduce static communications that are not very interactive also over the Internet. The different available communications instruments will be used as much as is realistically possible: text, images, videos to make this tool richer and more immediate.
- To realize this portal, permitting the most vigorous forces of scientific research present in the various universities across the Adriatic, which have also joined UNIADRION, to participate at a limited cost and to release intellectual energy that would otherwise be destined to be hover along the sidelines of the new university system we are attempting to activate.
- To achieve the gradual convergence of interdisciplinary skills that are not limited to the Italian university side will but that can also bring together the skills of the Ministry of Foreign Affairs and of the universities across the Adriatic. Several collaborative efforts will also be set up with the US, where these communications tools were first created and where some of the most advanced experiences are currently under way.

- This activity could begin immediately by inviting visiting scholars to the Adriatic campus for short periods in order to set up a network of collaborators for the journal/portal circulated throughout the UNIADRION area.

During the creation, experimentation and implementation of the portal, it will be possible to set up qualified collaborations with European and North American universities at a low cost and with significant advantages. One of the latter is New York University that, for a number of reasons, is interested in sharing its extensive experience in e-learning and distance learning. It has already tested and verified this experience over the course of several years on an operative level – also in financial terms – at various Virtual Universities that have already been established in the US, and will also share its know-how in the use of IT tools for training and distance collaboration.

The same type of collaboration has also been set up concerning these issues with Michigan State University, East Lansing MI, and with Northwestern University, Evanston IL, on the use of e-learning and distance learning tools

It seems timely to consider possible collaboration with private facilities, both Italian and foreign, that have recently set up and tested advanced tools for long-distance collaboration. Among them, for example, the virtual offices of several US companies have been judged as useful and interesting.

The implementation of the portal will make it possible to achieve the articulated development of the activities to build a data filing system that seems to be both an objective and an important tool for sharing the cultural heritage of the countries along the Adriatic and Ionian.

The University of Ancona scientific research and teaching projects

Below we will present several research projects perfected by the Schools of Engineering, Economics, Medicine and Science of the University of Ancona.

- Hope Project, by Graziella Biagini, Institute of Human Morphology, School of Medicine, the University of Ancona (biagini@popcsi.unian.it).

Any ethnic group should be able to express itself to the full only if it aims at integration, even without eliminating the persistence of its cultural characteristics. This is the finality of Hope Project promoted by the University of Ancona in association with the Marche Region and the University of Bologna. In the last year through this project it was been possible to realize a web station in Scutari at the Caritas House. Under this project, in fact, two informatic operators, previously trained at the the University of Ancona, have organized in Scutari a web multimedia service with web instruments, generous gifts of the Marche Region. So it has already been possible to realize web sites and CD-ROM on which are collected:

1. courses related to health and prevention
2. schema to organize commercial activities with locals and also international opportunities.

- A three-year degree course in electronics engineering and a three-year degree course computer engineering at Polytechnic University of Tirana by Roberto De Leo of the Department of Electronics and Automation, the University of Ancona (r.deleo@ee.unian.it).

Mr Roberto De Leo of the Department of Electronics and Automation is finalizing a three-year degree course in electronics engineering at Polytechnic University of Tirana, which will start during the upcoming academic year.

The entire teaching staff will be Albanian and the study programme has been organized into credits that can thus be acknowledged by Italian Universities as well as the Universities of the European Union.

At the same time, an agreement is also being stipulated between the Tirana centre of the Nettuno Consortium and the Ancona centre, for a three-year degree course computer engineering.

Internships will also be possible at the University of Ancona in Italy. The courses will be transmitted by satellite and Albanian teachers will handle the exercises. The final exams will be conducted by mixed committees composed of Italian and Albanian professors.

- Ragusa, Venice and trade in the Balkans, by Mr Marco Moroni of the Institute of History, School of Economics, University of Ancona (moroni@posta.econ.unian.it).

Mr Marco Moroni of the Institute of History is working on a line of research on the topic of Ragusa, Venice and trade in the Balkans. He has participated in setting up the exhibit entitled 'I, the Adriatic: a maritime civilization between borders and frontier', inaugurated at the Mole Vanvitelliana in Ancona on 5 May. At the end of May, the Federico Motta publishing firm will release a publication that includes one of Moroni's articles, 'A sea of resources'.

Mr Moroni has prepared the introduction to the third volume that the publishing firm of Amilcare Pizzi has devoted to the Adriatic. After the previous two volumes dedicated respectively to the area's geography and history, the third one will focus on economics. It is scheduled for release on December 2001. The title of his introduction is 'The sea as a resource and an area for human activities'.

Another article about to be published is entitled, 'The Marches and the Balkan peninsula from economics to culture'. It will be published at the end of this year as part of a collection in honor of Mr Floriano Grimaldi, director of the Archives of the Holy House of Loreto.

- The valorization of the university-related scientific heritage of the Adriatic basin, by Mr Fausto Pugnaloni of the Institute of Drawing, Architecture and City Planning of the University of Ancona (pugnaloni@idau.unian.it).

The initiative arose thorough the project started two years ago by the Conference of Rectors of the Italian Universities (CRUI), aimed towards a national system of museums, archives and centres for university collections with a historic-scientific interest. The aim of the project is to disseminate the scientific culture through inter-university collaboration and the collaboration of institutes located throughout the territory. Particular attention is paid to the Adriatic setting that has developed university-level contacts among the countries along this basin.

The strategies of action that have been proposed focus on:

1. disseminating and valorizing an awareness of the academic historic and scientific heritage
2. creating a co-operation model for the territorial networks that can communicate and integrate the vocations and potential that have emerged from university research, including recent research
3. identifying the procedures to strengthen the link between Universities and the territory in order to foster the protection and valorization of a common culture heritage.

An Open Distance Learning Programme, Ugo Salvolini, Institute of the Nervous System's Deseases, School of Medicine, University of Ancona (salvolin@popcsi.unian.it)

The University of Ancona School of Medicine is involved in an open distance learning programme: the project includes tele-conferences, CD-ROMs and a website.

Three universities and their associated university hospitals are involved: The Université Libre and the Erasmus Hospital of Brussels (Belgium), the Université Paul Sabatier and the Purpan University Hospital of Toulouse (France) and the Università degli Studi and the University Hospital Umberto I° of Ancona (Italy). (See www.neuroradiology-master.org).

This project was selected in 1996 for the Leonardo da Vinci programme (DG XXII) of EU, and given major support for a three-year period, in which we prepared the didactic tools. Today, we are

managing a programme mainly based on tele-conferences: every month the partners (Ancona, Brussels, Marseille, Milan, Toulouse, Montreal and San Francisco) are connected through ISDN lines for two hours. New partners may be added. In the near future it will be possible to use Internet.

From this perspective, the concept of a virtual university can be implemented: the postgraduate training within a discipline diffused by tele-conferences can be supported by various multimedia tools (among them a database in which selected cases are stored after peer review, a website, a series of didactic CD-ROMs). These multimedia tools can be consulted anytime, anywhere.

- The communication of City and Regional management policies through ICT and telematic instruments. Specialization course to be implemented through the use of distance learning instruments and dedicated to technicians of Municipal administrations of the Federal Republic of Yugoslavia, by Mr Giovanni Sergi of the City and Regional Planning Institute of the School of Engineering, University of Ancona (g.sergi@popcsi.unian.it) and by Mr Milica Bajic Brkovic of School of Architecture, University of Belgrade (bajcmb@net.yu).

The course will be attended by official or consultants of the municipalities of Serbia and Montenegro and will be organized based on the principles and techniques of the 'learning team centred approach'. Most of the traditional lessons in the course will take place in Belgrade, with a minor part held in Ancona. An internship will be scheduled in several Italian Communal Administrations. The Department of Electronics of the University of Ancona will also be asked to collaborate.

The motivation for the course has been identified as the need to promote the acquisition of ICT for the communication of urban policies. The usefulness of fostering an understanding of planning tools among citizens as a prerequisite for the success of planning policies requires the use of a wide range of ICT instruments that make it possible to represent numerous aspects of planning in an extremely effective and friendly way. In essence, city planning can achieve good democratic participation of citizens and of the various actors in the plan through the appropriate use of new ICT instruments. Some of the numerous available instruments that are worth mentioning include: the Civic Networks, City and Regional ICT systems, three-dimensional representations differing in type and power.

Reapbalk, Rural employment and agricultural perspective in the Balkan applicant countries, by Mr Franco Sotte, Department of Economics, School of Economics, University of Ancona (sotte@dea.unian.it).

Research carried on under the EU Fifth Framework Research Programme. The 36 months project will focus on the development perspectives within rural regions of five Balkan countries: Bulgaria, Croatia, Greece, Romania and Slovenia. The main objective of the project is to assess the implications for inter-sectoral rural employment patterns of policy changes at the domestic and EU level. The study will concentrate on the analysis of three main aspects: rurality, employment and agriculture within a medium-term perspective. Different scenarios with respect to the political and economic evolution in the area, specifically related to the EU accession and adoption of the EU policies, will be developed. The impacts of the possible scenarios on intra-sectoral employment will be assessed in each selected rural region. The research has been favourably evaluated by the Commission Services for a financial contribution up to □870.000. Presently, research contract negotiation is in progress. Research units from the Universities of Ancona (Italy), Cluj (Romania), Liublijana (Slovenia), Sofia (Bulgaria), Split (Croatia), Thessaloniki (Greece), London-Wye (UK).

Twinning Ancona-Split. Ancona and Split are twinned both as municipalities and universities. In this context, the two schools of economics are developing a collaboration concerning the transition and the East-West economic integration. In particular, the University of Split organizes every two

years time a conference on enterprises in transition. The 2001 conference is going to be held in Hvar in 24-25 May. There the School of Economics of Ancona will participate with four papers on Adriatic Economic Integration.

Author details, affiliation, activities

Mr Giovanni Sergi has an annual appointment in 'City Planning' at the Faculty of Engineering and in 'Systems for elaboration of information' at the Faculty of Economics of the University of Ancona. He is a university researcher in the Institute of City and Regional Planning
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Director, Adriatico. On line journal for cultural and scientific co-operation (www.adriatico.unian.it)

INTEGRATED RURAL DEVELOPMENT PERSPECTIVES IN THE CENTRAL SOUTH EUROPEAN REGION
Experiences and future trends

Mr Adriano Ciani

The present era of globalization, even after the fall of the Berlin wall, still forces us to pay more attention on the unsolved relation between capital and labour. What may appear, as a point of discussion is actually the model of development of yesterday, of today, but above all, of tomorrow.

The results of the recently attempted and quantity-based models are increasingly pointing out the limits under marked by essential data:

- 800 million people live at a minimum level of alimentary sustenance (FAO Conference 1998)
- 1 billion and 960 millions of hectares have been lost since 1949
- the ratio between average wealth owned by the 20% of the rich and the 20% of the poor has increased from 30:1 to 60:1 since 1960
- countries like Brazil, that have great potential, have to deal with half of the population below the level of sustenance and, greatest of the paradox, with 12 million farmers sin-terra
- poverty and wealth have large situations of great contrast even in the most-followed model for everyone: the United States, where everyone knows it but nobody says it, have 30 million poor

It is from this point of view, over and over during the last years, during several national as well as international meetings, and during official visits, the latest of which in Vietnam and Bolivia (July-August 2000), declared that there is no development, in any area, with a coherent policy of rural development.

Agricultural economists and experts, with different titles, of rural areas have the duty of giving aims, means and strategies for this necessary new model of development where rural preference brings obviously and properly back its roots, traditions, culture and diversity to the centre. Personally, he believes this strategy to be held on seven key words: diversification, integration, innovation, quality and certification, sustainability, multi-activity and multi-functionality.

With these seven main words we can also join: management and organization, project management, project financing, land and environmental management, dematerialization, human resources, identity and diversity, virtual goods, agrofood safety, integrated products process, certification and labelling, information technology, biotechnologies, biodiversity, low input agriculture, rural tourism and agrotourism services and development, local banks, services, niche market of agrofoods, model of development, (quantitative, qualitative, endogenous, exogenous) subsidiary (bottom-up or top-down).

The author, after this analysis shows the relevance of the EU white paper on agrofood safety entitled, 'From Farm to the Table' and the green paper of IPP (Integrated Product Policy) where the role in the analysis of the LCA (Life Cycle Assessment) appear a strong opportunity to achieve in the agrofood and agroindustrial activity nowadays.

He suggests also that the environmental impact assessment and better environmental strategic impact assessment are the first step to set-up in the society and to apply new and modern management linked at the introduction of HACCP, ISO 900, ISO14000, Ecoaudit. He sustains that in this approach change the paradigm of the balance statement of the farm and firms.

He declares the necessity to create new modern human capital to arrange the strong system network and the weak system network. After this part he present some experiences inside this

strategy arranged in central and south Europe countries as AIMS of NAI (Advanced Innovative Models for Sustainability of North Adriatic Island) in Cres Island and IDRA (Integrated Development for Rumanian Agriculture) Projects. He analyzed in the final part of the presentation his vision about the opportunities inside a rural integrated strategy for central south European countries.

Author details, affiliation, activities

The author comes from the University of Perugia which was established in 1308, is located in a small, old and historical town with Etruscan origins. There are 11 Faculties of which many work on problems of development. The Economics and Rural Appraisal Science Department of Faculty of Agriculture is deep involved in many local, national and international project on rural integration and sustainable development. From the academic year 2000-2001 started the PhD programme in 'Rural Sustainable Development' under the responsibility of the author.

Mr Ciani is involved in several derivated branch and bodies linked to the University such as: CeSAR.(Centre for Rural and Agricultural Development), UNECA.(Umbria Network Excellent Centres for Agrofoods, Agroindustrial Technologies and Rural Development), ARTIS,(Agritourism and Rural Tourism International School), IAERT (Internazional Association of Experts in Rural Tourism and Agritourism), and International Global Rural Village.

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THE CENTRE FOR CENTRAL AND EAST EUROPE AND THE BALKANS

Mr Andrea Segre

The Centro was founded in 1996 by the University of Bologna and the Municipality of Bologna, with the active participation of the European Union, the Italian Ministry of Foreign Affairs, the Emilia Romagna Regional Government, the Municipalities of Forlì, Cesena and Cervia and the Carisbo Foundation. It is directed by Mr Stefano Bianchini. The centre's academic board is set up by the International Network Europe and the Balkans. Thanks to the latter, the Centre can rely on the close links established with its experts (over 150 scholars from 25 European countries, the United States and Canada), as well as on established links with ICE, the Diplomatic Institute, CEI, the World Bank, the FAO and other international organizations. The Centre's network structure enables it to cover an extensive geographical and disciplinary area, to promote research and provide advice of a political, social and economic nature, and to organize international post-graduate training courses in human rights, economics and the environment for the Balkan states and East Europe.

Established in 1993 with financial support from the European Union (under the Human Capital and Mobility Programme), the International Network (Europe and the Balkans) counts over 150 distinguished scholars from 25 European countries, the United States and Canada among its members and associates. Its aim is to promote the development of collaboration among scholars working on Balkan and Eastern Europe issues, in the belief that, in spite of present tension and conflicts in the former Yugoslav area, integration between Europe and the Balkans is indeed possible. What has been lacking, especially in the western world, is an understanding of the complex issues underlying ideas of security in the Balkans and East Europe, where political and diplomatic-military factors are compounded by cultural and economic constraints. For this reason, one of the main goals of the Network is to examine Europe's view of the Balkan countries and vice-versa, in order to establish ways of communication – in the fields of politics, mythology, economics and the law – that would allow better understanding and identify those that hinder it, due to the negative influence of stereotypes. In this perspective the Network heavily invests in training activities and has been promoting a summer school on post-communist transition and European integration processes since 1995.

Aims

- Promoting and co-operating research projects, studies, international exchange initiatives among scholars and experts on Central East and Balkan Europe.
- Promoting the education of young people from Central East and Balkan Europe, as well as the training of consultants, professionals and teachers in order to contribute substantially to the creation of a new local leading class, sensitive to the values of democracy and political and economic integration, which are the pre-requisites to stability and peace; the training of local personnel both to meet the requirements of Italian and EU entrepreneurs and business administration, and to establish and maintain an efficient working relationship.
- Training young people from Italy and providing Italian companies with suitable information on the transformation in the area of Central East and Balkan Europe through research, surveys, publications and constant monitoring in the making of Italian foreign policy towards that area, highlighting its specific interests within the framework of European co-operation.
- Promoting the study of Italian, East-European and Balkan languages in order to improve both communication and integration between Italian economic interests and those of the countries the Centre deals with.
- Raising awareness in Italian schools about the problems and the recent history of an area crucial to Italy's interests, which is especially appropriate now as school curricula increasingly focus on the present day situation.

Activities

- The Centre supports and promotes the development of a number of university programmes in Eastern and Southern Europe.
- The Centre develops international research projects in the following areas: security, economics, culture, politics, law, environment and agriculture.
- The Centre promotes international training initiatives in collaboration with members of the international network.

Publications

International Books Series
Occasional Papers
Newsletter
Publications in collaboration with other institutions.

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BIOSPHERA GENERAL PRESENTATION – CESERISD-NET

Ms Michela Ascani

Biosphera is a scientific and cultural association established in September 1997, following an initiative from professors, researchers and professionals in various Italian regions.

The Association's aim is to study, promote and spread the culture of sustainable development in its economical, social and environmental aspects. It works to achieve scientific, cultural and operational objectives for a better relationship human being-environment without having profit in mind.

The coming of the third millennium, in the last years, has seen in the most relevant world forums the discussion of the present and future socio-economic situation of many countries whose inhabitants live under the threshold of poorness. The last world FAO meeting in 1996 on nutrition has underlined the fact that 800 million people live without eating enough, 20% of world population owns 80% of the wealth, the negative trend of loss of natural resources and of climate change is reaching a dramatic level, with the risk of exceeding the planet load capacity. Poorness, lack of equity and environmental degradation have obliged governments to undertake the strategy of sustainability, following the resolution of the Bruntland Commission in 1987. From that date onwards, important steps have been done at international level.

In this new trend, environment, considered in a holistic way, has regained more and more the role of resource to be preserved and managed also from an economic point of view. This has to happen in a process of dynamic equilibrium towards the challenges of the new millennium, in which the target of quality of life today is a fundamental element in every place of the planet. Urban and rural environment, seen before with a partial, sectoral and opposed vision, are today studied following a concept of osmosis and relationship that allows the discovery again of old historical centres and rural areas.

Rural environment, if analyzed with the quantitative approach of the gross internal product, seems to be less important than other sectors. The strategic way towards a new model of development gives a new role and importance to the 'rural' element for the whole of social, historical, cultural, economical and productive values that are typical of rural world and that have to be protected for reaching a goal of equity inside every generation and also among different ones.

In order to achieve this goal, Biosphera acts in the sector of integrated rural development, sustainable tourism and in general of natural, environmental and agricultural resources management. The association also acts in the fields of V.I.A., international co-operation for development, agritourism, and planning of territory.

Biosphera operates through studies and researches based on local, national and international level, tutoring and teaching activity for spreading sustainable development, organization of exchanges of experiences and know-how, organization of seminars and meetings aimed at promoting rural themes, consulting activity.

Biosphera, in its activity, wants to be pragmatic, scientific, and mostly international, following the principle stated by Mr Nasbitt in Global Paradox, 'act locally, think globally'.

In the same context of the cultural environment, which is the background of Biosphera, another initiative is CeSERISD-Net, Centre and South Europe Rural Integrated and Sustainable Development Network.

The project originated from CeSAR (Centre for Rural and Agricultural Development) and University of Perugia. Its aim is to create a network on rural integrated and sustainable development.

Targets of the project are: linking researchers from different countries; using a holistic and interdisciplinary approach to solve rural development problems; disseminating the main criteria and models; managing with a modern vision the revitalization of rural areas; achieving the opportunity to transform the weakness of rural areas in a point of strength inside the Sustainable Development Strategy.

The network could be a strong support for policy-makers of CEI countries.
The structure of the Network: the Network will be managed by CeSAR with a website and database.

First step will be collecting the different documents from the different countries and selecting the key words. Then, comes elaboration of specific documents, projects, topics, strategies and policies. Working groups for specific sectors will be created.

Financial resources: estimated costs to implement the Network: 0.400 millions euros; annual costs of management: 0.300 millions euros.

The network at the moment links Hungary, Romania, Ukraine, Croatia.

HIGH PERFORMANCE COMPUTING AND NETWORKING GROUP

Mr Attilio Evangelisti and Mr Paolo Nesi

The Department of Systems and Informatics, DSI, University of Florence, Italy, is comprised of about 40 professors and researchers, 20 Ph.D. students. The DSI presents several different competencies: software engineering, computer music, high performance computer and networking (HPCN), format models, software reengineering, artificial intelligence, multimedia, systems, automatic control, environmental aspects, operative research, speech recognition, database navigation, image modelling, etc.

The research group represented in this abstract operates through the participation at multilateral projects. They are both at national and international levels, supported by the Italian Ministry of Research, European Commission or private companies. In those projects, it covered the roles of (i) technology provider in technology transfer activities, (ii) dissemination and teaching institution in technology awareness actions, (iii) research and development partner in R&D projects.

For the actions of technology transfer it has been involved as a subcontractor in two technology transfer nodes (TTN) of the European Commission: TETRApc TTN of HPNC (supporting CESVIT, High Tech Agency in Tuscany and CPR, Consorzio Pisa Ricerche), ESSI TTN TOPS (supporting CESVIT). In TETRApc, the main activity has been to stimulate the submission of proposals and to support the industrial partners in preparing proposal for both technical and administrative parts, finding partners, and providing technology in the area of distributed software, computer music, industrial control and machine vision. In TOPS, the main activity has been in presenting the state of the art in the software assessment and management area, teaching novelty technologies, etc.

With the above aims, a wide range of national and international, seminars, training courses, workshops and conferences have been organised and supported in the last years (Object Oriented Technology forums for industries, Euromicro Conference on Software Maintenance, IEEE Conference on Software Maintenance, WEB delivering of Music (IEEE press), Software Engineering and assessment, etc.). According to the above activities, the research group maintains a wide set of contacts with national and international industries and research institutions.

In all these activities, the accent has been placed in stimulating small and medium enterprises, SMEs, in acquiring new technologies, investing in research, accessing to funding, improving their products, markets and technologies with respect to the state of the art. In several projects, the research group has covered the role of scientific, technical and/or administrative management of the whole project for small, medium and very large projects of million euros.

The main area of actions have been: Industrial Information Technology, Distributed Systems, Computer Music and Software Engineering, High Performance Computing and Networking, HPNC, Internet and Intranet Technologies, e-commerce, computer integrated manufacturing, CIM, computerised numerical control, CNC, Software Maintenance and/or Reengineering, Software Management, development and process/product assessment, Software Verification can Validation techniques, Object-Oriented, Optical Music Recognition.

Among the recent European Commission projects we can mention:

- OFCOMP DIM 45 MEPI ESPRIT III: study and implementation of an ASIC chip for counting moving non rigid objects by using computer vision and image processing;
- ICCOC HPCN ESPRIT IV (Integrating CAD/CAM Operations into CNC-Based Machines) and SAMOPROS projects. These projects studied solutions for increasing efficiency in manufacturing industries, planning and management of islands/pipelines of production with machines tools and

robots, integration of CAD/CAM with machine tools, tele-monitoring and tele-maintenance of machine tools and production pipelines, etc. The solution also includes software solutions techniques for the optimisation of resource exploitation and the on-line control and supervision of the production pipeline. Resources are intended as personnel, machine tools and basic material. The optimisation may be focussed on reducing the costs, to uniform the machine work load, reducing the production time, etc. http://www.dsi.unifi.it/~hpcn/wwwiccoc/wwwpag.html

- MUPAAC HPCN ESPRIT IV: Multiprocessor Architecture for Automatic Control. MUPAAC architecture consists in effective solution for building pipelines of production in which CNC (Computerised Numerical Controls) and robots are connected by means of Local Area Network and Field Bus (CAN Bus). http://www.dsi.unifi.it/~hpcn/wwwmupaac/wwwpag.html
- MOODS HPCN ESPRIT IV: Music Object Oriented Distributed Systems. MOODS consists of an integrated system of computer-based lecterns/stands for co-operative editing and visualisation of music. Theatres, orchestras, ensembles, music schools, broadcasting orchestras, recording studios, and publishers of scores can benefit from this innovation for automating and managing the large amount of information used by: (i) orchestras during rehearsals and public performance of concerts, operas, ballets, etc. (ii) students groups during lessons in conservatories and music schools, (iii) publishers during massive editing of music. The final demonstration has been given at the Teatro alla Scala in Milan, Italy.http://www.dsi.unifi.it/~moods
- IMEASY HPCN ESPRIT IV: Integrated Multiprocessor Expandable Audio Spatialisation System. IMEASY solution allows the 3D spatialisation of sound tracks. It can be used for postproduction of films or CDs and also for the generation of 3D effects in real-time such as in live performance or in recording studios. http://www.dsi.unifi.it/~hpcn/wwwimeasy/wwwpag.html
- WEDELMUSIC IST 2000, WEB delivering of music scores. WEDELMUSIC is an innovative idea to allow the distribution of interactive music via Internet totally respecting the publisher rights and protecting them from copyright violation. WEDELMUSIC allows publishers and consumers (theatres, orchestras, music schools, libraries, music shops, musicians) to manage interactive music; that is, music that can be manipulated: arranged, transposed, modified, reformatted, printed, etc., respecting copyright. It is an innovative support for preparing performances, studying music, analysing music, learning instruments, distributing music at low cost, etc. The same music objects will be available for traditional media and Braille. These innovative features are possible thanks to the definition and implementation of (i) a unified XML-based format for modelling music including audio, symbolic, image, document, etc., (ii) reliable mechanisms for protecting music in symbolic, image and audio formats, based on watermarking music scores and audio files. (iii) a full set of tools for building, converting, storing, distributing music on the Internet. To distribute and receive music in symbolic format also allows to commercially exploit new functionalities for music consumers and, thus, it allows the opening of a new market for several specific applications. http://www.wedelmusic.org
- O^3MR, Object Oriented Optical Music Recognition. This project has been performed to permit a fast passage from music scores in sheet form to a digital version of music score coded in some symbolic notation format. This project also included technologies for digitalisation in images of music sheets and their restoring for reducing defects and noise.
- VISICON, Vision System Inspection for CONtrol of Clinched Boards, in EUTIST, IST 2000. Industries producing machines for building objects joining metal sheets with the clinching technique such as: cars, boards for building bridges, tracks, technical wardrobes, office furniture, shelves, metal boxes, garden furniture, etc. are strongly interested in integrating an automated quality control in their machines. Presently, clinching buttons can be only manually assessed. The interest is due to the safety critical aspects of some of these objects and quality issues. VISICON is an innovative idea for realising an automatic and flexible quality control system enforced on the production of clinched metal sheets. This will be possible by integrating a modular quality control based on computer vision in a distributed control system architecture. This project will result in a significant increment of the competitiveness of NUOVACETASS and SED and thus of their potential market.

The technologies developed in projects MOODS, WEDELMUSIC and O^3MR is a splendid occasion for the realisation of new R&D or demonstrative projects in the area of music and cultural heritage, with a particular aims in recovering and integrating material for their valorisation and commercial exploitation. For instance music scores, audio files, images of antique music, related documents, videos and images can be integrated in WEDELMUSIC object and used for:

- building CD-roms, www sites, virtual archives that can be of interest for several music experts and consumers; this allows the valorisation of traditional archives.
- training courses with specific technology of music recognition and learning/teaching at distance;
- converting paper based archives music publishers in commercial digital music: transaction models, protection mechanisms, etc.

Other potential proposal can be in the area of industrial manufacturing. The technology solutions produced by projects ICCOC, SAMOPROS, MUPAAC, VISICON and OFCOMP can be profitably used for the set up of new R&D or demonstrative projects in the area of Industrial Automation and information management. These can be in the area of integrated industrial manufacturing, with a specific focus of set up, integration, optimisation of pipelines of production and the control of personnel work.

Author details, affiliation, activities

Countries of interest: developing and transition-economy countries
Sectors of activity/expertise: technology transfer, advanced information technology, high performance computer networking, computer music, saving cultural heritage, valorisation of cultural archives, e-commerce, software maintenance and reengineering, software analysis, industrial information, industrial automation.

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Contacts: Mr P. Nesi, Mr A. Evangelisti
Available for: partnership on projects; contacts with Italian and European industries (industrial and Computer Music Areas); expertise, etc.
Looking for: potential project with involvement; funding; project partners.

SECTION 2

TRIESTE CONFERENCE

28 – 29 September 2001

TRIESTE CONFERENCE

OPENING ADDRESSES

ADDRESS BY MINISTRY OF FOREIGN AFFAIRS
Mr M. Panaro

On behalf of the Ministry of Foreign Affairs, I want too express my deepest appreciation to the organisers of this meeting and to the participants from many Central European and South Eastern Countries.

In the first place my thanks go to Mr Pizzio and to Mr Cicognani and all who conceived and arranged the meeting.

The meeting comes, I believe, at an appropriate junction, when events are once again confirming that multilateral organizations do play a role not only to fill the many gaps that burden our development, but also to redirect the process of development away from mere consumption of raw materials and goods to a more equitable and earth friendly pattern.

Trieste is the venue of this event and I want, for this reason, to pay tribute to the international Institutions that work here and are engaged in science and technology. It is now a very varied reality that goes from physics to biotechnology, from academy to interacademy, to ICS.

After a few months since the idea first came out, I am glad to share with you these days' programme that should allow a progress towards some projects and from them to the end receivers that will meet in the November at the Summit Economic Forum.

As to subject matter of the meeting, I should like to make a few remarks, that examine the question of sustainable development from a general point of view, that takes into account some of the variables that play a role when one addresses the issues and tries to find the appropriate answers.

A number of questions come in this regard to my mind: first, we can ask to ourselves: What does sustainable development mean?
It is, I believe, first of all an attempt to be in control of events and not dependent on them. A couple of examples can help us in understanding some possible implications:
-After some 100 years of building cars and using combustion engines we have realized that 800 million combustion engines have been produced: this piece of information came out some two weeks ago from an expert that participated in a meeting on global research; which centered on public and private engagement in science.
It is maybe time that we concentrate on even cleaner engines than the ones we are presently disposing of, by finding the means to develop them and then the market to place them on, so that we can then make our cities a better place to live in and maybe one day give back some their sections to their inhabitants.

Water is another item that is essential in this picture: not only in terms of quantity, that is presently insufficient for a large part of mankind, but also as regards to quality and standard uses.
Italy is engaged in this area in a major effort to find the resources it needs to be self-sufficient and to respond to the requirements of various regions and places that are deprived, at least partially, of this element.
A national plan for water management has recently been launched by our Government, while other initiatives are underway, in order to favour appropriate schemes of cooperation at the regional level, starting with the Countries of the Mediterranean Basin.

Sustainable development means, in the second place, some sort of equilibrium between man and environment, a pact that should involve respect for each other. The size of the population and the size of the green areas can be mentioned as the two main components for the right equation between growth on one side and fight against poverty and shared progress on the other.

Sustainable development also means to think ahead_and be able to make the world a better place for those who come after us, with the aim of preventing man-made disasters, working for the improvement of troubled areas and intractable diseases and find the right answers to an ever larger and interconnected population.

Fourth meaning of sustainable development has to do with the reduction of uncertainties, so that predictable estimates can be made. This is crucial, but it is also affordable. The pattern is already there and the data in many fields are nowadays a huge reservoir for research and applications alike. Let's think, for just one case, to the progress made by biology, where laboratories are mostly computer-driven.
There is little doubt that the amount of data and hopefully of understanding of problems is not comparable, these days, with those of some 10 or 20 years ago.

Another question is, of course, the use, for which those data and laboratories are intended, which is another challenge for promoters of sustainable development.

If the understanding is making progress, it is also the time to make the right choices or, as ICS is doing, to help those who are responsible for that to take the appropriate decisions.
In this respect I hope that the meeting comes to some usable and concrete proposals for the year 2002 and not simply for the minutes of the meeting.

After all, we bear the responsibility of justifying our role, within our competences and capacities, in the international organizations, in the national Entities and in the institutions that are part of this exercise.

My best wishes to all of you that will make a contribution to the meeting

ADDRESS BY CENTRAL EUROPEAN INITIATIVE – EXECUTIVE SECRETARIAT

Mr A. Rupnik, Deputy Director General

Ladies and gentlemen, dear colleagues

It is for me an honour and a pleasure to be here this morning representing the Executive Secretariat of the Central European Initiative (CEI-ES) at the opening of this important conference on S&T for sustainable development. This event, jointly organised by ICS-UNIDO and the CEI with the help of the Italian Ministry of Foreign Affairs, has to be considered as an important step in approaching the CEI Summit Economic Forum, which will be held in Trieste on November 21-24 at the conclusion of the year of the Italian Presidency of the CEI.

Let me start my short presentation reminding you of the peculiarity of our initiative, which has been committed for more than 10 yeas now to bringing countries and institutions together in a spirit of flexible and pragmatic regional co-operation. The role of the CEI calls for a clear complementarity with other regional initiatives in this part of Europe: our specific aim is the creation of an atmosphere of mutual understanding in which national projects and trans-national programmes can be discussed, planned financed and implemented. Attention is focused in particular on the countries, out of the total of 17 CEI members, which are still facing important difficulties in the transition process – both political and economic. Sustainable and integrated development represent a strategy of obvious importance for the entire region, but it appears to be even more necessary for the weakest countries where the territory related resources deserve to be protected and properly exploited. For these reasons CEI is particularly satisfied with the topics to be discussed during these two days.

Within the CEI operative structure, organized through a number of thematic Working Groups (WGs), at least five of them are interested in the results expected of this conference: the S&T WG, and the WGs dealing with agriculture, energy, environment and small and medium-sized enterprises (SMEs) promotion. In particular I am happy to underline the on-going fruitful co-operation established between the S&T and the agriculture WGs on sustainable and integrated rural development strategy, to be regarded as an important item on the agenda of the conference.

In a more general frame I want to stress the programmatic coherence of the work programmes of ICS-UNIDO and of CEI, of course respecting our respective institutional mandates, but jointly evaluated with the aim of increasing the synergies and reducing undue duplications. This kind of co-operation allows us not only to organize this type of event, but also to establish a pragmatic approach to S&T policy, as coherent as possible, with clear benefits for our organizations and, even more importantly, for the beneficiary countries in this part of Europe. Our intention is to proceed along this line, verifying the possibility of wider co-operation between CEI and other international S&T institutes of the "Trieste System". Thanking all of you for your attention, I wish everybody fruitful work during these two days.

ADDRESS BY THE ICS MANAGING-DIRECTOR
Mr Francesco Pizzio

Excellencies
Distinguished Representatives
Ladies and Gentlemen

It is my great pleasure to give a warm welcome to you all, on behalf of ICS-UNIDO, which has organized this meeting jointly with the Central European Initiative (CEI).

First of all, I wish to pay a special tribute of gratitude to the Italian Ministry of Foreign Affairs for its support to ICS at highest authoritative level, especially to its Representative Counsellor Mario Panaro of the Cultural Promotion and Co-operation Division and to Counsellor Loretta Loria who represents the Permanent Representative of Italy to UNIDO. The constant support of the Ministry of Foreign Affairs to ICS - along with all scientific and technological institutions of the 'Trieste System' - has played a major role in shaping this city as a reference point of excellence for the countries of Central East Europe, or I should say Central European Initiative countries, and in organizing this meeting.

In this context, the CEI (Central European Initiative) has shown unceasing support to this project on sustainable industrial development of the above countries. In particular, my thanks go to Mr Paul Hartig, to whom I wish a speedy recovery from his illness, and to his colleague, who is addressing this meeting today. I also wish to express my sincere thanks to Mr Vincenzo Calogero, Head of the CEI-EBRD Project Secretariat, and to Mr Gianfranco Cicognani, Director of the Science and Technology Division of the CEI.

May I also extend a sincere welcome to Mr Dragan Domazet, minister of the Serbian Ministry of Science and Technology, which has embraced this initiative so enthusiastically: his presence here gives great encouragement to the project.

Finally, I would also like to thank all the partners of the 'Trieste System' – including the UNESCO Roste from Venice – and, in particular, the ICGEB, TWAS, SISSA, the AREA Science Park, the synchrotron light laboratory ELETTRA, the CNR, the university of Trieste, the many research laboratories in Trieste, and all participants here for this Conference. In particular, we are deeply obliged to the Abdus Salam International Centre for Theoretical Physics and its Director Miguel Virasoro, who has welcomed this Conference to his Centre and made its premises and facilities available to us all.

And now I would like to make some comments on the content and agenda of the Conference.

As you know, this initiative is the follow-up to the previous Conference held in Belgrade in May this year. It is, at the same time, a preparatory event for the Summit Economic Forum of the Central European Initiative, to be held in two months' time, on November 21-24, again in Trieste. The Belgrade Conference and this present Conference have the overall goal of providing a matchmaking opportunity for the Central European region, bringing together the 'offer' of R&D services available with 'demand' arising. These meetings on sustainable development will conclude with a strategy for development, tailored to individual countries but focused on the benefit of regional co-operation, and will include a plan of action for the development of project proposals to be presented to the donor community.

The series of meetings is a response, in line with policy of UNIDO and the Italian Ministry of Foreign Affairs, to the call from countries of the CEI region to seek solutions to the individual requirements

and needs of beneficiaries in the context of international industrial co-operation programmes. This action is also in line with a general commitment taken by the G8 governments in Genoa in July this year for issues concerning the promotion of sustainable industrial development.

Output of Belgrade Conference, May 2001

The Conference in Belgrade in May this year focused on how research and development can contribute to sustainable industrial development, and confirmed that improving industrial competitiveness is a major key to promoting endogenous capacity. In particular, the participants recognized:

- the importance of scientific and technological research for the stability of the Balkan Region also from the economic point of view
- the importance of a sustainable agro-industry for the development of agriculture and of the Region itself
- the fundamental role played by information technologies (IT) in advancement of a society.

Taking these as guidelines, working groups were set up by the concluding Round Table to draw up lines of action within four areas of common interest and high priority for CEI countries, in particular those of Central and South Europe, namely:
information technology for sustainable development, with emphasis on simulation and modelling techniques, as well as advanced decision-support systems;
new technologies for a sustainable agro-industry, including bio-diversity conservation and exploitation of renewable resources;
new technologies for environmental protection, including pollution monitoring, prevention, and, where necessary, remediation, with attention on sustainable industrial development;
identification of renewable energy-related sources and systems with low environmental impact.
Again, these are among the targets identified by the G8 governments as priority for international co-operation, in particular the areas of information and communication technologies as an instrument for growth and development, as well as the environment including renewable energy for sustainable development. The urgent call for transfer of information technologies to developing and emerging countries is widely acknowledged. Indeed, the UN Secretary-General Kofi Annan urged government leaders at this summer's G8 meeting in Genoa to 'commit yourselves to the goal of making IT accessible to all the world's people', and to set aside substantial resources to that purpose. A specific request for co-operation in this area for Africa's poorest nations has also come from Italian President Carlo Azeglio Ciampi, a line sustained by the Italian Ministry of Foreign Affairs at the G8 meeting.

One of the means of reaching the objectives identified by the Belgrade meeting – those of encouraging scientific and technological research, growth of the agro-industry, and take-up of information technologies – is through the launch of projects. Proposals for initiatives of this type must certainly be bottom-up, driven by the needs and demands of the countries of Central Europe.

I should add that since the Belgrade meeting, substantial preparatory work for this Conference has been carried out by both the CEI Executive Secretariat, Science and Technology Division, and ICS, in the form of a series of meetings between the two parties offering and seeking collaboration, and has led to the fine-tuning of a set of project ideas.

This activity represents the continuity of international co-operation being pursued by the Italian Ministry of Foreign Affairs, and avoids duplications whilst promoting the endogenous capacity of the countries of East and South-East Europe, as a step towards final integration into the European Union.

The following months will allow further development of concrete project proposals, the establishment of pilot schemes and the necessary partnerships for participation in international supported programmes, particularly those of the European Union.

All this effort leads us to the Summit Economic Forum, the concluding event of this year's Italian Presidency of the CEI. The Forum's outcome will be the concrete result of a series of projects, to be submitted for approval by the Council of Ministers of the CEI, and then put forward for financing to the international donor community.

I am confident that this meeting will be as fruitful as all our past joint initiatives. As you will have seen in your programmes, four parallel sessions have been organized, and begin this afternoon. Their purpose is the analysis of the project ideas being put forward, and the definition of project proposals. The chairpersons are:
Ms Sanja Vranes (ICS-UNIDO), chairing the first parallel session, on Information Technologies for Sustainable Development;
Mr Arturo Falaschi (ICGEB), chairing New Technologies for Sustainable Agro-Industry and Exploitation of Renewable Resources;
Mr Gennaro Longo (ICS-UNIDO), chairing New Technologies for Environmental Protection and Pollution Control; and
Mr Roberto Iodice (AREA Science Park), chairing Renewable Energies – Development and Related Policies.
May I extend my sincere thanks to them for the support they are giving to this initiative. Indeed, I thank you all for your attention, and look forward to working closely with you today and tomorrow.

Thank you.

SCOPE OF THE CONFERENCE AND EXPECTED RESULTS

Mr Gianfranco Cicognani, CEI-ES expert on S&T

The conference has to be considered, after the Belgrade conference of May this year, as the second S&T related event jointly prepared by ICS and the Central European Initiative (CEI) with the support of the Italian Ministry of Foreign Affairs (MAE) in preparation for the Summit Economic Forum (SEF) which will be held in Trieste, November 21-24 at the conclusion of the year of the Italian Presidency of the CEI. This circumstance gives the conference an important meaning, underlining the commitment of Italy to sustainable development policy, to be promoted in CEI member countries within the more general objective of European integration. This policy deserves to be properly implemented in a region where many countries are still facing, to greater and lesser degrees, difficulties related to their economic and political transition which call for careful understanding of the most appropriate development models, to be selected and proposed within the framework of real partnerships among all the partners. Scientific and technical co-operation, technical assistance, financial support will be increasingly required, keeping in mind the urgent needs of the weakest countries in the region, which represent a priority for the activities promoted by CEI. There is no doubt that this conference will represent an important occasion for identifying the best project ideas to be proposed at the SEF to both policy decision makers and the different donors.

Two basic ideas have been selected as a point of reference for this conference – to verify in a broader environment the results obtained by the Belgrade conference in terms of project proposals and to compare the demand for technology from countries of central Europe with the supply available in international S&T centres of the Trieste region and, more generally, in the north-east of Italy. The latter is a very important aspect, to be carefully evaluated in the coming months as an important opportunity for helping the development of a number of CEI member countries, more specifically of countries in the central-south European region.

In reference to this aspect, let me remind you that a key role has been played in the last three years by the International Centre for Science and High Technology (ICS) of UNIDO, as Mr F. Pizzio, ICS General Director, will explain to you this morning. For my part I would like to recall here that ICS commitment to sustainable development related activities was and will be of major importance in many respects (specific projects implementation, scientific and technological services offer, profession education/up-dating of qualified personnel, "ad-hoc" seminars and expert group meetings on selected topics) and, in addition, fully coherent with the policy promoted by CEI and MAE. ICS, within the UNIDO structure, has as its institutional mandate to help the industrial development of countries in the process of economic transition through programmatic activities carried on in a number of well identified S&T fields: information technology (IT), environmental protection (covering both prevention and remediation of pollution related damage), new materials development, advanced chemical processes identification and evaluation through innovative simulation techniques, telecommunications, professional training and promotional events. Most of those competencies have been and will be oriented to favour sound sustainable development strategy in a number of CEI countries. The effectiveness of ICS action has been strongly increased by the availability of not negligible extra budgetary resources from MAE through an "ad hoc" bilateral convention established year-by-year on the basis of a clearly focused operative programme. As the person responsible for S&T on the CEI Executive Secretariat I want to thank both ICS and MAE for this additional contribution and to express the hope that this effort will be maintained and, if possible, increased in the coming years. It goes without saying that we hope that other important international centres will follow the same policy, enhancing co-operation with CEI and other institutions with the aim of assisting proper development in this part of Europe.

Coming back to our conference, what do we expect in terms of results and follow-on. As I have already mentioned, the Trieste Conference represents the second step in a comprehensive strategy that CEI and ICS have implemented jointly in preparation for the November SEF. In Belgrade, as a result of the regional conference, a number of project proposals were defined and proposed as a significant contribution to sustainable development strategy to be implemented in this part of Europe. To day and to morrow we expect to further develop those ideas, enlarging the consensus among the partners and identifying the main conditions to be satisfied for proposing a selected number of them during the SEF to the political environment, to industrial operators and to international donors. The technological aspects will be prevalent and their evidence will be further underlined by the bottom-to-top approach we adopted, thus inviting high level experts and researchers of the different CEI countries to participate actively in the four parallel sessions. Our intention is to offer the participants a suitable environment to present their ideas, to verify that the required technology support is available to the counterparts, ready to offer and, should it be needed, adapt to the specific needs presented by the demand side their own expertise.

According to our idea of leaving a high degree of freedom to the proposals coming from the "demand" side, we simply indicated the general reference frame for each of the four parallel sessions, thus allowing each participant to present his technical proposal without respecting too strict boundary conditions. We are fully aware that this approach demands an important role of each of the 4 chairmen of the parallel sessions, asked to be both co-ordinators of the discussions and reporters of the achieved results. We are fully confident that each of them will be fully committed to this double duty, thus following our intention to promote a free forum where project ideas are properly discussed and proposed in view of their possible further implementation. It is logical to expect that the project ideas already presented at the Belgrade conference will be the first reference for the parallel session works. However we do not want to exclude that a limited number of regional project proposals could be an additional result coming from one or more parallel sessions. Should this be the case, these proposals will be further discussed in the coming weeks, with the aim of their presentation at the November SEF.

A final consideration deserves to be underlined. In between the Belgrade and Trieste events, a continuous effort has been made to identify further opportunities of S&T co-operation within the region. The starting point of this additional effort was a few ideas presented at the Belgrade conference even if in a very preliminary form, thus calling for further evaluation. Even if those ideas were typically presented as a request by one country, thus basically within a bilateral logic, regional co-operation was always present in our minds as a clear reference. In other words if a proposal (feasibility project, case study, etc.) is referred to a very specific situation, the expected results have to cope with the possibility of their use in a more general (multilateral or regional) frame. This is precisely the case of three feasibility studies already clearly identified, namely: 1) the integrated and sustainable rural development of Cres Island (Croatia), 2) the realization of a S&T park in the city of Nis (FRY) and, 3) of a service centre for "conventional" small and medium-sized-enterprises (SME) in southern Serbia (again FRY). Without going into more details here (you will find further information about them below), let me simply underline that, should those projects be financed and properly developed as we are confident they will be, the resulting benefits will be of a broader use within the CEI community, offering a clear reference for a number of similar initiatives. There is no doubt that the conference will allow the sharing ideas and exchange information along those lines.

SYNTHESIS OF THE PRESENTATIONS

After the presentation of Mr Pizzio, add the summary of the interventions of the other speakers as it follows:

Ms L.Tassan Zanin, Secretariat for the CEI Projects, presented the main objectives of the CEI Summit Economic Forum (CEI-SEF) to be held in Trieste on November 21-24, 2001, in terms of target interests and expected attendance. The structure of the Secretariat was given, with a specific reference to the collection of the Project ideas and proposals. Through a number of examples the strucure of the SEF was illustrated with reference to the different events (International events, Special Programmes, Investment Projects and Investment co-financing). The progress status of the Project opportunities identifies more than 175 proposals by 15 different CEI member Countries. Finally a short outline of the POM (Project Opportunity Methodology) was illustrated with the aim of encouraging the presentation to the SEF of new proposals which present proper characteristics for their considerations by public/private donors and the international banks, the EBRD among them.

Mr A. Falaschi, Director of the International Centre for Genetic Engineering and Biotechnology (ICGEB), illustrated the mission of this Institute, committed to provide a Centre of excellence for resarch and training in genetic engineering and biotechnology addressed to the developing Countries. An outline of the different steps performed from the date of the Centre institution (1983), through the autonomy (1994), to the full independence from UNIDO was given by Mr Falaschi., together with the main figures illustrating the actual capability of the Centre which hosts more than 200 researchers with a total budget (1999) of 13.7 millions of US$.

Mr C. Rizzuto of SINCROTRONE Trieste spa, presented the main potentiality of this unique equipment (2 GeV) through a comprehensive description of the operating beamlines and related Institutions: Circularly Polarized Light (CNR-ISM, Rome University, CNR-ICMAT); Gas-Phase photo-emission (CNR, INFM, Rome University); Mammography –SYRMEP (University of Trieste, INFN); small angle scattering (Austrian Academy of Science); SPE-LEEM (University of Clausthal); Spectro-microscopy (University of Trieste); Surface diffraction (CNR, INFN), Superesca (Sincrotrone Trieste); VUV Photoemission and X Ray Diffraction (CNR).

Mr G. Denardo presented the high lines of the activities of the International Centre for Theoretical Physics (ICTP) covering three main research lines: condensed matter Physics, high-energy and astroparticle Physics, Mathematics. However the main ICTP activity should be referred to the visit of scientists coming from both developing (2/3) and developed (1/3) Countries. The expert turnover is very important: each year about 30 young students coming from the developing world attend the ICTP Diploma Course. Training and Research in Italian Labs (TRIL) was presented as a relevant ICTP activity together with the offer of technological services to the different industrial sectors, including those in which the presence of the SMEs becomes more and more important.

The AREA-Science Park presentation was given by Mr G. Gatti following the outline presented at the Belgrade meeting. Since 1982, when it started operating, AREA-Science Park has increasingly aimed at creating solid links with the business world. At present more than 50 companies and about 1200 people are involved in R&D, technology transfer and highly qualified services offer.

Mr P. Lasserre, Director of the Regional Office for Science and Technology for Europe (UNESCO ROSTE) in Venice, offered a presentation of the availability of the scientific services. Technological Transfer (TT) related services, technical assistance, advanced training, communication and information, have been presented as the main expertise of the Centre, fully committed on the line of the new challenges: building national & regional S&T capacities, promote and strengthen global earth observing systems, elaborate integrated decision-support systems, innovate in prevention and

resolution of conflicts over natural resources. In addition the Centre activates initiatives (focused Workshop, Round Tables and Seminars) for helping the European integration processes; a number of emerging research areas have been also mentioned: Life sciences, ICT, Material sciences, Environmental protection and Sustainable development. Training, professional education and networking among European scientific Institutes have been indicated among the short terms proposed actions of the Centre.

Mr D. Amati presented the main duties performed by the International School for Advanced Studies (SISSA). The School represents a Centre for the research and the higher education which operates with the financial contribution of the Italian Ministry of the University and Research. A number of scientific fields are covered by the activities of the School: Astrophysics, Biophysics, Mathematics-Physics, Elementary particles, Neurosciences. SISSA is a part of an integrated scientific system including other Centres of the "Trieste System" (ICGEB, ICTP and Sincrotrone Trieste). Relevant co-operations are established with Italian Institutes such as the INFN (Istituto Nazionale di Fisica Nucleare) and CNR (Consiglio Nazionale delle Ricerche). The overall staff of SISSA counts about 200 employees.

REPORTS FROM THE PARALLEL SESSIONS

PARALLEL SESSION 1
Information Technologies for Sustainable Development
Co-ordinated by ICS Ms Sanja Vranes, PhD

Participants
A. Zidansek (Slovenia), I. Paskalova (Bulgaria), T. Peterson (Italy), N. Palloshi-Dardhishta (Macedonia), A. Riedel (Austria), F. Kosir (Slovenia), C. Gaindric (Moldova), I. Pannone (Italy), V. Frecer (Italy), P. Marietti (Italy), P. Inchingolo (Italy), R. Semeraro (Italy), P. Koncz (Hungary), G. Sergi (Italy), D. Valachovic (Slovakia), N. Tanovic (Bosnia and Herzegovina), L. Tassan Zanin (Italy), V. Popovska (Macedonia), S. Biggin (Italy), A. Evangelisti (Italy), A. Bellina (Italy), E. Canessa (Italy), A. Cavallini (Italy), D. Domazet (Yugoslavia), S. Vranes (Italy)

Conclusions
Opening the session, its co-ordinator introduced the ICS' potential and offer in ICT (Information and Communication Technologies) domain, with emphasis on IT-enabled services provided by ICS (technology assessment and selection, industrial siting, technology foresight, drug design, etc.). It has also been stated in the opening address, that ICT are inducing significant changes in the actual economic and social context and that this ICT revolution will have increasing relevance for the future development of CEI countries (both developed and developing/transition economy countries) and their role and place in a globalized economy."

The governments of the CEI countries are now becoming increasingly aware of the fact that building a national and regional ICT infrastructure, and providing access to adequate sources of information and IT-enabled services, for both decision makers and members of civil society, is crucial for national and regional development and long term sustainability. As a proof of this statement, Mr Dragan Domazet, Minister for Science, Technology and Development of Serbia, presented a project proposal called SINYu (Scientific Information Network of Yugoslavia).

Minister Domazet pointed out that the major bottleneck and obstacle to universal connectivity of and within developing and transition economy countries and to their adoption of emerging ICT is the local telecommunications infrastructure. Minister said that the provision of interconnectivity of all universities and R&D institution within the country and their connectivity to reliable international networks must therefore become a top priority. The main aim of SINYu project is to install high-speed connections of 2.5 Gbits/s between all institutions of research and education in Yugoslavia and leverage its connection to the European scientific network. Through its upfront technology SINYu can be easily expanded to become the hub of all future communication networks in South Eastern Europe and to enable the sharing of many diverse and remote IT-resources and services. The SINYu project will not only solve the acute problems of the network infrastructure of Yugoslavia, it will also signify a fresh start for academic telecommunication in South Eastern Europe. It will be a joint project of the Yugoslav universities and research institutes and academic institutions of the neighbouring countries, for the promotion of the national and regional tele-cooperation (e-collaboration).

Research cooperation will receive a new basis through the usage of teleconferencing system, which requires broadband communication proposed in the project. Consequently, the "brain-drain" will be reduced significantly, i.e. the scientists from FRY and other countries in the region will be able to take part in the international projects without being forced to leave their home country.

Large benefits will also arise in the area of telemedicine, since all university-related hospitals will be connected to the academic network. Broadband technology will enable not only via-net medical diagnostics but also some oh the remotely controlled surgical procedures.

Another important benefit will be distance learning (e-education, e-teaching, tele-education). SINYu will provide technology to support educators, institutions of learning, corporations, university students, and lifelong learners regionwide, to begin offering and using curricula online. The infrastructure, software and technical support for e-education is now more important then ever, since many of today's students are looking to higher education not just for a degree, but to acquire specific, job-related skills for which local educational institutions may not have curricula developed. Through the academic network, students and lifelong learners could gain access to the contemporary training courses and fully accredited degree and executive and professional certificate programs anywhere in the region and even in the world.

To summarize, the main "regional" goals of the SINYu project would be:

- To facilitate the supply of trans-European broadband interconnection between Southeast European national scientific, research and education networks (Bulgaria, Greece, Romania, Hungary, Yugoslavia).
- To support the regional and interregional collaboration in the Southeast Europe and Europe,
- To establish close relationship between the Balkan States and the European Union

The above project proposal has provoked a vivid discussion at the Parallel Session 1. Most of the participants agreed that information infrastructure represents a necessary foundation for IT-resources and services. However, the cost of the infrastructure is enormous (SINYu cost estimate was 33 Mil. Euros). To attract the needed substantial new investment for modernising existing telecom infrastructure, most countries must as a first step implement policy and structural reforms and changes in their telecommunications sector, which is often dominated by state-owned and -run monopolies (opinion of Ms Popovska, Macedonia, shared by most of the participants). To cure this situation another project proposal emerged "on-line" during the session, called Regional ICT Telecenter, which would, among other functions, disseminate best telecommunication policy and structural reforms practices.

The proposed ICT telecenter aims also at supporting the projects that involve the provision of information and communication technologies and fortifying the capacity of the Region in the use of ICT to achieve a sustainable, equitable and efficient development.

It also aims at facilitating the access of the member countries to specialized assistance and the latest advances in information and communication technologies; and promoting the participation of other bilateral, multilateral, civil society and other organizations to support development activities within the framework of ICT in the Region.

The telecentre will be principally directing its actions within the ICT framework to the following areas:

Supporting national efforts in the definition and application of strategies in the area of information and communication age technologies for development and in the implementation of policy and structural reforms and changes in their telecommunications sectors (i.e. encouraging countries to improve the climate for e-business and move forward on e-government)

Supporting the establishment of regulatory frameworks for the information and communication age technologies for development sector.

Establishing clear e-readiness evaluation criteria, adaptable to the level of development and diverse regulatory, social, economic and cultural frameworks of recipient country and undertaking needs assessment analysis of infrastructure and information and communication technologies throughout the Region, supporting national and regional information infrastructure development planning.

Determining the relative standing of the countries in the areas that are most critical for digital society development and recommending the strategies to overcome the major impediments to the deloyment of information technologies (ICT infrastructure).

Creating awareness about ICT potential among the general public, broadening and facilitating the access of lower income citizens to the benefits and advances of information and communication technologies as instruments contributing to social objectives.

Conducting an information needs survey among organisations and individuals involved in sustainable development activities, including environmental and other NGOs, women's groups, policy institutes, government agencies, private businesses and consultancies, who will also form the nucleus of Telecenter's clientele.

Linking users and suppliers of information related to sustainable development via computer mediated communications on a participatory basis and providing a virtual meeting place for stakeholders to meet and discuss relevant issue

Establishing national and regional bodies of expertise and centres of excellence to support and disseminate ICT technologies, i.e. building up ICT-related scientific capacities nationally, regionally and globally and strengthening collaboration, scientific exchange and networking among the institutions in the region

Monitoring and dissemination of national and regional technology demand and offer, facilitating growing economic interdependence within the region.

Providing 'IT-based services' and 'producing data and information products' to support decision making and responding to user needs by catalysing and brokering the development of core data sets--for example, GIS for land cover, topography, watershed, demographics needed for environmental assessment and sustainable development planning and strategy formulation

Distance ICT education and training leading to national and regional ICT capacity building, and training of end users in information sources (where to look for information, etc.).and providing mete-information to facilitate this and creating catalogues and directories of information relevant to sustainable development

Monitoring and dissemination of ICT projects funding opportunities at local, national and regional level and assistance in formulating projects, writing proposals, and finding donors/sponsors; Telecenter's network of experts and supportive software packages (for project appraisal, for instance) can assist in designing projects, writing proposals, preparing pre-feasibility and feasibility study and finding support for implementation of sustainable development projects that involve elements of information and communication technologies

Developing a practical approach for assessing progress towards Sustainable Development that would be useful in a variety of contexts and assisting investors, policy makers, site planners, environmentalists, and other community stakeholders to work together and to aggregate their viewpoints.

The representatives of almost all the countries present at the Parallel Session 1 expressed their interest in participating to this regional project (Slovenia, Hungary, Macedonia, Bulgaria, Bosnia and Herzegovina, Slovakia, Italy and FR Yugoslavia). It has also been agreed that the detailed feasibility study and financial engineering of the project should be done in order to start raising funds for its implementation.

PARALLEL SESSION 2

"New Technologies for a Sustainable Agro-industry and
Exploitation of Renewable Resources"
Mr Arturo Falaschi, ICGEB

The session was attended by: Mr A. Molla, Mr B. Djurcic, Ms S. Dorchrvic-Milosevic, Ms E. Abagiu, Mr A. Ciani, Ms T. Hagymasi, Ms M. Bogoescu, Ms R. Georgova, Ms I. Ivanova , Mr P. Lasserre, Ms B. Vasiljevic, Mr T. Persi

The participants at the session on "New Technologies for a Sustainable Agro-industry and Exploitation of Renewable Resources" considered particularly two main aspects of the questions that will have to be faced by the countries of Central and East Europe in the near future, also in the framework of the foreseen participation of some of them to the EU, and of the opening of the markets.

The first aspect is the evolution of European agriculture from problems of increase in quantity to those of increase in quality, with particular attention to the maintenance of specific local products, in an environmentally friendly way, including the necessary protection of biodiversity. Even if in some countries (Ukraine) the quantitative aspects are relevant, the basic needs of environment friendliness and biodiversity protection will remain. In this context, however, it was stresses that also the maintenance of "traditional" locally specific, high quality products demands a significant upgrade of the production technologies, to meet the safety and transparency requirements of today's consumers. Hence, also this aspect will require the introduction and diffusion of sophisticated technologies for production and certification of quality and origin.

The second aspect dwelled on the possible introduction, diffusion and utilisation of the new biotechnologies for agricultural production. This concerns not only food products, but also non-food, high value added agricultural products, environmental remediation, use of renewable resources. It was stressed, in agreement with the conclusion of the Council of European Agriculture Ministers and of the G8 meeting, that the possible advantages of the use of GMOs for these products and processes should be considered seriously in a context of great attention to aspects of safety and to the precautionary principle. It was also stressed that, in any way, an urgent need to upgrade the agricultural practices of the countries in transition is imperative.

In the framework of the discussions on these two main aspects, some existing initiatives were described.

Training projects at University level, organised in the Universities of Bologna and Perugia, on sustainable rural development and environmental protection; presented by Mr A. Ciani, University of Perugia

b) A project of exchange of information on appropriate utilisation of the land and production practices in the Adriatic area, initially focused on Albania; this project is carried forward by the University of Udine, in connection with the previously mentioned one led by the University of Bologna and in the framework of the UNIADRION (Union of Adriatic and Ionic Countries) initiative. The project proposal presented by Mr Giovanardi, University of Udine
(nema ga u spisku)
c) A project of enhancement of specific high quality agricultural production coupled with tourism in the island of Cres. The project proposal presented by Mr A. Ciani, University of Perugia.

d) The activities of high level training and information diffusion on the developments of the new biotechnologies and on the study of their safety for the consumers and the environment, carried out by the International Centre for Genetic Engineering and Biotechnology (ICGEB) of Trieste. The project proposal presented by Mr Arturo Falaschi, ICGEB

With all these considerations, the participants agreed that the most cost-effective action for improving the possibilities of sustainable agricultural development in the economics in transition is through an effort in high level training and information diffusion. Hence two specific projects are proposed.

Enhance, encourage and diffuse the programmes of University level education on sophisticated approaches to sustainable rural development and environment protection, taking into account the concerns of food safety and economic justification.

Support and diffuse university and post-university training and information diffusion on the potentiality of the new biotechnologies to solve some of the problems to be faced in the future: namely, to upgrade the production practices and procedures, to assure the safety for the consumers and the environment, to consider how the sophistication of scientific progress may dispel some of the worries of the public. In this perspective, not only food production must be considered, but also environment remediation and protection, production of high added value non-food products, utilisation of renewable resources. This programme could exploit and expand the existing initiatives, typically of the Trieste system (ICGEB, ICS, etc.). In the same context, the efforts at diffusion of knowledge should be extended also to the communication media (through schools of scientific journalism like those active in Bologna, Perugia and Trieste) and to the public at large.

The latter action may bring to a rational and cool consideration of the problems and possible advantages of the new biotechnologies for all aspects of European agriculture, keeping also in mind the needs for food safety and economic justification. This action should also convene fora of debate joining scientists, producers, consumers and environment agents, in order to reach a consensus for the overall general advantage of the European population.

PARALLEL SESSION 3
New Technologies for Environmental Protection and Pollution Control/Reduction
Co-ordinated by ICS: Mr G. Longo

The following persons were present during the session: Mr R. Da Fonseca, Mr F. Kovats, Mr A. Lodolo, Ms L. Loria, Mr K. Margasinski, Mr D. Neagu, Mr P. Pajestka, Mr K. Subotic, Mr P. Varga, Mr A. Zidansek, Ms G. Zieger.

The session was opened by the co-ordinator, who presented the focus of ICS activities, in particular the support, which is being given in the specific field.
The project proposals presented during the session were:
Title: "Regional Center based on computerized assistance for environmental monitoring, simulation and prognosis in technological risk conditions"
Presented by: Mr D. Neagu, Romania
Scope: To establish a Pilot Centre for the monitoring and detection of air-water soil pollution, the analysis and the prognosis of the environment in trans-border zones, under technologic or natural risks. The automatic data acquisition the data processing and the informing of the decision factors, are a solution for:

the objective mode of framing in the national and European legislation for environmental pollution;
the objective mode of analysis, simulation and prognosis;
the objective mode of neighbour information;
the objective mode of informing the population, the mass media and the public opinion;
the objective mode of integration in European networks.
Estimated budget:
Total cost of the project: 600.000 Euro.
Contribution requested to CEI: 440.000 Euro.

The project has already started five years ago and has already been financed partially by the water enterprise.
Title: "Environmental and emergency monitoring system of Cernavoda NPP, integrated in a decision support system, -Gamma Project-"
Presented by: Mr D. Neagu, Romania
Scope: To establish a Pilot Centre for the monitoring the analysing and the prognosis of the environment in trans-border zones, under technologic and or natural risks. The automatic data acquisition the data processing and the informing of the decision factors, are a solution for preventing and monitoring nuclear radiation around the Romanian nuclear plant.
Estimated budget:
Total cost of the project: 690.000 Euro.
Contribution requested to CEI: 450.000 Euro.

Title: "Geodynamical model of Central Europe for safe development of ground transportation systems" – Science and Technology Working CEI Group
Presented by: Mr P. Varga
Scope: Supplying a realistic geodynamical model of Central Europe and thus providing the necessary background for assessment –at different scales- of the stability of the lifelines systems crossing the region. It is a trans-national interdisciplinary framework project, which includes a large set of theoretical and experimental studies in the field of geology, geophysics, seismology, earthquake engineering and earthquake risk management.

The project should be implemented according to the following steps:
- Mapping the geological hazard in Central Europe;

- Optimization of the existing databanks;
- Investigations of the structure and the dynamic of the lithosphere in Central Europe;
- 3D Seismic wave propagation modelling;
- Intermediate-term techniques for earthquake prediction;
- Multi-folded earthquake scenarios and seismic zonation;
- Assessment of the vulnerability of different lifeline systems due to different natural disasters.

Estimated budget: they have support from EC and national funds.

Title: "ERPOMOSNet" (Environmental Radiation and Pollution Monitoring Station Network)
Presented by: Mr K. Subotic.
Scope: To enable the early detection of radioactive concentration resulting from nuclear accidents, as well as monitoring of power plant and industrial chemical pollutants in Yugoslavia.
The overall project is composed by:
1) Radiation Monitoring Network in Yugoslavia as a Part of Regional Countries Network.
2) Regional CDF (Computational Fluid Dynamics) Network for Numerical Simulations.
3) Studies of Radiological, Chemical and Microbiological Impact of the Danube River Basin.
4) High Performance Computing Center (HPC) for:
- Development of numerical simulation sciences.
- Processing experimental data.
- Diagnostics and visualization of the simulation and experimental data.
- Development of scientific software.
- Education in IT.
- Decreasing the brain drain in IT.

Estimated budget: not defined.

Title: "Network of Clearinghouses for best available technologies for integrated pollution prevention and control"
Presented by: Mr A. Zidansek
Scope: to transfer information, knowledge, best practice examples between EU and SEE countries, and adjust for regional differences and particular needs.
Estimated budget: 990.000 Euro.
Title: "Plant based monitoring of air quality"
Presented by: Mr A. Zidansek
Estimated budget: 100.000 Euro.

Title: "Quality control and improvement of recycled aluminium"
Presented by: Mr A. Zidansek
Estimated budget: 200.000 Euro.
Title: "Graduate school for sustainable development management"
Presented by: Mr A. Zidansek
Scope: educate managers with tools for sustaining development.
Estimated budget: 200.000 Euro.

Title: "Strengthening capacities for a dialogue on sustainable development"
Presented by: Mr A. Zidansek
Scope: stimulate public dialogue among stakeholders based on sustainable development indicators.
Estimated budget: 500.000 Euro existing for Slovenia at the Foundation for Sustainable Development.
500.000 required to expand initiative to CEI countries.
Final Considerations
After the project presentations, the co-ordinator highlighted the following:

- The projects presented by Mr Neagu and Mr Subotic for the monitoring of pollution are very similar, so he suggested merging both projects in an overall project at regional level that could be more successful in finding funds.
(e.g. EC finances projects starting from one million EURO).
- ICS could offer technological services for the project formulation encouraging the introduction of European Unit Standards.
- In addition, ICS will include in the draft Work Programme for 2002 a training activity in GIS and Remote Sensing techniques addressed only to experts from Central European countries.
- For the case of Romania, it was suggested to request funds through EC, specifically to PHARE Programme. Calls for proposals should be submitted through the government of the country.

PARALLEL SESSION 4:
Renewable Energies – Development and Related Policies

Co-ordinator: Mr Roberto Jodice, AREA Science Park, Trieste –I.

The following persons were present during the session:
Mr G. Cicognani, Mr Y. Nikitin, Mr M. Ilic, Ms I. Mihail, Mr G. Furlan, Ms V. Syrakova, Mr K. Subotic, Mr M. Giannini, Mr A. Dia, Mr K. Ushiki.

Opening the session, the co-ordinator remembered the general aim of the meeting, i.e. to compare the demand for scientific support coming from CEI member states, with the offer available within "Trieste System" and other scientific institution based in N-E Italy. Then the co-ordinator invited the participants (10 peoples, from 6 countries) to expose projects and proposals to carry on a useful co-operation.

The two main fields of interest were:
Biomass production and utilisation for energy purposes;
High efficiency energetic systems (HEES), rational use and saving of energy.

Five projects/proposals were shown, two belonging to biomass and three to HEES sector:
Forestry exploitation and timber industry wood waste recycling for heating system. The general objective of the project is to support the development of small-medium enterprises, while the specific aims are the production of heating solid fuels and new technology for heating purposes. The project proposal presented by Ms I. Mihail, Romania.
Biomass production (from different sources, mainly from agriculture) and utilisation for combined heat and power production (CHP). The proposal includes actions at national and regional levels, and the diffusion of efficient technologies such as direct combustion, gasification, CHP. The main aim of the proposal is to increase the use of biomass in rural areas, where biomass is produced. The project proposal presented by Mr M. Ilic, Yugoslavia
Energy for efficient clean technologies – EFECT; specific objective is to carry out a net for assisting enterprises and operators for adopting efficient technologies and systems. The main aspects of the project are the transfer and diffusion of technologies. The project proposal presented by Ms I. Mihail, Romania.
"Energy bus" project: diffusion of vehicle equipped with informational centre, metrical laboratory, board computers, demonstrational facilities, etc., with the specific objective of carrying out energy efficiency analysis, before and after implementation of HEES. The project proposal presented by Mr Y. Nikitin Ukraine
Internet log term exhibition of HEES of CEI countries. The project proposal presented by Mr Y. Nikitin Ukraine.

In conclusion the projects included different vertical themes such as innovation, demonstration and diffusion of efficient technologies.
All the proposers underlined the need of co-operation and the regional approach.
A large discussion on the proposed themes started at the end of the project presentations focused on their technical and general aspects (size of the project, number of partners, possibility of diffusion of innovative technologies in CEI member countries.
The participant stressed the importance of further occasions of meetings, for carrying out very detailed and comprehensive projects, to be submitted to donors.

CONFERENCE CONCLUSIONS AND FOLLOW-UP

Mr Gianfranco Cicognani

To conclude this conference, where a considerable number of project ideas have been presented and discussed by a highly qualified audience, is not an easy task. However I shall try to do my best. My points of reference are the presentations of the four reporters of the parallel sessions and the main outcome of the discussions, which offered relevant added value to the conference output. I do not intend to recall here all the items discussed in these two days of work; we shall have the opportunity to properly analyze them in the coming weeks, with the aim of selecting those that in our opinion deserve to be presented at the CEI–SEF to be held at the end of November; I shall try to add a few personal considerations to the basic content of the Final Statement of the conference which we have already distributed to the participants as a draft document open to further contributions.

Let me start by reminding you of the main output expected from this conference: the identification of a number of regional and sub-regional projects and case studies, both demonstrative and pilot, to be further developed and presented to potential donors. Only a few of them are included in the Final Statement, but other ideas call for careful evaluation. I would like to take the opportunity to remind you that it would be of great assistance to us if the participants would submit a synthetic description of proposals to be included in the proceedings of the conference.

Parallel session n.1 was dedicated to IT (information technology), which is regarded as a unique reference for the implementation of real sustainable development policy. It should be underlined that this item was presented as a subject in itself, not just as a high-tech service for the different programmatic lines. This session was attended by the largest number of participants, thus showing the high level of interest in the scientific world for this important thematic subject. The comprehensive discussion which took place at this session covered different aspects, all of them of major importance, from professional education to highly qualified services to be offered at an increasing rate. Specific attention was dedicated to the assessment of the "state-of-art" in the field, and the need for reinforcing the information systems infrastructures, a real weak point of the general frame, was clearly stated. On that line, two important projects have been proposed and discussed thoroughly by the participants and I should like to mention them briefly:

- The first project proposal, presented by Ms S. Vranes, co-ordinator of the session, refers to the realisation of a regional ICT (information and communication technologies) tele-centre as an important step in the implementation of sustainable development policy in this part of Europe. The aim of the centre is to increase competitiveness countries in central and east Europe, reducing their vulnerability to economic and financial crises and increasing the quality of life of current and future generations. A number of counterparts, both international and national, were identified, including R&D centres, universities and financial institutions. The CEI–SEF will be the correct context in which to present and discuss the project and as a relevant initiative to be considered for future development.
- The second project, strictly focused to strengthen the infrastructures, is the SINYu (Scientific Information Network of Yugoslavia) presented by Mr D. Domazet, Minister for Science and Technology of the Republic of Serbia. Even if tailored to the specific needs of Yugoslavia, the project has to be considered as a more general contribution to the development of a regional scientific information network in the region. The required investments are important, even if fully justified by the expected results; therefore this project deserves to be properly evaluated during the SEF itself and, more generally, presented for the attention of international donors (including the Italian government) committed to the implementation of "ad-hoc" development programs.

Parallel session n.2, co-ordinated by Mr A. Falaschi, considered the importance of new technologies for the development of sustainable agriculture. The subject is of major importance and was

thoroughly discussed at the Belgrade conference held in May of this year. Now we have had the occasion to further consider the different project proposals, also counting on the unique experience available at ICGEB, Trieste directed by Mr Falaschi. The discussion at the session was very open and comprehensive, covering different aspects: the evolution of the agricultural sector in this part of Europe, with specific reference to the necessity of bio-diversity conservation, environmental protection, the valorization of local, high quality products; the importance of the development of modern bio-technologies – both their upgrading and new developments; the necessity to increase attention to public acceptance, providing correct information also of a proper cost-benefit analysis including proper and realistic risk assessment; the increasing importance of professional training to be carried out with the help of advanced ICT.

The need for integrated and sustainable rural development strategy, underlined at the Belgrade conference, was confirmed; more specifically the project ideas presented in Belgrade were proposed for presentation at the SEF. I would like to remind you that a) the regional project on safe food strategy development, which meets the specific interest of countries of central and south Europe: Bosnia, Bulgaria, Macedonia, Moldova, Romania and Yugoslavia, b) the case-study of Cres Island, Croatia, a demonstrative project of an integrated and sustainable development where, agriculture, tourism and territory related resources are properly exploited.

Parallel session n.3, co-ordinated by Mr G. Longo of ICS-UNIDO, was dedicated to the evaluation of new technologies for the protection of the environment. A number of project ideas and feasibility studies were presented and discussed. In my opinion specific attention should be given to the proposal of establishing a pilot regional centre for the monitoring of air, water and soil pollution; the automatic collection/classification of the different data and their processing will offer a very important reference for both environmental protection and risk evaluation in the different countries, with specific attention to the trans-border zones. Other projects, with reference to radiological and conventional risks deserve careful consideration. Without going into detail, let me just comment on the proposal presented by Hungary on a geodynamical model in central Europe for the safe development of ground transport systems. This project encompasses one of the most important lines of development carried out within the S&T working group of the CEI, dealing with the earth sciences. We shall consider this line very carefully, as a major field of interest within the scientific and technological co-operation promoted by CEI. It is yet to be confirmed but this project should be proposed at the SEF, where considerable attention is given to realistic proposals. The next two months will clarify the point.

Parallel session n. 4, co-ordinated by Mr Iodice of AREA Science Park dealt with the energy related aspects, examined within the broader logic of sustainable and integrated development. We did not cover this important aspect during the Belgrade event, thus the results obtained at this session are of major importance for completing the overall picture. The outcome of the discussion underlines the validity of this approach, especially when biomasses are indicated as an energy source strictly connected with a development strategy focused on the sustainable use of the territory resources. Biomasses can be regarded both as a product and a by-product of an integrated rural development and of proper forestry exploitation. The related production cycle does not require the use of very advanced technologies, but calls for a careful evaluation of the already available technological tools, to be adapted to the specific necessities of energy systems largely based on the concept of a distributed network of relatively small plants. In that case the economic penalties due to the scale factors could be compensated for by the lower costs of the plant systems and components, and also by the use of a domestic and cheap energy source. There is no doubt that this proposal calls for a more in depth study focused on the identification of one or more demonstrative case studies to be proposed on a regional basis. A first step in this direction could be the organization of a promotional event (either a workshop or an expert group meeting) where qualified experts of a selected sub-region could discuss and elaborate a common development line. ICS could consider the possibility of promoting this event in the near future.

The sustainable development strategy, however, will remain "wishful thinking" if new "cultural" behaviour is not taken into consideration by society, for example, the classic relationship between energy requirements and GNP cannot be the main reference for future development strategies. This fact was recognized a few decades ago in the most economically advanced countries, when the importance of the quality of the energy was considered together with its quantity. Now a further step is necessary, should sustainability be considered as a reference for development. Energy saving, rational use of energy, and better compatibility between energy use and environmental protection: those are the aspects to be considered with greater attention in the future. It is worth pointing out that those points were properly discussed at the session with reference to: co-generation of heat and electricity, energy from clean technologies, a stricter relationship between energy systems and modern information technologies with the aim of optimizing energy use cycles. I am convinced that the Trieste System can offer high-level expertise and sound technical/scientific assistance in these areas.

A closing remark on the energy session refers to the realistic approach, which has been followed: high technology, capital-intensive energy sources, such as solar (both photovoltaic and thermal) and wind were not the focus of attention; the proven available technologies were the real reference and renewable energy evaluation was carried out in strict coherence with the more general integrated sustainable development strategy.

Before concluding I would like to underline two aspects that were present, more or less, in the work of all four sessions: the great importance of professional training on one hand and of SMEs development on the other. There is no doubt that the role of SMEs in both the high tech and conventional sectors will be increasingly significant. In this regard the two events (mentioned in the proceedings) of Belgrade and Trieste allowed us to finalize two feasibility studies for an S&T park and a service centre, both of which will help the growth of the SMEs system in this part of Europe. The Trieste System can substantially keep the professional training processes. As an example I would like to mention that AREA Science Park is prepared to organize a Masters in International Innovation Management open to participation of CEI countries. My time is up, so I will stop here. I would like to thank again all the participants also on behalf of the management of ICS and CEI–ES.

FINAL STATEMENT

1. Following the requirements of Italian Ministry of Foreign Affairs to strengthen the activities for the benefit of Central European countries, the international Conference on "Science and Technology for the Sustainable Development of CEI countries" was held in Trieste, 28-29 September, 2001.

2. The Conference was jointly organized by ICS-UNIDO and the Italian Ministry of Foreign Affairs in collaboration with the Central European Initiative. The Conference was attended by over 100 participants from CEI countries – representatives of governmental bodies, R&D institutions and universities, industries, as well as international organizations located in Trieste, like ICGEB, ICTP, SISSA, UNESCO-ROSTE in Venice, and national institutions such as the Trieste Synchrotron, AREA Science Park.

3. The overall objective of the Conference was to compare the "demand" for scientific support coming from 15 CEI member countries (excluding Italy and Austria) with the "offer" potentially available within the "Trieste System" and international R&D centres of excellence located in the northeast of Italy. The Conference was thus oriented on promotion of the existing possibilities available within international scientific communities, but was at the same time an occasion for understanding the requests and ideas of representatives from academia, industry and governments of the countries within Central Europe.

4. It has been recognized that a competitive industrial and technological capability cannot be built-up without adequate scientific knowledge and without participation in the development and utilization of new and advanced technologies. The Conference underlined the strategic objective of improving the industrial competitiveness of transition economy countries, particularly through promotion of the endogenous capacities of their beneficiaries (SMEs, national institutions, governments).

5. The guidelines of the discussions focused on: sustainable technological development of the region, bottom-up approach and orientation to cross-border projects and regional economic development, investment in environment and biotechnology and information society as a factor for development.

6. The field of actions and goals were discussed and achieved taking into consideration the extensive opportunities offered by modern information technologies, which include territorial information systems and techniques of data collection and elaboration, process simulation and decision support systems, optimisation techniques, and the need for vocational training. This innovative approach may guarantee adequate tools for implementation of the project proposals that have been discussed.

7. As a major result of the Conference, a number of sustainable development related regional projects have been presented and openly discussed in the perspective of a short-term implementation. Those projects refer to the following programmatic lines:
sustainable and integrated rural development in central-south Europe, mainly focused on the line of the "safe food" strategy and giving specific attention to both professional education programmes and technological upgrading/development, including suitable exploitation of GMO products
renewable energy exploitation, giving a specific attention to bio-mass related energy source, energy saving/rational use and high efficiency energy systems
within a more general approach of suitable environment protection policy, the proposal of the realization of a "regional monitoring centre", to act as the focal point where data on soil, water and air quality are collected and processed, offering a sound technical basis for pollution prevention and remediation
a careful and project-oriented development of information and telecommunication technology (ICT), identifying among the priorities the realization of a "regional ICT centre" covering both capability

survey in the different countries and the informatics services development increasing attention on development of a system of market-oriented SMEs.

8. The conference endorsed the importance of addressing high-level political decision-makers within the CEI countries in order to support creation of harmonized regional strategies for sustainable technological development. To this end, it was agreed that the CEI Executive Secretariat present this statement to the meeting of the Heads of Government of CEI member states (to be held in Trieste, 21–24 November, 2001.)

ANNEX 1

PROJECT PROPOSALS

PRESENTED AT THE CONFERENCES

ANNEX 1 – PROJECT PROPOSALS

1. FEASIBILITY STUDY OF A SCIENTIFIC AND TECHNOLOGICAL PARK IN FRY

On the occasion of the Belgrade Conference of May 2001, the Minister for the Science, Technology and Development of the Republic of Serbia, Mr D. Domazet, announced the intention of his Government to built the first Scientific and Technological Park of the Country in the city of Nis (southern Serbia). The occasion of the Conference was the proper one considering that ICS-UNIDO, which organised the Conference is one of the Institutes of the Trieste AREA-Science Park, for sure the most important S&T Park in Italy hosting about 60 scientific Institutes and high-tech Enterprises with 1,400 experts committed to the implementation of R&D, technological transfer, professional education and qualified services related activities. It deserves to be recalled here that the Nis S&T Park has been considered within the priorities indicated in the document prepared by the Serbian Ministry of International Economic Relations and submitted to the Italian Authorities for financial support.

Mr Domazet presented in more details the conceptual approach of the Park in July this year; in the occasion of a visit to Trieste he did following an invitation of the ICS Director. In that occasion a comprehensive discussion about this Project took place, at the presence of the AREA-Science Park Direction. As a result of the discussion it was well evident the necessity to prepare a comprehensive Feasibility Study (FS) of the Park, aiming to assess all the main technical aspects of this Project and to precisely identify scope, realisation time and required financial resources. It was very evident that a direct commitment of AREA-Science Park as Project leader of the FS would have been the better solution because its unique S&T expertise and long-term operative experience.

The FS of the Nis S&T Park is expected to consider a number of development lines potentially covering all the main needs of a "first-of-kind" structure focused to the promotion of the research and development in the Country, through the strengthening of the actual scientific tissue and the creation of new high-tech Institutions and Enterprises. In short, the following lines will be examined and assessed:

- Promotion of the development of the S&T Park itself; logistic related aspects evaluation; technological networks and services; settling of advanced Labs, Research Institutes and high-tech Enterprises.
- Valorisation of the R&D activities, through finalised programmes of technological transfer and adaptation of the new technologies to the demand coming from the industry.
- Advanced professional education in a number of technical fields of higher priority for the Country (Environment, applied Biotechnologies, Electronics, Informatics, new Materials and Telecommunications among them)
- Creation of new high-tech SMEs, offering logistic support, technical assistance and scientific services for the development of new ideas, thus also acting as a typical "Incubator" structure.

On that basis the FS will carefully evaluate both investments and time needed for the S&T Park realisation; the indication of the proper co-operations in the international frame will be an important element for assuring the Project sustainability.

AREA-Science Park is ready to act as Project leader for the FS implementation, counting on the co-operation of a number of selected scientific components of the Park itself, in particular on the contribution of the International Centre for Science and High Technology of UNIDO (ICS-UNIDO), an International Institute specifically committed to the industrial development in the Countries in economic transition. The local counterpart will be the Ministry for Science, Technology and the Development, with the support of its technical structures and the R&D Institutes, which refer to the Ministry itself.

The full engagement of AREA-Science Park in the preparation of the Nis S&T Park has to be considered as the best guarantee for a proper attainment of the expected results and indications. It

has to be underlined, however, that AREA-Science Park is ready to accept this commitment also because it is fully in line with the increasing importance of the internationalisation policy AREA is following, with a specific interest towards the countries of the central Europe. This study, in fact, even if tailored to a precise target (the Nis S&T Park), will present the more general meaning of a kind of "pilot project" with the possibility to be basically used (with all the amendments required by the specific local conditions) in a broader regional contest, specifically in the central-southern Europe. This fact is of a major importance because it will make possible to count on a contribution of AREA-Science Park (and of a few related Institutes) to the FS costs, in terms of expertise, specific competencies, advanced design/evaluation tools and professional education related activities. Those contributions will be clearly stated in the financial Plan to be considered of a major component of the FS proposal to be submitted to the Italian Ministry for Foreign Affairs (Cooperazione allo Sviluppo) for financial support.

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2. FEASIBILITY STUDY OF A SERVICE CENTRE
for small and medium sized enterprises

The importance of the technology transfer to the productive sectors was one of the most relevant items discussed during the Belgrade Conference. In particular the sustainable development of the Countries of the central-southern Europe calls for a proper development of the territory related activities where a major role is played by the SMEs. Therefore the identification and the transfer to industrial users of the better available technologies aiming to increase both the process efficiency and the product quality appears to be a key aspect of the development policies to be implemented in this part of Europe, more or less lacking in modern technologies and facing a difficult industrial transition. On that line the "Service Centre" model was successfully proposed in Italy as a technical structure able to assure to the SMEs of the so called "Industrial Districts" all the needed help in terms of technical assistance, technology identification/transfer, maintenance services, marketing analysis, fund raising possibilities, partners research, professional and technical education. Having that in mind, the idea of a project proposal was discussed, aiming to prepare a comprehensive feasibility study of a Service Centre for the SMEs, based on the unique and long experience gained in Italy but, at the same time, fully adapted to the actual situation encountered in most of the central-southern European Countries. Even if focused to a selected actual real situation, the feasibility Project should present the possibility a wider applicability to different environments, thus having a clear meaning of a reference study able to be used for a broader scope in different Countries and realities.

The feasibility study calls for the identification of a clear reference frame. From one side, there is the need of selecting an Italian Institution with a direct competence/interest in the field, ready to play the role of Project leader, also counting on a network of highly qualified partners; from the other, a local counterpart should be selected on the basis of its real commitment on the SMEs development and promotion strategies. On that basis the following Institutions have been properly identified:

From the Italian side:

The Provincia of Bologna, through its Department "Assessorato Attività Produttive e Promozione Economica del Territorio", which has the responsibility of favouring the growth of the SMEs, to be regarded as a major aspect of a comprehensive territory related development strategy.

A number of Organisations ready to co-operate with the Provincia of Bologna aiming to assure to the study all the needed supports in terms of both qualified competence and technical supports. Full availability has been assured by: a) the Emilia-Romagna Region, to be considered (together with the "Triveneto" and the Marche Regions) the leading Italian Institutions in that field; b) the Emilia-Romagna CIDA (Italian Federation of Industrial Managers); c) the different Associations related to Industries (API, the Association for Small Enterprises of Bologna Province among them), Handcrafts and professional/technical Education; d) the Bologna University, mainly acting on the side of professional education finalised programs; e) the International Centre for Science and High Technology of UNIDO (ICS-UNIDO) in Trieste, specifically committed to the industrial development, again on the line of the professional education and, more specifically, for the transfer/adaptation of new technologies.

From the Serbian side the logical partner will be the Agency for the SMEs development of the Republic of Serbia, a new Governmental Institution acting in co-operation with both the Ministry of Economics and Privatisation (which proposed the Service Centre Project to the Italian Government) and with the local Authorities and Institutions as well. The Agency activities are expected to cover a number of duties of major importance for the SMEs development: general information, technical assistance and legal expertise, credit related policies, innovation promotion, technological transfer, promotional aspects within both the domestic and international environments, fund raising opportunities.

It comes out from this reference frame that the feasibility study will be carried out counting on the direct engagement of a number of identified Italian Institutions, the specific interest and

competence of which represent a key point for assuring to the initiative the expected success. This aspect has to be taken in due account while preparing the application to be submitted to the Italian Government for financial support. In particular the covering of the cost of the feasibility study will count also on the contribution of the Italian partners, to be clearly identified in the related operative and financial plans. In short a comprehensive Project proposal will be submitted for evaluation to the Ministry of Foreign Affairs, General Direction "Cooperazione allo Sviluppo". The proposal will cover: origin of the initiative, general presentation of the project in terms of scope and expected results, partners identification criteria, main sectors to be developed and related strategies, professional education needs, operative phases description, operative and financial plans, self-sustainability of the Project, expected results and follow on actions.

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3. ICTT GENERAL PRESENTATION – LAUNCHING THE NET ECONOMY

The New Balkan ICT Tower will create a paradigm change to favour building the "New Economy" in the Balkans. It will serve as a support basis for increasing competitiveness and sustainability of the overall economy. The goal is to attract entrepreneurs and to train, coach and invest into such dynamic companies that use Information, Communication and Technology (ICT) as a platform to effectively enable a quantum leap in performance. This means seriously implicating youth, small and medium enterprises, innovation and entrepreneurship.

Background

ICTT d.o.o. is a new Belgrade based company in charge of developing and managing the New Balkan ICT Tower. The founding partners are International CG, a Genex Group company, and Orah Cooperative - Geneva.

The founding parties have agreed to use the landmark Genex Tower building. Located along the main highway linking the Belgrade Airport with the City Center, the building has 35 floors and is the tallest construction in Yugoslavia, if not in the Balkans. This office building has 18'000 sq. m. of useful surface and although erected in 1979, remains a prestigious office location.

Goals of the new balkan ict tower

Attract and train young and talented entrepreneurs by providing a very dynamic environment. This will offer a total service infrastructure; optimizing work conditions thus enabling entrepreneurs to fully realize their potential. In essence, ICTT will enable company creation, by developing high added-value employment opportunities in the ICT sector and thus help curb unemployment and the brain drain; provide a support platform for increasing the competitiveness and sustainability of the overall economy; attract key global players to the region and forge links with local teams in order to develop mutually beneficial businesses; play a large scale and a key role in promoting economic models which use ICT as a fundamental platform, thus help in bridging the digital divide; educate, convert, and assist wide range of local companies and the public sector in understanding and implementing new technologies and strategies, all with the view of increasing their competitiveness.
The mission of the Tower is to be the predominant catalyst for creation of ICT related, dynamic, modern, and profitable companies. This mission will be achieved by providing state-of-the-art infrastructure, support services, financing, and continuous strategic consulting.

Infrastructure

Given the size of the building, the project will be developed in phases with the goal of having the whole structure ultimately upgraded into the ICT Tower concept within a two-year period. Initially the project will commence with converting 3 floors, each totaling some 450 sq. m. These floors, forming the ICTT Incubator, will be arranged as follows:
One floor will serve as a training centre with 4 classrooms;
Two floors will be set-up in a modular format, equipped as office space with a capacity to accommodate between 14 to 20 separate start-up companies.

In later stages and according to demand, additional floors will be adapted to accommodate growing companies coming out of the ICTT Incubator. This prime infrastructure will also be offered to independent foreign and local companies operating in the field of ICT.
ICTT services:

General Business Education – basic concepts, finance, accounting, management techniques, business plan development, international quality standards; enior and Middle Management Education – main ICT trends, products, applications and implementation; IT training – hardware and software, supplier and product certification, process; Financial services – access to Venture Capital (VC) and other

sources of early and development stage financing; Business support – book-keeping and accounting, legal support, record keeping, invoicing, Electronic Data Interchange (EDI), etc.; Administrative support – receptions, text processing, mailing, print and copy service, archiving, travel arrangements, translations, etc., Marketing and Sales support – prospecting, leads provision, positioning, networking, promotions, pricing, branding; Think Tank – general strategy planning, communication with governmental bodies, communication with universities and other institutions; Location and proximity of like minded companies; Telecommunication infrastructure, 24x7x365 on-line, security, network equipment, quality office space, show rooms, storage space, parking, etc; Technical services – equipment maintenance, infrastructure maintenance, building security, cleaning, small repairs; Catering services – two restaurants in the building (one exclusive panoramic restaurant on the 35th floor, and one all purpose), kitchenette on every floor.

Increase the Economic Creativity

By creating the ICTT Incubator and attracting a number of established IT companies, we are certain that this project will facilitate technology transfer process and increase the level of start-up innovation. With these two key economic indicators of the new economy we expect to generate a strong stimulus for the local economic development.

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Available for: Cooperation with IT companies, strat-up development, product development, entry point to YU market, presentations and promotions, seminars.
Looking for: Educational partners, technology owners, funding.

4. VIRTUAL INSTITUTE FOR ECO-TECHNOLOGICAL OPTIMIZATION OF INDUSTRY

Summary

Virtual Institute for Eco-technological Optimisation of the industry is an initiative of the International Centre for Sustainable Development, ICSD. Numerous opportunities for eco-technological optimisation of industry and SMEs could be realised by more intensive and targeted research, and better use of knowledge. Relatively good scientific capacities in the countries of CEI could offer a much stronger support in these processes when included in a Virtual Institute, targeting integrated research for efficient and competitive enterprise.

The goal of the Virtual Institute is to integrate and transfer information, technologies, methodologies and skills for advancing eco-technological optimization and competitiveness of the industry and to introduce new knowledge-intensive technologies.

Members of the Virtual Institute are enterprises, know-how and new technology providers, research and development institutions, industry and commerce centres of knowledge, advisors, governmental experts, and others. Problem-oriented groups are formed for solving each selected problem, combining industrial experts, researchers, experts in commerce, experts in social issues, representatives of NGO's and other stakeholders. The experience in methodological approaches and other results of wider importance are offered to all network members free-of-charge, and the know-how of commercial value is accessible under favourable conditions.

The aspiration of the Virtual Institute is to progress with pilot projects for facilitating financing of new technologies implementation - Technology Transfer Fund, promotion of spin-offs from research institutions, supporting setting up of innovative enterprises and others.

Keywords

Eco-efficient Processes, Efficient Production, Virtual Enterprise, Competitiveness, Technology Forum, Technology Transfer, Advanced Manufacturing, Organisational Change, Manufacturing SME's, Tele-consulting, Tele-education, Spin-offs.

Objectives

The Virtual Institute will provide a range of services in an interaction of researchers, intermediary actors and industry users, particularly in the fields of:

- Transfer of good practice cases from Slovenia to other less advanced countries from CEI
- Adjustment of best EU practices in this fields to the conditions in South-East European countries
- Modelling of business and organizational systems including integration and applications of software skills
- Advanced control, automation and robotics
- Production and materials efficiency engineering
- Intensifying learning at tertiary level by integrating European expertise
- Acceleration and management of change
- Support for preparing project proposals and investment programmes.

Application of the above generally trans-sectoral knowledge is carried out in a number of production sectors -iron and steel industry, cement industry, polymer production and processing industry, paper and wood processing industry, tourism in the coastal area, energy, waste incineration, waste water treatment. Others, particularly chemical and pharmaceutical industry, are expected to join.

Expected Outputs

Making use of the similarities among Stability Pact countries and sharing and transfer of the existing and already proved (in the similar conditions) best practices

increasing number of enterprises aware of the opportunities that eco-technological optimization opens in front of them like new markets, improved competitiveness of their products, cost economies, improved effectiveness, overall company's better performance

economies of implementation and use of new technologies

increasing of the competitiveness of the Stability Pact industries

developing the image of Slovenia as a key player among Stability Pact countries and supporter of positive changes in SE Europe

contributing to greater awareness of the crucial interdependence of European countries, their production and eco-systems, and strengthening the European spirit

increasing efficiency in the use of materials and energy in production processes

overcoming limitations of small countries in development, transfer and/or adaptation of new, environmentally sound and economically efficient technologies

orienting the decision making about the technology transfer towards European know-how and technologies

changing the value system in universities and other research institutions by introducing new values, such as efficiency in linking basic and applied research with development, entrepreneurial abilities, and solving developmental problems by taking into account technological, environmental, economic, social and cultural dimensions

improving institutional structures by their involvement in solving problems at European level.

International (EU) partners
EU - European IPPC Bureau, Institute for Prospective Studies
Denmark - Roskilde University, Insitute of Life Sciences and Chemistry
Spain - Foundation LEIA, Centro de Desarrollo Tecnologico
General Evaluation of Required Support

Total Costs (over 2 years):	2.000.000 EURO
Requested EC Contribution:	1.200.000 EURO
Expected Revenue for Services Rendered (in the first 2 years):	400.000 EURO
Requested from the CEI donors:	400.000 EURO

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5. REGIONAL ICT TELECENTRE
facilitating sustainable development of the region

Background

Advances in Information and Communication Technologies (ICT) are inducing significant changes in the actual economic and social context and determining that the development of communities, countries or regions is based on the level and quality of the ICT adoption. This ICT revolution will have increasing relevance for the future development of CEI countries (both developed and developing/transition economy countries) and their role and place in a globalized economy. "ICT holds tremendous potential for helping developing countries accelerate growth, raise standards of living and meet other development priorities (G8 Communiqué, Genoa, July 2001).

The ICT sector is globally expanding at twice the rate of the rest of the world economy and this rapid development can provide an opportunity for the less developed countries to catch up without repeating the same problems that developed countries have encountered ("advantage of backwardness"). The governments are now becoming increasingly aware of the fact that technological and competitive advantages disappear if countries, societies, economies and corporations do not adopt and use these new technologies Building a national and regional ICT infrastructure, and providing access to adequate sources of information and IT-enabled services, for both decision makers and members of civil society is crucial for both national and regional development and long term sustainability. In a globalized setting, ICT affect qualitatively the international division of labour, determine the competitiveness of corporations and national economies and generate new sustainable development patterns and paradigms

The Internet has also promoted a process of "information democratization" by allowing citizens, organizations and institutions in most countries to publish and distribute, at a relative low cost, their own information and knowledge resources that, in many cases, deal directly with Sustainable Development (SD) issues, and help preserve Indigenous Knowledge. However, recent statistics and estimates indicate the US has already a substantial lead in deploying and effectively using Internet applications, especially electronic commerce. Europe is lagging behind 2 to 3 years and developing countries (DC) and "transition economy" (TE) countries come in last with at least a 5 years lag. This means that an average lag of the Central European countries is about 4 years and they have no other choice but to adopt such technologies and make a rapid progress in using ICT for the promotion of sustainable development. The government of the countries in the region are becoming fully aware that ICT is indispensable to economic and social development. Those who do not, risk being further marginalized.

The major reason for this lagging, and the major bottleneck and obstacle to universal connectivity of and within developing and transition economy countries is the local telecommunications network. The expansion of domestic telecommunications infrastructure and the provision of connectivity to reliable international networks must therefore become a top priority. However, even the most ambitious investment target for the developing countries would still remain well bellow one per cent of global telecom investments. Substantial new funds will be required to help DC and TE countries build and upgrade telecommunications networks and related communications technologies. To catch up, DC and TE countries will have to aim at a network growth rate between two and three times the global average of five per cent per year. To attract the needed substantial new investment for modernizing existing telecom infrastructure, most countries must as a first step implement policy and structural reforms and changes in their telecommunications sector, which is often dominated by state-owned and -run monopolies.

Many international organizations are now starting to work in networking and related initiatives at both the national and regional levels, which is excellent news. However, there seems that duplications

of efforts are indeed occurring and, given the scarce funds and a climate of budget cuts, it has become obvious that collaboration between donor organizations is becoming a necessity. ICS-UNIDO has been active in this area for several years now and has sought, whenever possible, partnerships and other collaboration efforts with other institutions at both the national and international level.

Based on this situation, our ICT telecentre aims at promoting this collaboration (mainly through the ICS and CEI), supporting the projects that involve the provision of information and communication technologies and fortifying the capacity of the Region in the use of ICT to achieve a sustainable, equitable and efficient development.

Objectives

Regional ICT Telecentre aims at strengthening the application of information and communication technologies in sustainable development projects, with the objective of contributing to the elimination, to the greatest extent possible in the countries of the region, of their socio-economic differences, increasing their competitiveness, reducing their vulnerability to economic and financial crises, and increasing the quality of life of current generations without jeopardizing the well being of future generations. The telecentre will be promoting dialogue between governments, universities, R&D institutes, civil and private organizations, and the public in general, to discuss and evaluate the different alternatives in the use of information and communication technologies (ICT) and the benefits of these technologies according to their development priorities.

It also aims at facilitating the access of the member countries to specialized assistance and the latest advances in information and communication technologies; and promoting the participation of other bilateral, multilateral, civil society and other organizations to support development activities within the framework of ICT in the Region.

The telecentre will be principally directing its actions within the ICT framework to the following areas:

- Supporting national efforts in the definition and application of strategies in the area of information and communication age technologies for development and in the implementation of policy and structural reforms and changes in their telecommunications sectors (i.e. encouraging countries to improve the climate for e-business and move forward on e-government)
- Supporting the establishment of regulatory frameworks for the information and communication age technologies for development sector.
- Establishing clear e-readiness evaluation criteria, adaptable to the level of development and diverse regulatory, social, economic and cultural frameworks of recipient country and undertaking needs assessment analysis of infrastructure and information and communication technologies throughout the Region, supporting national and regional information infrastructure development planning.
- Determining the relative standing of the countries in the areas that are most critical for digital society development and recommending the strategies to overcome the major impediments to the deployment of information technologies (ICT infrastructure).
- Creating awareness about ICT potential among the general public, broadening and facilitating the access of lower income citizens to the benefits and advances of information and communication technologies as instruments contributing to social objectives.
- Conducting an information needs survey among organizations and individuals involved in sustainable development activities, including environmental and other NGOs, women's groups, policy institutes, government agencies, private businesses and consultancies, who will also form the nucleus of Telecentre's clientele.
- Linking users and suppliers of information related to sustainable development via computer-mediated communications on a participatory basis and providing a virtual meeting place for stakeholders to meet and discuss relevant issue
- Establishing national and regional bodies of expertise and centres of excellence to support and disseminate ICT technologies, i.e. building up ICT-related scientific capacities nationally, regionally

and globally and strengthening collaboration, scientific exchange and networking among the institutions in the region
- Monitoring and dissemination of national and regional technology demand and offer, facilitating growing economic interdependence within the region.
- Providing 'IT-based services' and 'producing data and information products' to support decision making and responding to user needs by catalyzing and brokering the development of core data sets--for example, GIS for land cover, topography, watershed, demographics needed for environmental assessment and sustainable development planning and strategy formulation
- Distance ICT education and training leading to national and regional ICT capacity building, and training of end users in information sources (where to look for information, etc.).and providing mete-information to facilitate this and creating catalogues and directories of information relevant to sustainable development
- Monitoring and dissemination of ICT projects funding opportunities at local, national and regional level and assistance in formulating projects, writing proposals, and finding donors/sponsors; Telecentre's network of experts and supportive software packages (for project appraisal, for instance) can assist in designing projects, writing proposals, preparing pre-feasibility and feasibility study and finding support for implementation of sustainable development projects that involve elements of information and communication technologies
- Developing a practical approach for assessing progress towards Sustainable Development that would be useful in a variety of contexts and assisting investors, policy makers, site planners, environmentalists, and other community stakeholders to work together and to aggregate their viewpoints.

Outputs, surveys
Regional ICT telecentre will be undertaking diagnostic studies on actual national and regional needs within the framework of information and communication technologies in the social arena, designing solutions and execution proposals to address such needs, and implementing monitoring activities on the social impact of these technologies. To come up with the diagnosis on the status of ICT, a plethora of surveys will be done:
- Availability of the basic ICT infrastructure (teledensity, connection speed and functionality, access to wireless system, number of ISDN and DSL subscribers, etc.)
- Infrastructure market condition and affordability of infrastructure charges.
- Strength of legal protections and progress in protecting intellectual property rights.
- The level of information security and the extent of efforts to protect electronic privacy.
- Strength and effectiveness of the legal framework to address and prosecute computer crimes, authorize digital signatures, and enable public key infrastructures.
- Adequacy of human resources for ICT activities and digital society establishment, etc.

Some other surveys related to current national/regional connectivity and networking efforts will be undertaken, as well as surveys related to some general issues regarding the sustainable development, like:
- Identification of key institutions involved with sustainable development
- Identifications of national experts and centres of excellence in ICT domain
- Survey of information needs and suppliers of information
- Regional and national technology demand/offer survey
- Computer mediated dialogue with industries in the region on needs for demand-driven innovations, etc.

Digital Content
General -Results and statistics of the above mentioned surveys will be made readily available to all the stakeholders in the region
ICT - The aims is to improve public awareness of the possibilities of ICT and provide a useful content even for ICT professionals, through:

- Evaluation of "up-to-date" information and communication technologies, solutions, paradigms, tools, equipment, software, etc.
- Links to public domain solutions
- SIGs, Newsletters, Discussion Forums
- Virtual ICT library
- Multimedia ICT educational content

Environment

The aim is to provide the community with improved access to meaningful environmental data and information, and to help increase the capacity of governments to use environmental information for decision making and action planning for sustainable human development. Therefore, ICT telecentre will provide:

- Hosting or mirroring, the regional environmental monitoring project results and findings, and providing mirrors of and links to numerous high quality data sets at various scales (global, continental, national and subnational) on a variety of environment related themes
- Repository of the best available, economically viable and environmentally respectful technologies
- Repository of all sorts of freeware/shareware that could be used in sustainable development projects (life cycle analysis software, waste management software, other ecological software)
- A summary of the various sustainability indicators and evaluation of their relative strengths and limitations, as well as the evaluation of different indicator aggregation techniques

A cluster of IT-enabled services

- E-readiness assessment at national and regional level; E-readiness is the degree to which an economy or community is prepared to participate in digital government (e-government), digital economy (e-commerce) and digital education (e-education).
- Enabling e-collaboration i.e. collaboration among individuals and/or institutions engaged in a common, regional task using ICT (Web-based asynchronous and synchronous conferencing, group decision support tools, electronic mediation and facilitation, Web-based chat tools, e-mail, etc.)
- Elaboration of regional and/or national studies on telecommunications infrastructure and information services appropriate for the geographic and social conditions of the Region (SINYu effort of FR Yugoslavia is a good example) aimed at the search for easily replicable alternatives and solutions to improve the connectivity situation in the Region
- Presentation of the environmental data needs of developing countries to the global change research community, and assisting development community in understanding how data generated by the scientific community can be of value in sustainable development activities.
- Design of technological solutions (for example, generic e-commerce applications) targeted at facilitating the access to markets by SMEs, low-income craftsmen, farmers and rural workers with otherwise limited growth potential.
- Holistic technology assessment, simultaneously taking into account all sorts of technical, economic, environmental, regulatory and social criteria (ICS could provide this service)
- Software support for Technology foresight (i.e. the analysis of technological trends and their impact on and potential for developing countries (e.g. tele-work);
- Technological needs assessments for countries, region, industrial sectors or corporations; Monitoring and dissemination of national and regional technology demand and offer, facilitating growing economic interdependence within the region.

- Monitoring and dissemination of ICT projects funding opportunities at local, national and regional level and provision of software-supported technical assistance for concrete projects (pre-feasibility, feasibility and technical studies)
- Sustainability assessment, i.e. independent and informed assessments of technology alternatives in relation to a specified sustainability criteria or set of principles; Concretizations of the general effort could be made in the area of agriculture sustainability assessment or forestry sustainability assessment to support other regional project (e.g. Safe food and Sustainable agriculture project)

-Integrated applications of Internet, multimedia, hardware and software for the provision of distance ICT education systems, virtual ICT courses, libraries and conferences
- Information and monitoring systems on the state of the environment and natural resources in the region and integrated applications of Internet, databases, territorial and geographic information systems, and remote sensors for environmental and natural resources management
- Development of low cost generic solutions to facilitate the access and provision to/of Internet services by public and civil society organizations of the social sector such as hospitals, schools, sanitation agencies and other.
- Development of Internet-based software programs, portals and virtual networks to facilitate the provision of information and social services to traditionally marginal and geographically distant populations
- Various interviewing and polling packages allowing the participation of marginal and low-income population in the democratic process (e-democracy," Nothing in human history has ever made more information more readily available to more people at lower cost than the Internet".)

Potential counterparts

ICS –UNIDO International Centre for Science and Technology, Trieste, Italy
CEI – Central European Initiative
UNDP – Sustainable Development Networking Programme
InfoDev - World Bank's fund for e-readiness assessment
The Mihailo Pupin Institute for Automation and Telecommunications, Belgrade, Yugoslavia
The Jozef Stefan Institute, SLovenia
The Vinca Institute, Belgrade, Yugoslavia
University of Belgrade, Yugoslavia
University of Temisoara, Romania
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6. REGIONAL CENTRE BASED ON COMPUTERIZED ASSISTANCE
for environmental monitoring, simulation and prognosis in technological risk conditions – RCEM Project

Summary
RCEM Project propose to realize a pilot system on regional area for monitoring and detection of noxious, a prognosis, simulation and an assisted decision with a complete information of the decision factors regarding industrial risk and meteorological conditions. The system achievement is that it informs the decision factors in territory about what decisions shall be carried-out while an accident may occur.

To evaluate and anticipate the impact of the pollutants in air, water, soil, there are created a network in the technological installation, surrounding the pollution units and close to the impact areas. The technological risk will be minimized in the pollution units, so it can be at a tolerant acceptance level, risk will be avoid and emergencies that may occur will be promptly solved. The system has 4 components:

Preventive through monitoring the technological process, the medium and the utilities
Analysis and prognosis if a chemical accident may occur
A complete information of the decision factors
Evaluator- fulfilling the conditions of medium non pollution- for Environmental Protection Agency

Factors regarding chemical alarm plan are:
- local dispatcher that determine the cause of the chemical focal (in the unit and power plant)
- chemical alarm dispatcher that puts in use the chemical alarm plan if an accident that affects not only the unit but also the near-by areas occurs
- Civil Protection Agency, Civil Protection Unit in the accident spreads and affects outside unit areas
- The system offers, in an operative guide regime (offers a maximum of information to allow the human factor to take the optimum decision), all the information needed to choose the right scenario, every type of scenario being matched to an adequate plan. In making the project work there are some basic stages that allow the adaptability and personality of the system for each application.

Expected advantages
The possible effects of pollution, chemical accident and the impact towards populated areas are being emphasized by a program package that presents the evolution of the toxic cloud and the dispersion analysis through a map. The noxious and gas emission is being presented with the speed, wind direction and the stability class. Time studying evolution of the medium concentrations, in a geographical context allows reaching at the results classified in:
- Geographical results. We obtain these results from direct information's as: pollution cloud dimensions, affected area parameters- classes of concentrations, regions, districts that are affected
- The environment impact, population in particular, by processing a database about the attributes of the affected objects, presenting the number of inhabitants that are affected by lethal concentrations.

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7. ENERGY FOR EFFICIENT CLEAN TECHNOLOGIES – EFECT

Summary
The purpose of the project, is to set up a network of "Excellence Units" in Romania, Ukraine and Moldavia connected to a competence resource unit in Italy that will assist small and medium enterprises in evaluating the energy consumption and the resource-to-end-use efficiency of their technologies, proposing plans for improvement and facilitating the transfer of know-how. Directly, or by means of ad hoc sub units, the academic teams shall be instrumental in helping industry to implement the new efficient technologies.

Expected advantages
1. The compilation of an updated and analytical database containing reliable and qualitative information on the resource use efficiency and the ecological impact of the existing industrial processes presently adopted by the SMEs in Constantza, Odessa, and Kishinev regions.
2. The consequent implementation of some solutions, methods and techniques for efficiency improvement and overall reduction of the ecological impact.
3. Diffusion - on a regional basis - of efficient technologies and consequent know-how transfer to SMEs.
4. Substantial improvement of local health standards, generated by an overall reduction of the ecological impact of the SMEs.
5. Improvement of the competitivity of SMEs, thanks to the support of SMEs in their technology update efforts.
6. Trans-regional co-operation of SMEs from Italy, Romania, Ukraine and Moldavia.

The partners:
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Ukraine: Mr Boris Kosoi, Odessa State Academy of Refrigeration
Moldavia: Mr Valentin Arion, Technical University of Moldavia

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8. ENERGY BUS – POWERFUL INSTRUMENT
of energy efficient technologies implementation needs

The problem of energy efficiency increase has a great importance for most CEI countries because energy consumption for the unit of goods produced in these countries 2-3 times bigger than in developed Western European countries.

Powerful instrument of energy efficient technologies implementation is so-called energy bus (EB). There were several demonstrational projects in Ukraine, Belarus, and Russia for utilization of EB. These projects have served as a good impulse for the spread of energy efficient technologies. However, they lasted for not long period of time. At present time, in CEI countries EB can work in commercial basis and fulfill the following functions:

- Energy audit;
- Preparation of investment projects for energy efficiency;
- Presentation and dissemination of new energy efficient technologies and projects.

Energy bus is a vehicle, informational center, metrical laboratory, public awareness center.

EB has to be equipped by the following technical facilities:

- Board computer with the Internet, databases, and other relevant programs.;
- Demonstrational and presentational facilities;
- Portable and board meters, including:
- Termovision;
- Gas analyzers;
- Portable ultrasonic flow meters;
- Portable meters of liquid and gas temperature, speed and pressures;
- Devices of underground probing of pipelines and constructions;
- Electric current parameters meters;
- Other meters.

Having such facilities, energy bus can solve the big circle of task of energy efficiency analyze in different objects before and after implementation of energy efficient technologies including following tasks:

- determination of heat losses of the buildings, fences, and pipelines;
- energy efficiency control of burning process in boilers and furnace;
- evaluation of street and building lighting efficiency;
- evaluation of heat energy potential of waste smoke gases, hot water and ventilation air;
- determination of heat and water leakage in underground pipelines;
- analyze of buildings, industrial enterprises and cities energy balances;
- other tasks.

Creation and organization of energy bus functioning is a valid international project because energy bas can work in the territory of all CEI countries in the structure of national and international teams of experts and specialists.

It's also have a big PUBLIC AWARENESS effect that the work of energy bus usually attract attention of the wide circle of specialists and executives that also help to spread energy efficient technologies.

Approximate cost of EB hardware is USD 150000. Elaboration of software support is USD 50000, organization expenses is USD 30000. Two years later EB will be able to work under self-financing principle.

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9. BIOMASS DEMONSTRATION PROJECTS FOR SUSTAINABLE ENERGY PRODUCTION

Project abstract

There is a great energy potential of biomass in Yugoslavia. Some estimation says that annual energy potential of available agricultural biomass wastes in Yugoslavia is about 55 000 TJ, while the potential of wood wastes is about 125 000 TJ, which in total accounts about 180 000 TJ. But only a small part of that potential are being used in general for any purposes.

Existing facilities and applied technologies for energy production are very old in Yugoslavia, they have low efficiency and high emission of pollutants, and also use coal or liquid fuels rich in sulfur at places where it could be used biomass wastes. Therefore it is expected that the use of biomass in energy production on efficient and ecological way will lead to sustainable energy development.

The most interesting biomass energy systems for prospective projects are:

Agriculture centers for fruit and vegetable processing

Available fuels in these centers are stones and branches of fruit, and other kinds of wastes during processing of fruit and vegetables. These centers have advantage that biomass wastes are by-products and therefore disposed in the vicinity. These centers are favorable for projects of combined heat and electricity production since the end products in these centers are pasteurized or frozen food, for which processes is necessary to use heat and electricity.

Individual small and medium size energy self-sufficient farms

The aim of this project will be to present possibilities of individual farms to be energy independent and energy self-sufficient. Potential fuels in these bioenergy systems can be very different kind of biomass wastes. One of the most probable technologies implemented at the farm would be production of biogas from wastes of animal origin, and small to medium boilers firing biomass wastes for heat and electricity production. These projects will comprise whole bioenergy system, starting from harvesting, then with primary preparation of fuel, transportation, fuel condensing, storage, and finally energy conversion.

Agricultural centers for corn seed production

The advantages of these centers are that the fuel, corncob, is already available and located just near the energy plant, and there is no need for external transportation or preparation of the fuel.

Project contents

The proposed projects will comprise an analysis, covering determination of biomass potential in previously defined regions and locations (types, availability, energy value) and also giving the state of the art for biomass conversion technologies and possibility of their implementation in these specific locations. Then the project will comprise research & development and demonstration parts. On the base of the analysis, with a criterion of local biomass potential and energy needs, technologies for further development and implementation will be defined. Besides research activities some technologies with commercialized level will be implemented through technology transfer from the developed countries, and will be realized as a demonstration part of the project.

The proposed project will have the following impacts: significant increase of the use of biomass as energy source, decrease of the use of liquid fuel, technological improvement of energy production from biomass, help in decentralization of energy supply, decrease of the pollution, production of "green" energy, and improvement of social-economic conditions in rural regions.

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10. ENVIRONMENTAL AND EMERGENCY MONITORING SYSTEM
of the nuclear power plant CNE-Cernavod, integrated in a decision support system – Gamma Project

Summary:
The risk of nuclear accidents has determined the developing of automated measuring systems for the radioactive emissions in the atmosphere. The automated systems have the role of early detection of radioactive emissions. The data provided are essential in the process of elaborating countermeasures for population goods and environment protection. The gamma dose rates in the air is a reference parameter that can define the events with radioactive emissions in the environment, around the nuclear objectives.

The Central Dispatcher will be linked in the informational system of the Nuclear Power Plant. The dispatcher will have the option to give the information to the Nuclear Plant's decision border, to the local authorities to the regional and national intervention systems in case of nuclear accident. The system can be extending for national network integration. A software package is offered for mathematical analysis on different time lengths, the working between limits, statistic calculations, and display under international standards, mathematical analysis for concentration prediction and evolution in the affected areas, nearby nuclear objectives.

The GAMMA proposed project is aligned to national priorities (technical and scientific fundamenting of prevention methods and equipment, of reducing natural and anthropic risks, the miniaturization of gamma radiation around the nuclear central, the integration in the EU standards, the growth of security for industry and population, the growth of life quality and durable developing, the informatization of the decision, the crises and risks management). The automatic data acquisition, data processing and the informing of the decision factors, are solutions for the objective mode of:
- framing in the national and European legislation for environment pollution;
- analyze, simulation, and prognosis, neighbors information, integration in European networks;
- informing the population, the mass media, and the public opinion

Expected advantages
The main target is sustaining the human effort (correlated in the monitoring units, in intervention and supervision organisms), in taking the optimum solutions while the radiological alarm may occur, and that can be realize by informing the personnel about the specific measures he must take at his work place. The system finality will consist in a united and operative database, web page that will be able to present solutions for avoiding or/and minimizing risks for the units and near-by areas and regions.

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11. ERPOMOSNET PROJECT

ERPOMOSNet (Environmental Radiation and Pollution Monitoring Station Network), Mr K. Subotic, VINCA Institute of Nuclear Sciences
Objectives: Regional project: ERPOMOSNet (Environmental Radiation and Pollution Monitoring Station Network) is designed to enable the early detection of radioactive concentration resulting from nuclear accidents, as well as monitoring of power plant and industrial chemical pollutants in Southeastern Europe. Modular framework is provided for participant countries. Yugoslavian part of ERPOMOSNet will consist of 50 monitoring stations. Monitors will be remotely controlled. The suitable telecommunication system will be used to link the monitors located across the country to the central computer at INN Vinca. Based on the measured data and models of the mechanisms affecting pollutant and radioactivity migration, for support of " in advance" decisions for emergencies will be simulated. ERPOMOSNet will have the function of real time on-line monitoring and adequate warning system that will provide the government, and related organizations with timely information on any change in radiation and pollutant concentration levels and enable them to take appropriate countermeasure and inform the public.
Background: Institute of Nuclear Sciences VINCA is a multidisciplinary scientific institute, which covers a wide range of scientific and engineering fields .The current number of the INN Vinca employees is 780, of which 400 is research staff (153 PhD scientists, 109 MS scientists, 132 graduate students, 26 BS specialists). Their research activities are organized through 7 research departments: Physics Department, Chemistry Department, Biology Department, Environmental Sciences Department, Information Technology Department, Energy Department, Material Sciences Department.

Balkan Environmental Association (B.EN.A) nominated the Vinca Institute of nuclear sciences as International Center of Radioactivity Measurements in Southeastern Europe and Advisory Body of International B.EN.A regarding physics, physical chemistry, biology, environmental sciences, nuclear, fossil and renewable energy sources. Several projects, which are suitable to be regionally coordinated, are established along this line.
1.Radiation Monitoring Network in Yugoslavia as a Part of Regional Countries Network.
INTERNET technology for radioactivity monitoring is developed in the Vinca Institute of Nuclear Sciences. There is agreement for exchange of the relevant information, with Slovenia, which will finance, the 4 start-up environmental radiation monitor stations in Yugoslavia, as a part of an Early Warning System, and its coupling to the existing network in Slovenia. The Czech Republic is also willing to participate and to provide the financial support for that purpose. FYR Macedonia would like to join as well as it is expected that the initiative will be accepted by regional countries at Ederene (18/21. 10.2001) Meeting of B.EN.A. Finally IAEA expresses an interest to help the extension and completion of the network. In addition, the Association of 20 thermal power plants in Serbia is interested to use the network for monitoring of the pollutions at their sites.
2.Regional Network for Numerical Simulations based on the High Performance Computing Center (HPC)
3.Studies of Radiological, Chemical and Microbiological Impact of the Danube River Basin.

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12. INTEGRATED MONITORING OF THE MINING ENVIRONMENT

for drafting measures which limit the impact over the environment parameters produced both by the current mining operations and by the preservation and closure operations of non-profitable mines

Type of project: Demonstrative project

Summary

The mining activity and especially the closure of non-profitable mines have a negative impact over the environment, due to soil, water, air, vegetation etc., pollution.

The first stage in preventing the damaging of the environment parameters is an integrated monitoring of the safety and environment parameters of the active mining objectives or of those that are to be introduced into the process of preservation.

This paper highlights the polluting sources of the environment, i.e.: waste dumps, decanting ponds, goafs, underground waters, mine gases, powders and noise created by the mining operations. If case, it is necessary to implement efficient measures to prevent or limit the degrading process of the environment elements.

Expected advantages

The proposed project intends to gather theoretical and practical knowledge with respect to environment monitoring and the direct result shall take the form of a reference document and a survey handbook with special measures for the rehabilitation of the environment parameters adversely affected by the mining activity.

The handbook shall create a suitable framework for drafting technical reference documents that rehabilitate the environment parameters adversely affected in compliance with the provisions and standards in force.

The proposed topics and deadlines in this respect are the following ones:

- change of information and know-how – 4th quarter 2001
- project and handbook drafting – 1st quarter 2002
- finishing the handbook – 2nd quarter 2002

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13. REMEDIATION OF POLLUTED SITES
in Central and East European Countries

1. Background

One of the most urgent problems to be faced at a global level is the decontamination of soil and waters due to domestic and industrial activities. Large polluted areas besides having lost their eco-functionality often represents a serious risk for human health.

Even though environmental pollution is a common problem for all European countries and the restoration of natural resources represents a priority for countries in transition as well as for industrialized countries, the status of pollution and the relevant prevention policies and decontamination strategies markedly differ between EU countries and CEE countries and between CEE countries themselves, because of the different socio-economic and industrial situation in the past and the present time. In CEE countries and, in particular, in EU candidate countries, there is the need to allocate extensive financial as well as technical resources for environmental protection and recovery to reach EU environmental standards. Environmental situation in each country is specific by type, distribution and extent of contamination and the availability of sound and suitable decontamination technologies, together with a proper global environmental strategy, is one of the priorities for the years to come.

In the last years, several remediation technologies, based on biological, physico-chemical and/or thermal processes, have been developed on an industrial basis and many emerging techniques seem to be very promising to handle contamination of soil and water as they have proved to reach significant results both in pilot scale and in full scale applications.

In conclusion, even though remediation interventions should be considered a "downstream" solution, they represent an important tool to face some crucial problems of environmental recovery. Research and development efforts are extending the applicability of remediation technologies and it is expected that there will be an increased use of them, leading to a very promising industrial market development in the future.

The International Centre for Science and High Technology (ICS-UNIDO), within the area of Pure and Applied Chemistry, with the aim of facing the pollution problems and improving the capacity building in environmental issues in developing and in transition countries, is presently carrying out a subprogramme on Remediation.

Within this subprogramme, a draft Project Concept on "Remediation of Polluted Sites in CEE Countries" has been prepared by ICS-UNIDO.

Justification

Recent investigations have shown that many areas in CEE countries are seriously contaminated or damaged, with consequent impoverishment of natural resources and serious effects on human health. This is partly due to the use of obsolete industrial technologies with a consequent heavy production of by-products and of liquid and solid wastes, directly released in the environment, to the lack of suitable treatment facilities in the industrial and urban areas and, more in general, to an only partially effective environmental policy and management in the past years.

A proper planning and management of environmental problems, the introduction and implementation of suitable remediation technologies for the restoration of the quality of polluted sites together with the introduction of environmental friendly industrial technologies, seem to be the only possible way to face these problems in CEE countries.

ICS is therefore promoting the introduction, development and application of suitable remediation technologies and contributing to strengthen national capabilities with adequate programmes and initiatives in the interested countries.

The aim of the Project on "Remediation of Polluted Sites in CEE Countries" is to face this environmental problems collecting updated information on the situation of contaminated sites in CEE countries, also in terms of priority setting and on the latest issues and trends in the field of environmental recovery with particular focus on remediation technologies and their applications.

The project also aims at identifying the appropriate strategies, policies, and initiatives to face the specific environmental problems in an international perspective, including transboundary aspects of soil and groundwater pollution.

Objectives

The aims of the project are:

To survey updated strategies, criteria, methodologies and tools for the definition of decontamination priorities of polluted sites and for the identification and selection of most suitable remediation interventions.

To collect updated information on environmental problems of national priority (hot-spots) in CEE countries, focusing on transboundary aspects of contamination. Governmental policies, legal and technological background and on-going and/or planned remediation activities will also be surveyed in order to identify common problems and to define possible joint initiatives.

To define common strategies and methodologies for the identification and prioritization of polluted sites in CEE Countries

To promote pilot remediation interventions in CEE countries as demonstration projects of interest at the regional and sub-regional perspective, also identifying possible suitable partners and donors.

To disseminate the results of the initiative

Expected outputs

Survey on updated strategies, criteria, methodologies and tools for the definition of decontamination priorities of polluted sites and for the identification and selection of most suitable remediation interventions in CEE Countries. Review and comparative analysis of existing national legislations (and/or planned for the future). Standard guidelines for the management of contaminated sites that have been already elaborated and concerted. Inventory (based on above guidelines and existing [national] inventories) and prioritization of polluted sites, also focusing on (potential) transboundary contamination problems; To establish a common risk based approach for the harmonization of prioritization process of contaminated sites;

Elaboration of common criteria and guidelines for the identification and prioritization of polluted sites, taking into account the different level and type of industrialization in each CEE country. To create and develop proper documentation and decision support tools for decision makers to help decision-making process, like:

- guidelines on identification and prioritization of polluted sites, including proposals for common criteria, also focusing on transboundary contamination problems;
- guidelines for the establishment of adequate national data bases;
- guidelines on monitoring of polluted sites, also during and after remediation processes;
- guidelines on funding opportunities (taking into account the existing international and/or regional initiatives);

Definition of pilot interventions, elaboration, carrying out and diffusion of the results of selected pilot (demonstration) projects (case studies for priority sites) in order to offer pragmatic indications on possible available solutions to the CEE countries. Establishment of a common methodology for analysis of sustainability and bankability of remediation projects and elaboration of strategic

guidelines on funding opportunities, taking into account the existing international and/or regional initiatives.

Deliverables

Publication of the country reports from CEE Countries
Elaboration of guidelines on "Integrated Management of Polluted Sites Remediation" and "Setting-up Priorities". Elaboration of selected project concepts
Elaboration of guidelines for funding opportunities of remediation projects
Reports on results of selected pilot (demonstration) interventions
Organization of specific meetings (workshops and seminars) to disseminate the results of the initiatives and evaluate and discuss the further steps of the project

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14. REMEDIATION OF SOIL AND WATER IN SERBIA

contaminated with toxic heavy metals and depleted uranium using phosphate induced metal stabilization – feasibility study

Specific Objectives

As a consequence of the past war activities a large area in Serbia was contaminated by toxic heavy metals and depleted uranium (DU). There is an urgent need for remediation of this contamination in order to prevent its possible long term effects not only on the population in the contaminated regions but also in the neighboring countries. An additional problem in South Serbia represents long term contamination by Pb and Zn caused by Trepca, the largest mine of these metals in this part of Europe.

Project activities will involve remediation of the selected site(s) in South Serbia (outside of Kosovo) where contamination with toxic heavy metals and DU has been proven. Proposed remediation will be based on phosphate-induced metal stabilization by apatite application, which is equally effective for immobilization of DU, as well as for toxic heavy metals (Pb, Cd, Zn, etc,). In this study, remediation efficacy of apatite from Lisina, Yugoslavia and Apatite II from UFA Ventures, USA will be compared.

The project represents a feasibility study that will help in the preparation of large-scale remediation of other locations in Serbia contaminated by toxic heavy metals.

Background and Rationale

Based on the existing literature data, as well as on results of practical applications of apatite amendment in field remediation (results presented by UFA Ventures concerning field remediation in USA), this material is pointed out as a promising, cost-effective agent for uranium and other toxic heavy metal immobilization.

Collaborating Organizations

The Project will be realized in collaboration with the following organizations:
Aristotle University of Thessaloniki, Dept. of Chemistry,
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Coinvestigators: Mr K. A. Matis and Mr A. I. Zouboulis

UFA Ventures Inc./Nestt
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Coinvestigators: Mr James Conca and Ms Judith Wright

Anticipating Impact

The aim of this feasibility study will be the preparation of all activities, which are necessary for possible remediation of large areas contaminated with toxic heavy metals on the territory of Serbia.

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15. ECO-REGIONS TRANSITION FROM CONVENTIONAL
to Organic and Sustainable Farming System

This project is an attempt to promote the sustainable agriculture concept in Serbia and the Balkan region. By introducing the model of ecological farms and some ecological principles in food production including organic farming system, we will achieve some principles from Agenda 21.

There are numerous strong arguments for developing and adopting a long-term strategy that will stimulate sustainable agriculture development and create conditions for gradual implementation of organic agricultural production in the region. First, our country possesses natural resources, in both flat and hilly-mountain regions, which can meet the demands for establishing long-term sustainable and organic agricultural production. Second, there are economic reasons evidenced by the lagging behind of Serbia due to several years of sanctions and warfare destruction. Third, there are social reasons reflecting themselves in a steady rise of unemployment rate, increasing poverty, population migrations to towns and emigration of youth to developed Western European countries. The fourth reason relates to a relatively lower soil and water pollution due to lesser application of pesticides, agrochemicals and other chemical substances during the sanctions.

Specific goals of the project
The aims of the project are:

- to make short and long-term plans on sustainable and organic agricultural development in certain regions of Serbia, initially in hilly-mountain regions
- to gradually integrate those regions in economic terms through planned development of sustainable and organic agriculture
- to work out subsistence issues for the unemployed, particularly young people
- to encourage young people to remain in the country
- to promote thorough local regional development
- to upgrade local regional infrastructure and organization
- to prevent migration from rural to urban areas
- to increase income in rural regions
- to upgrade manufacturing capacity and organization in rural regions
- to prevent further social and cultural degradation, particularly in lesser developed regions
- to bring back old values and develop new ones in plant and livestock production
- to initiate various forms of production in sustainable and organic agriculture (bio-gardens, organic farms and the like)
- to revive deserted farms
- to create conditions for a more intensive development of entrepreneurship in the sphere of sustainable and organic agricultural production (to open new processing plants, specialized markets and the like)
- to find professional non-governmental organizations involved in accomplishing the strategy of organic food production
- to associate, cooperate and institutionally strengthen non-governmental organizations and government institutions engaged in these activities
- to organize instruction and training for all those involved in organic foods production, processing and distribution
- to elevate ecological awareness and develop proper eating habits in the population
- to develop information centres, non-governmental organization networks, government institutions and other associations of participants concerned
- to join IFOAM partnership
- to integrate into international trends
- to further contribute to the development of organic farming in the world

Target groups

- agricultural producers
- employees in the food processing industry
- organic foods distributors
- inspectors in charge of organic foods production control
- government and non-governmental organizations concerned with agricultural production as a whole

Components and organization

The project consists of two parts. The first is educational programme. One of the serious conditions in spreading and developing the idea of ecological (integrated) farms is serious education. Educational programme involving both theoretical and practical training in sustainable and organic agriculture is intended for all concerned, i.e. target groups. The programme consists of seminars, instruction and training of farmers, manufacturers and distributors of organic foods, activists of existing and newly developed non-governmental organizations. The seminars would cover the interests of all groups concerned – farmers, manufacturers, distributors and consumers of organic foods as well as all responsible institutions in the country, different international organizations involved in organic farming. Three-day seminars would be held at the Faculty of Agriculture either late in January or early in February each year. The seminars would comprise the following topics:

- basic aspects of organic farming (ecological, economic and social aspects, principles and criteria)
- regulations (standards, recommendations) concerning organic farming
- conversion periods and models
- basic models of sustainable and organic agriculture development
- macro-project of sustainable and organic agriculture development in Serbia
- micro-projects of sustainable and organic agriculture development in some regions
- sustainable and organic plant production
- sustainable and organic animal production
- basic principles of technological processes in organic foods production
- technology of organic products manufacturing process
- control of manufacturing process technology and organic products quality
- economics of sustainable and organic agricultural production
- sustainable and organic agricultural production marketing
- organic foods distribution and sales

A special educational programme will be created in all area of food production (plant, animal etc.) depending on interest.

Prominent role in the project is given to education of people via media to make them aware that organic foods are important to keep them healthy. The experience of many countries shows that markets for organic foods can operate successfully only if consumers are aware of their eating habits in terms of ecology. Programmes (i.e. "Improve your health by organic foods") accomplished in a popular way, and a series of topical lectures will supply different categories of population with information on the advantages of organic food consumption, how to cook it properly and preserve its quality. The aim of the lectures is to gradually change people's way of thinking and behaviour, bad eating habits and prevent diseases caused by improper nutrition. Education through media will be conducted by new programmes on radio and local stations. Another part of project is the organization of farms itself and implementation of organic farming methods in food production. The following eco-regions will be defined: regions of Stara Mt., Vlasina, Pester, Mt. Kopaonik, Mt. Zlatibor, Mt. Rudnik region of Pirot, region of Dimitrovgrad, and the region of Bosilegrad. Detailed ecological

regional maps will be produced and an appropriate model will be chosen for stimulating sustainable agriculture development and implementing organic food production.

Informative network centre

An informative network centre will be created in each region, with its base at the Faculty of Agriculture in Belgrade. The aims of creating such centres are:

- database about institutions, private and public enterprise, international organizations dealing with issues of organic agriculture of CEI countries
- gathering data about their activities, projects, technical equipment etc.
- creating a web site
- founding a library

Establishment of eco-farms, implementation of new methods and knowledge in undeveloped regions will contribute to restoration and development in our society. Project should contribute to better resource usage, increase of local production and land and water protection in those areas. Implementation of international standards in food production (IFOAM-basic standards) will be a great contribution as well. Possible links with similar organizations will be established.

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16. FORESTRY EXPLOITATION AND TIMBER INDUSTRY WOOD WASTE
recycling for domestic and public sector institutions heating systems

Type of project: Pilot project

Summary
The recycling pilot station will be installed in the very representative area (Rau Sadului village, Sibiu district, Romania), in order to process all the wood waste quantity gathered in the area, about 6 tones/day. The local public administration will get involved with the specific investments: terrain, buildings and the gathering of wood wastes.
Wood wastes recycling pilot station will provide heating solid fuels (pallets), and will support the finding of the new technical and technological solutions.
The next step is the research for designing the wood waste recycling equipment and the controlled heating equipment that will be manufactured in small companies/factories.

Expected advantages
Create both new working places and an ecological environment by developing small enterprises – these will exploit and process the wood-wastes, the result being new ecological fuel-supplies that will be used to generate the caloric/thermal agent.

In Romania, a country with a high forestry potential, there has been registered a growth in the quantity of wood-waste resulting from forestry exploitation and timber industry. The reports show that at the end of 2000 there are almost 700.000 tones of wood-waste resulting from forestry exploitation and wood primary processing and 500.000 tones from timber processing. A small part of these wood-wastes is presently re-used. The growth in the quantity of wood-wastes, especially in the exploiting areas, leads to great ecological environmental problems.

a. Solving the ecological environmental problems, into the EU environmental standards frame.
b. Cheaper and ecological fuel for domestic heating.
c. Offering new working places, mainly in the rural area.
d. Improving the quality of life especially for the people living on countryside.

The partners:
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17. LOW-EXTERNAL INPUT FARMING SYSTEM-STRATEGY FOR ENVIRONMENTAL PROTECTION

Any crop production system can be subdivided on the basis of component elements – into inputs, biological processes and depletions or net losses. The biological processes include photosynthesis, genetics of the crop in terms of its adaptation to the soils and climate and resistance to pests and diseases, biological nitrogen fixation, nitrogen cycling in the soil, phosphorus uptake by mycorrhizal fungi associated with roots, plant defence by plant-associated microorganisms and natural enemies of insect pests and soil sanitation by the natural soil microbiota. The inputs include the fertilizers, water, where irrigation is practiced, pesticides, labour and energy. The depletions or net losses are largely earth resources and include the organic matter and mineral nutrients contents of the soil, water reserves and water quality, soil lost through erosion and fossil fuels.

The relative contributions of these three component elements to crop production on any given farm vary with the farming system. Some systems attempt to reduce inputs and make greater use of biological processes; other use more inputs and depend less on biological processes. These components refer only to those elements that are involved directly in crop production and do not include broader considerations such as food safety.

Conventional (high input) technologies in crop production involve much intensive tillage systems, artificial fertilizers application, and substantial increase in the use of pesticides lead to natural resource degradation. The great problems occur in final products, pesticides and fertilizers residues in food. These residues cause great problems in human health as well.

Specific goals of the project

Implementation of low-external input technologies in field and vegetable crops is very important in sustainable development concept. Sustainable agriculture is a goal aimed at not only allowing no net depletions or net losses in earth resources but, ultimately, at rebuilding or restoring the productive capacity of agricultural soils as well. The objective of the project is to reach international standards of developed countries in the most important global, regional and national research issues related to:

- food and human health
- ecological balance between food production and environmental protection
- multiple approaches to sustainable agriculture
- the influence of global and regional climatic and edaphic changes on agricultural production and environmental conservation
- integration of agricultural research needs in national agricultural policy for the development of a sustainable agriculture based on sound and most up-to-date scientific knowledge

Target groups

- agricultural producers
- agricultural advisory services
- agricultural, rural development and environmental policy-makers
- organizations representing farmers and food industry

Components and organization

Research of present condition in the fields is necessary as the first step. The next step will be a series of trials with implementation of new technologies on different genotypes of field and vegetable crops. The same trials will be set up in different regions of Serbia (Vojvodina, Central Serbia, East Serbia) for at least two years.

Adoption of low-external input technologies including:

- new genotypes implementation with great adaptability to low-input system
- conservation tillage systems (more than 30% of land surface are covered with organic residues, mulch tillage)
- adaptive fertilizing system – mostly organic fertilizers
- ecologically-based weed management
- IPM-integrated pest management
- crop rotation intensification and diversification (intercropping, cover crops, mixed cropping, alley cropping)
- increased economic efficiency (input reduction leads to cheaper production and lower prices of agricultural products)

Author details, affiliation, activities

The Faculty of Agriculture was founded in 1919 and was one of 6 faculties, which the University of Belgrade then had. After WW II, the Faculty was intensively developing and soon became one of the leading higher educational institutions of its kind, training experts in all branches of agriculture.

The Faculty is a teaching and research institution whose activities cover the following fields: crop science, fruit science and viticulture, animal science, soil management, plant and food protection, agricultural engineering, food technology and agricultural economics. Educational activities involve teaching (lectures, seminars, professional practice etc.) as anticipated by curricula for undergraduate and postgraduate studies, knowledge check up (exams, colloquia), advanced training, organization of state finals for teachers of agricultural secondary schools. The faculty has 4000 students, 45 full time professors, 60 associate professors, 52 assistant professors, 106 assistants, 140 technicians and 55 technical services staff.

The Faculty is either independent or cooperative with other organizations in research and professional activity through basic, applied and developmental investigations, studies and projects, engineering, expertise, consulting, attesting, granting licenses, certificates in all spheres of agricultural production and food technology. The Faculty of Agriculture, University of Belgrade accepts and attempts to develop the new ideas and concepts in agriculture development. It will be achieved by international and regional cooperation in the area of sustainable agriculture. For that purpose, a team of scientists of different specialties was formed. The guidelines of all the activities of the team focus on: promotion of sustainable technological development in our country, educational improvement of students and broad society, international and regional cooperation in this field of science, investment in environment and biotechnology and environmental protection.

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18. GEODYNAMICAL MODEL OF CENTRAL EUROPE

for the safe development of ground transport systems – CEI Science & Technology Working Group

Beneficiaries Countries: Austria, Bulgaria, Czech Republic, Croatia, Hungary, Italy, Macedonia, Poland, Romania, Serbia, Slovak Republic, Slovenia.

Planned duration: 24 months, Starting date: January 2002

Project justification. A realistic geodynamical model of Central Europe (CE) is a necessary base for the upgrade of preparedness to meet natural disasters (PMND) - e.g. earthquakes, landslides, liquefaction, floods, etc. Large destructive events are not unexpected in the region. A paradigm being the 1117 earthquake caused severe structural damage all over the Po valley. Recent results obtained within the research activity carried on in the framework of collaboration among the partners of different CEI countries have shown that the CE territory is exposed to a level of natural hazards much higher than currently believed. A high standard of PMND throughout the region, which is currently crippled by the different levels of PMND at individual national scales, is crucial in the effort to reduce the vulnerability of the lifeline systems and communications. This preventive action is a prerequisite for saving a significant fraction of the Gross National Product (GNP) of the involved countries in case of natural disaster. Ongoing process of integration in Europe, in the Central and Eastern part of the continent expressed in CEI activity, is a part of the trend for the political unification associated with broad alliance of civil initiatives, including environment, culture, mobility, trade and commerce. The region is of crucial importance not only at European scale but, thanks to its location, its role is expected to be a crossroad on the routes connecting East and West, South and North. The problem of PMND is crucial in the effort to reduce the vulnerability of the lifeline systems and communications (oil and gas pipelines, electric power and telecommunication cables etc.). Additionally, it is complicated due to the different levels of PMND at the distinct national scales. PMND becomes of crucial importance more and more strongly within the ongoing integration processes in Europe and worldwide [e.g. Blueprints of the World Congress on Disaster Reduction, August 2001, Washington, USA]. The proposed Project is a contribution to the mitigation of natural risks in Central Europe. The proposed framework Project involves large set of transnational interdisciplinary activities - theoretical and experimental studies in the field of geology, geophysics, geodesy, seismology, earthquake engineering and earthquake risk management - that can be performed within a joint collaboration with other CEI Working Groups: (1) Transport (chaired by Italy), (2) Environment (chaired by Austria) and (3) Human Resource Development and Training (chaired by Czech Republic).

Expected results and deliverables. The activity proposed aims to put the PMND on a common base supplying a realistic geodynamical model of CE and thus providing the necessary background for assessment -at different scales- of the stability of the lifelines systems crossing the region. The main result expected from the successful completion of the project is a geodynamical model of Central Europe, representing the common base for unified PMND in Central Europe. The results can be provided as maps of geological hazards; maps of active crust deformations; structural velocity models of the Earth Crust; procedure for intermediate-term earthquake prediction; multifold earthquake scenarios and seismic zoning maps.

Transition impact & Cost benefit considerations. To bring the transport and transportation systems in line with sustainability objectives is one of the key challenge for transport in Europe. Unfortunately little attention is paid to the credible risks and the possible disastrous consequences that can be provoked due to the occurrence of different natural disasters (e.g. landslide, earthquakes, coseismic effects). Reliable geodynamical model combined with credible hazard scenarios, and also with some seismic microzonation studies represent the base for the definition of realistic special excitations that can be experienced by different transportation and lifeline systems. It is not easy to express in numbers the cost of the reliable active communications during and after a disaster occur, or to estimate human losses. To avoid or to reduce the damages, human losses or ecological problems that

can occur due to "stability loss" of the ground transportation systems in the region discussed, provoked by different credible geological phenomena (e.g. earthquakes, liquefaction, landslides, etc.) will be a major benefit of this project.

Total Project cost: 170 600 euro, Funded by the proposers: 110 600 EURO
REQIRED SUPPORT to the CEI: 60 000

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19. NATIONAL INFORMATION AND TECHNOLOGY TRANSFER NETWORK

on renewable energy sources and environmental technologies for sustainable agriculture, food chain and HFA (Health For All Programme of the World Health Organisation) YU-RESetAGRI (belongs to the WSP 1996-2005)

Division for Energy Efficiency and Renewable Energy Sources – DERES of the VEC – Virtual Expert Centre – Yugoslav Focal Centre, Institute for Agricultural Engineering of the Faculty of Agriculture, University of Belgrade

Countries of operation and interest: Yugoslavia, former Yugoslav Countries and other Balkan Countries as well as different regions in the World.

Sectors of activity/ expertise: technology transfer; sustainable development; advanced IT-based technical services; regional projects with upstream solutions; areas of renewable energy and raw materials sources, energy efficiency and related high-technologies, biochemical biomass conversion for energy and industry, environmental technologies, chemistry, biophysics, genetics, soil/water sciences and other fundamental, applied and engineering sciences intrinsic to the sustainability in agriculture, food chain and generally sustainable development.; knowledge and technology management/transfer; educational/training workshops organization including virtual; printing and electronic publishing.

Past/current/proposed CEI co-operation: The International Education & Training Workshop on Information and Technology transfer on renewable energy sources for sustainable agriculture, food chain and HFA 2000 – has been organized and held (four in a series) in Belgrade as a distinct activity in the frame of Yugoslav WSP YUNIT-RES (Yugoslav National Information and Technology Transfer Network on Renewable Energy Sources for Sustainable Development and HFA. The workshops experience has been presented at the 1st International Conference on Business, Education and Research on Internet in L`Aquila in 2000. The fifth workshop is announced for September 2001. DERES foresees co-organization of some of next workshops on site or virtually through Internet with ICS as well as the network linkage with similar Italian, European, UNIDO or else networks.

Available for/offering: partnership on projects; joint meetings, conferences, workshops, courses and training organization; exchange of web-based data and information; cooperation in web-based technology transfer methodology development; cooperation in agriculture and food chain sustainability criteria and indicators development; contact institutions, expertise, etc. in the region as well as in institutions cooperating with DERES worldwide.

Looking for/ requesting: Potential partners/projects for cooperation, high-technologies transfer and manufacturing/engineering/equipment/demonstration offers, international funding sources.

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20. RURAL AREAS SUSTAINABILITY IN THE ADRIATIC IONIAN BASIN
multicriteria evaluation of the agricultural and coastal systems (the Albanian case)

Project description

Objectives

The main objectives of the project are the following:

a) realization of a territory information system (SIT);
b) calibration of simulation models on a sample area for their subsequent use on a national scale;
c) diffusion of knowledge (agronomy and agricultural techniques) for their utilization for technical support and professional training;
d) cooperation among experts in the agro environmental field;
e) development of a decision support system (DSS) for planning and management of the local agricultural systems.

Outputs

1) First two-year period activities:
a) construction of the data base with the existing hydrological, pedological, agro-environmental and managerial parameters necessary for the application of the models;
b) integration of the existing data base with on field surveys;
c) development and implementation of the integrated management model, the territory information system and the decision support system;
d) preparation of the first base and thematic maps;
e) application of the chosen simulation model to a sample area.
2) Last year activities:
a) further investigations necessary for the model validation with reference to the sample area;
b) application of the models on a national scale;
c) production of the definitive thematic maps.

Market potential

Public and private institutions committed with environmental protection and sustainable development of the territory could be interested in this product, as well as experts and technicians involved in activities such as technical support to the farmers and professional training and updating.

Existing partnership

The existing partners are the following:

- UNIADRION countries: all UNIADRION countries are involved in the definition, realization and management of the project. The net UNIADRION will coordinate periodic meetings aimed at the diffusion of the acquired knowledge, the monitoring and the evaluation of the results.
- University of Udine, Department of Crop Science and Agricultural Technologies –; Mr Giovanardi: will participate with of a team of experts on the multicriteria evaluation of cropping systems and coastal territory and the use of previsional models and decision support systems; there will be collaboration with the Universities of Bologna and Ancona.
- University of Tirana – Mr Peçuli: will collaborate to gather available information on different aspects of the territory, to choose a suitable area for the calibration of the provisional models and identify the most important impact indicators.

Expected partners

Scientific institutions and local administrations of other East European countries to increase knowledge and impact of project. A similar case study would be very important in Croatia, as was the choice of Albania – see introduction of the project description.

Project contact person

Mr Giovanardi: the University of Udine.

21. CEI SUSTAINABLE SAFE FOOD AGROINDUSTRY DEVELOPMENT

Abstract

Problem: Food agro-industry is one of the most important territory related economy components in the region. The one is shaping environment as much as depending of its quality. This makes it extremely complicate for development planning as much as transition towards sustainability. For ages food commodities were the most famous subject of export the region. Entering the process of the economy transition and political changes, most of the former "eastern block" countries have lost their traditional agro-industry markets. In the new millennium food production does not provide economic safety to the rural economy of the region any more since local agriculture become less and less competitive. Region needs complete revision of the agriculture and rural development strategies to increase its chances to provide rural revival.

According to EC and FAO, region has remarkable capacities for safe food production. Safe food production, due to the multifunctional role of agriculture in the first place, has been identified as the most important one to support regional rural revival in general due to ability to:
provide possibility for diversification of rural economy including encouragement of non-agricultural SME development and rural tourism
be harmonised with the environment to manage landscapes and hold biodiversity
add value on extensively managed agriculture land and areas with naturally or socially (watershed protection, nature protection etc.) limited agriculture intensification
use traditional mixed farming systems based on natural food chains which still dominates in the region
add value on typical products and their production chains having sustainable character
use opportunities within increasing demand for the ecological food on the world market
halt further problems with food safety moving from east to west

Vision
Project should provide: complete survey of available resources for safe food production including natural heritage and indigenous knowledge; complete evaluation of those according to the world market standards and demands, environmental sustainability and economical sustainability.

Mission
Supporting the concept of integrated rural development though information providing on safe food production prospective; how to:
- rationally use and advance natural resources and environment in general to enlarge CE & SEE capacity for producing food of high quality and safety
- conserve and use cultural heritage & indigenous knowledge for economic development of the region
- provide sustainable diversification of agro-industry and rural economy in general through the full web of life support
- add value and increase rates of sustainability within valuable examples of typical production
- help rural communities integration in modern society without jeopardizing local people national & cultural identity
- open new markets for rural products & contribute to local self-sufficiency

Aim
Project should provide high quality information on:
- regional natural and environmental capacity to hold safe food production
- environmental and economical sustainability of the present production chains
(including inputs for environmental zoning of agriculture land in the region)
plant and animal production types, food processing technologies, rural economy organization models

necessary models for improvement for developing present and/or indigenous food production (different scenarios with production systems)
necessary changes within regulative and technology upgrade for meeting world agro food markets demand.

Tasks
Project should cover surveying of regional possibilities within:
- regional and global legal frameworks
- regional rural development strategies
- indigenous knowledge, natural resources management
- available land resources & environmental status
- agriculture and para-agriculture
- food processing

Activities
Legal Framework & Markets – Identification of regulative within legal frameworks for safe food production available from EU, USA and other countries – possible markets for CE & SEE safe food products; survey and detailed analysis of regulative in all participating countries for identification of necessary improvements or changes; identification of missing regulative to obtain environment for safe food production.
Rural Development - rural problems and types of rural settlements and agro food production patterns identification in all participating countries, survey of rural development strategies and policies, developing and adding applicable safe food production module in it using results for certain country from subprojects 3-10
Indigenous Knowledge, Natural Resources Management - collecting data on indigenous products, technologies and farming systems; in second phase checking their sustainability and finally database creating for those having capacity for sustainability
Sustainable Land Management & Environment Protection – collecting data on availability of land resources for safe food production, regional maps of pollution, land quality and environmental protection provided or planned identification of regions for mass safe food production and prospective land use.
Sustainable Agriculture and Paragriculture – Identification of crops, species and varieties, particularly indigenous, necessary crop rotation change etc. for safe food production;
prospective for different types of ecological productions including organic production etc. and for transition of conventional production towards sustainabilitry
Safe Food Processing & Marketing Products – detailed survey of processing capacities, organization of processing and row material providing, production standards in use, labelling and traceability introduction possibilities, quality control & marketing searching for possibility to increase chance of safe food products from CE and SEE to reach world markets

Final phase of modelling should include preparing output material for the Project WEB site & publishing multimedia CD ROM, to be the fundament of the future Rural development centre database and regional network for safe food production development.

Project location: 10 participating countries: Albania, Bosnia & Herzegovina, Bulgaria, Croatia, Hungary, Italy, Macedonia, Romania, Slovenia & Yugoslavia

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Federal Vice-Minister of Agriculture, responsible also for fisheries, hunting and organic agriculture development and international cooperation. Born in Dubrovnik, Croatia November 28th, 1965. BSc

1988, Faculty of Agriculture in Belgrade, Yugoslavia. MSc 1991 and PhD 1996, Belgrade University, branch of Ecology and management of forage crops & grasslands. Expert on agriculture and rural development, particularly rangelands and grasslands management for biodiversity, low-input and mixed farming systems, integrated rural development and systems producing biologically high value food. Author of over 80 scientific papers and dozen of popular newspaper articles.

22. PROJECT ABSTRACTS FOR BILATERAL CO-OPERATION

Natural products from plants and marine organisms; medicinal and ecological significance
The aim of the research is the study of chemical composition of plants characteristic for, and/or endemic in, mountain regions of Yugoslavia. The study will include the study of marine organisms, too. The research will involve the study of the structure of new compounds, their reactivity and biological activity. The influence of the ecological factor on the chemical composition will be studied too.
Faculty of Chemistry, Belgrade. Leading scientist Mr Miroslav Gašić. Institute for Marine Biology. Kotor – Mr Zoran Kljajić.
Partner in Italy: Instituto per la Chimica di Molecole di Interesse Biologico, Napoli, Italia – Mr Salvatore de Rosa.

Biogeotechnology: biohydrometallurgy of sulphide substrates, biodesulfurization of fossil fuels and new Bioreactors for application in biogeotechnology.
Aim and scope of proposed topic are the investigations of the interaction of thionic bacteria with sulphide substrates, particularly on non-conventional raw materials such as flotation tailing, slags and melting dusts from copper (or other metal) production.
Other part of the mutual biogeotechnological research is biodesulfurization of fossil fuels (coal and oil shale): removal of pyrite, elemental sulphur and dibenzothiophene and similar compounds.
Finally, last proposed activity is development of new bioreactors for biogeotechnological application in leaching and benefitiation processes, such as bubble column with vibration stirrer, developed by us.

Group for Microbial Chemistry (Head Mr Miroslav M. Vrvić. E-mail: mmvrvic@chem.bg.ac.yu) from Faculty of Chemistry and Department of Chemistry of the Institute of Chemistry Technology and Metallurgy in Belgrade, working in this topic more than 25 years.
Partner in Italy: Mining and Mineral Dressing Institute, Engineering Faculty, University of Cagliari, Piazza d'Armi, 09100 Cagliari (Mr Giovanni Rossi) or another if existing interest.

Center for SEE countries for training of experts and for the promotion of Italian equipment for laboratories and industry.
A laboratory for the comparative quality evaluation of textile materials, textile surfaces, and of industrial textiles.
Education modules on CD for study of textile science.
Promotive materials of the Italian textile machines producers, and of Italian laboratory equipment.
Faculty of Technology and Metallurgy, Belgrade – Ms Svetlana Milosavljević.
Partner in Italy: Associatione Construttori di Machinario per l'Industria Tesstile (ACIMIT), Milano.

Advancement of the education and research in chemical engineering
Establishment of modern laboratory for laboratory practice of engineering subjects: Fluid mechanics, Dynamics of processes and operations (transfer of impulses, heat, and mass), Separation processes, Dynamics of processes and management. Laboratory should include the automated pilot plants for unit processes and operations in chemical industry.
Advanced applications of computers in the chemical engineering education.
Investigations in the field of membrane and sorption separation processes, cell culture and tissue engineering.
Faculty of Technology and Metallurgy, Belgrade – Mr. Menka Petkovska, Mr Branko Bugarski and Bojana Obradovic.
Partners in Italy: Politecnico di Milano; Universita di Padova; Universita di Calgari, Universita della Calabria; Universita di Bologna; Politecnico di Torino; Universita di Perugia; Politechnic Research Center, Trieste.

Multifunctional and Multiphase Chemical Reactors, Mass Transfer Enhancement

Research and development of chemical reactors with separation *in situ*, with special attention to 'gas-flowing solids-fixed bed' reactors. Selective adsorption on flowing solid's phase could be applied to a number of industrially important reversible reactions. *In situ* adsorption would shift the equilibrium – the restrain for high conversion. The same principle could be applied to consecutive or complex reactions suitable for the isolation of intermediates. These types of contactors are also applicable for drying, heat recuperation, and gas purification.

Research and development of three-phase air lift reactors for continuous bacterial leaching with special attention to gold recovery from copper sulfide ores and gallium from bauxite. Similar approach could be applied to desulfurization of oil shales and wastewater treatment (decontamination from toxic metals).

Two approaches to mass transfer enhancement will be studied. Enhancement with well-organized spacers, and application of additives in minute quantities. First approach is based on adding some turbulence to the system to enhance the heat and mass transfer, but minimizing the cost in pumping power (the effect of turbulent Schmidt number, as shown in our previous research). The enhancement with additives relies on the results that under certain conditions the addition of drag reducing additives may result in mass and heat transfer enhancement.

Faculty of Technology and Metallurgy, Belgrade – Mr. Aleksandar Dudukovic; Faculty of Chemistry Belgrade – proof Mr Miroslav Vrvic

Partners in Italy: Politecnico di Torino – Mr Giancarlo Baldi; Universita de l'Aquila –Mr Giovanni Gibilaro; Universita di Cagliari – Mr Giovanni Rossi.

Detection of chromosomal aberrations in domestic animals. Detection and evaluation of the agent genotoxicity. Study of the biodiversity of natural populations of rodents and of honeybee.

The major objective is the implementation of modern methods of cytogenetic analysis. Formation of a reference center for the study of genotoxicology. The equipment needed: SCGE method, FISH method, gel electrophoresis, PCR, microscope, Software for data processing and analyzing.

Faculty of Veterinary Medicine, Belgrade – Mr Z. Stanimirovic

Partners in Italy: Instituto superiore di Sanita, Roma; Universita di Torino – Mr G. Badino.

Monitoring of the cattle health status regarding Bovine spongiform encefalophaty (BSE)

Systematic monitoring of the health's status of cows, sheep's, and goats.

Inspection of brain of all the animals died with neural symptoms.

Inspection of brain of all the succumbed and slaughtered animals imported from abroad

In slaughterhouses, in regular slaughter procedure, a hundred brains of animals older than 24 months, should be inspected in every of thirteen epizootoxicologic regions. Total 1300 animals per year.

Faculty of Veterinary Medicine, Belgrade – Mr Milijan Jovanovic

Partners in Italy: Instituti Zooprofilactici (ISZ) Roma – Mr Giovanni Guardo; ISC Brescia, sez. Milano – Daniela Galmeti; ISZ Perugia – Monica Cagiola; ISZ Padova – Franco Mutinelli; ISZ Teramo Gabriella di Francesco.

Mastitis pathogenesis in milking cows

Study of the mastitis pathogeneses in milking cows. Monitoring of pathogenous microorganisms in food. Study of the extent of the presence of *Trichinela spiralis* in domestic and wild animals.

Immune response in the diseases of mammary gland, will be tested.

Search for new methods for the detection of larvae, and for the determination of its species and the distribution among various domestic and wild animal species.

Faculty of Veterinary Medicine, Belgrade – Mr Lazar Stojanovic

Partners in Italy: Instituto Superiore di Sanita, Roma – Mr Edoardo Pozio; Faculta di Medicina Veterinaria, Milano – Mr Alfonso Zecconi.

Monitoring of the antimicrobal drugs administration, and of the bacterial resistance

Bacterial resistance against the antimicobal agents is in the permanent growth, making an ecological and medicinal problem. This bacterial resistance is frequently considered as a "Plague of the 21st century", and impose the necessity of the implementation of the monitoring system for the administration of antimicrobal drugs.

· Implementation of more efficient control of the emergence of infectious diseases in domestic animals

Promotion of reliable administration of antimicrobal agents

Education of postgraduate students to understand economical, ecological and health aspects of drugs resistance, with emphasis on laboratory practice

Provide the production of safe food

Protection of humans against the infections caused by bacterial strains from domestic animals, resistant towards anrimicrobal agents.

Faculty of Veterinary Medicine, Belgrade – Mr Dejan Krnjajic

Partners in Italy: Eurokit SRL, Gorizia – Mr Ugo Mannino, Ms Alessandra Fornasari.

ANNEX 2

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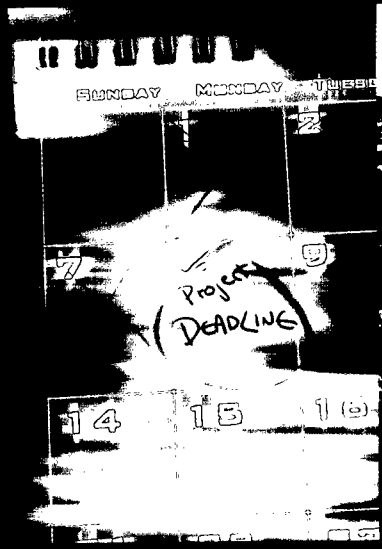

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