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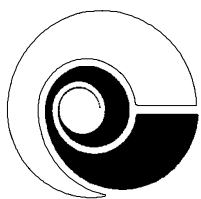
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A note from the Chairperson

Welcome to IOSTE XI

The key activity of IOSTE is, of course, the international symposia arranged every second or third year. The eleventh international IOSTE symposium will take place in Lublin, Poland, July 25 - 29 2004. IOSTE has moved around to different parts of the world, but this is the first time it moves behind what was once known as the Iron Curtain. A visit to Poland is, therefore, of particular interest seen in the light of the history of IOSTE; building bridges across cultures. We expect many participants from former Eastern Europe, until now rather underrepresented in IOSTE and other international organizations for S&T education. I have had the pleasure of

IOSTE



Newsletter

visiting the IOSTE XI team in Lublin and can only subscribe to their enthusiastic descriptions of their country, their city and their university!

You will find updates on IOSTE XI this in other places in this newsletter. Please also consult the web site at <http://ioste11.umcs.lublin.pl/> , Information on this site will be updated as we get closer to the event. Please also note the deadline for proposals, January 15, 2004. We do not ask for full papers, but a brief two page outline of what you want to present. It is on this basis that presentations will be selected and the program will be constructed.

I hope you have also heard from your regional IOSTE representative and even received a colorful nice flyer for IOSTE XI from your representative.

IOSTE XI: Financial support

As you will see, the costs of participation in IOSTE XI are acceptable. (375 euro or about USD 450). Accommodation is extra and high quality rooms in student hostels as well as in nearby hotels are at your disposal at reasonable prices.

We have managed to raise substantial support for IOSTE XI from the European Union. They will provide full support for some 20-25 participants, mainly from former Eastern Europe, but not confined to this region. If you want to be considered for this support, please send an application with your registration or paper proposal. You should briefly present 'your case': who you are, why you should be supported and some estimate of what you need.

You should also note that some extra support for IOSTE XI may be available for participants in the ROSE project (see below)

IOSTE XI plenary program ideas?

We are in the process of putting together a program for IOSTE XI. In addition to the proposals that participants come up with, we also want to make an interesting series of plenary events. We need not stick to the usual format of one person talking one hour on one topic, but may try out some alternatives, like a series of brief and varied inputs on a specific topic, maybe with diverging views and/or from different regions etc.

Here are two strongly related ideas, one by newcomers, one by the 'pioneers' in the field. In each session: maybe 4 inputs of about 15 minutes. Details:

"Ideas and ideals for the future":

A plenary session where newcomers in the field (young researchers or young activists) present their visions for the future. (e.g.: why they are in the field, what they see as urgent issues, what they want to devote their lives to, what makes them 'tick', etc.)

"What have we learned and achieved?"

A (contrasting) session where key actors in the field summarize important aspects of the development of the field. Changes we have made? Improvements or setbacks? International challenges before and now? Have we lived up to our ideals? Has IOSTE (and S&T education) meant anything?

If this is a good idea, we need names and suggestions. Who are the young ones? Who are the 'old' ones? We also need people from different regions of the world, and we need some gender balance.

You may also have ideas about other kinds of plenary inputs. For example:

S&T education for peace and understanding?

S&T education and national policies?

S&T for sustainable human and economical development?

If you have other ideas, proposals or information to share, do not hesitate to bring it up by mailing to me as soon as possible. Together we may shape a challenging program!

Next IOSTE venue – next board?

Another important issue is the venue of the next international IOSTE symposium (probably in 2007). Please send me a note if you have ideas or offers. You should also think about a possible regional IOSTE symposium and your regional representative. In fact, many regional IOSTE symposia have been arranged, other are planned. Among these is the IOSTE Symposium in Southern Europe in Kalamata, Greece, 18 - 20 March 2004. Information in English can be found at <http://hercules.kec.gr/attachments/file/IOSTE/ste.htm> .

IOSTE XI international committee

You may like to know that the international committee for IOSTE XI has the following membership:

Bill Kyle, USA
Cecile Vander Borght, Belgium
Dale Baker, USA
Debbie Corrigan, Australia
Edgar Jenkins, England
Elwira Samonek-Miciuk, Poland
Glen S. Aikenhead, Canada
Hana Ctrnactova, Czech Republic
Harrie Ejkelhof, Holland
Herb Thier, USA
Jane Mulemwa, Uganda
Jari Lavonen, Finland
Jayshree Mehta, India
Jim Gaskell, Canada
Joan Solomon, England
Jose Mariano Gago, Portugal
Jozefina Turlo, Poland
Kurt Riquarts, Germany
Mary Ratcliffe, England
Masakata Ogawa, Japan
Miia Rannikmae, Estonia
Nellio Bizzo, Brazil
Nicos Valanides, Cyprus
Onno de Young, Holland
Orlando Hall Rose, UNESCO, Paris
Peter Fensham, Australia
Pierre Clement, France
Ragnhild Sohlberg, European Research Advisory Board
Roser Pinto, Spain
Ryszard M. Janiuk, Poland
Sergey Bogdanov, Russia
Suan Yoong, Malaysia
Susan Rodrigues, Scotland
Svein Sjberg, Norway (Chair)
Vijay Reddy, South Africa
Vincentas Lamanauskas, Lithuania,
Wieslaw Stawinski, Poland
William Cobern, USA

Latest IOSTE Publications

Keogh, M. & Naidoo, S. (eds.): Proceedings of the 9th IOSTE Symposium on Science and Technology Education for Sustainable Development in a Changing and Diverse World (2 vols.). Durban (South Africa): University of Durban-Westville, 1999 (788 pp.).

Contact: Alan Pillay, for address see page 14 of this Newsletter.

Marandino, M., Amorim, A.C. & Kawasaki, C.S. (eds.): Coletânea do 7^o Encontro Perspectivas do Ensino de Biologia. São Paulo: FEUSP, 2000 (849 pp.).

Contact: Clarice S. Kawasaki, for address see page 13 of this Newsletter.

Yoong, S. & Ayob, A. (eds.): Proceedings of the South East Asian Regional Symposium on Science and Technology Education: The Challenge in the 21st Century. Penang (Malaysia): ASMEP, 2000 (245 pp.).

Contact: Suan Yoong, for address see page 15 of this Newsletter.

Sulcova, R. (ed.): Science and Technology Education in New Millenium. 3rd IOSTE Symposium for Central and East European Countries. Prague (Czech Republic): Peres Publishers, 2000 (298 pp.).

Contact: Dr. Hana Ctrnactova at ctr@prfdec.natur.cuni.cz.

Valanides, N. (ed.): Science and Technology Education: Preparing Future Citizens. 1st IOSTE Symposium in Southern Europe. (2 vols.). Paralimni (Cyprus): University of Cyprus, 2001 (Vol. 1: 456 pp.; Vol. 2: 400 pp.).

Contact: Dr. Nicos Valanides at nicori@ucy.ac.cy.

Bizzo, N. et al. (eds.): Rethinking in Science and Technology Education to meet the demands for future generations in a changing world. Sao Paulo (Brazil), 2002, 911pp in 2 Vol. (ISBN 1-55195-029-4)

Contact: Professor Nelio Bizzo at bizzo@usp.br.

The ROSE Project: The Relevance of Science Education. An update

ROSE was presented in a previous newsletter and here is a brief report. A more detailed and updated description of ROSE can be found at <http://folk.uio.no/sveinsj/>

ROSE is an international comparative project meant to shed light on factors of importance to the learning of science and technology (S&T) – as perceived by the learners. Key international research institutions and individuals work jointly on the development of theoretical perspectives, research instruments, data collection and analysis. The informants (the target population) are pupils towards the end of secondary school (age 15).

The lack of relevance of the S&T curriculum is probably one of the greatest barriers for good learning as well as for interest in the subject. The outcome of the project will be empirical findings and theoretical perspectives that can provide a base for informed discussions on how to improve curricula and enhance the interest in S&T in a way that

- respects cultural diversity and gender equity
- promotes personal and social relevance
- empowers the learner for democratic participation and citizenship

The key feature of ROSE is to gather and analyze information from the learners about several factors that have a bearing on their motivation to learn S&T. Examples are: A variety of S&T-related out-of-school experiences, their interests in learning different S&T topics in different contexts, their prior experience with and views on school science, their views and attitudes to science and scientists in society, their future hopes, priorities and aspirations, their feeling of empowerment with regards to environmental challenges etc.

By the end of 2003 we have about 45 countries interested in ROSE. In about 20 countries, data have been collected and coded, others will be ready rather soon.

In several countries (e.g. Sweden, Norway, Ghana, South Africa, Turkey, Zimbabwe, Finland, Estonia) the active participant is using ROSE as a basis for PhD work, in others, there are students doing their Master thesis based on ROSE.

In several countries the research groups involved in ROSE are also engaged in the large-scale comparative achievement studies like IEA/TIMSS and OECD/PISA. Although ROSE has a different purpose and underlying philosophy than these 'official' studies, it is expected that the two kinds of studies will complement each other, both providing information about the status of science education in the country. The Research council of Norway and the Ministry of Education in Norway has decided to give substantial support to ROSE for the coming three years.

Two papers on ROSE were presented at the **ESERA** (European Science Education Research Association) conference in the Netherlands in August this year (see the ROSE site), and many articles and papers are being planned. The first articles will, of course, either be national or will include preliminary results from only a few countries. We plan several sessions on ROSE at the **IOSTE XI**. We may also be able to find extra support for ROSE participants to cover conference fees and accommodation. We are also seeking other forms of funding for workshops on ROSE and its implications. Ideas and initiatives are welcome.

By the end of 2003 researchers from the following countries are on the ROSE mailing list: **Australia, Austria, Brazil, Cameroon, Denmark, England, Estonia, Egypt, Finland, France, Germany, Ghana, Greece, Iceland, India, Israel, Italy, Ireland, Japan, Latvia, Lesotho, Malaysia, Malta, Norway, Northern Ireland, Philippines, Poland, Portugal, Russia, South Africa, Spain, Sweden, Swaziland, Switzerland, Trinidad and Tobago, Turkey, Tanzania, Uganda, Zimbabwe.**

In addition to the research agenda that is the basis for ROSE, an important output is the networking, capacity building and all the personal and institutional contacts that are built as a result of cooperation around a common project. We hope that the ROSE data and perspectives may stimulate an informed and critical debate over key issues in S&T education.

Oslo, December 17, 2003

Svein Sjøberg
Chair of IOSTE

Environmental education: possibilities and constraints

Lucie Sauvé

Over the last 30 years, those involved in environmental education (EE) have gradually become aware of the richness and breadth of the educational project they have contributed to build. They have realized that the environment is not merely a subject to be studied or a theme to be analyzed among others, nor is it only the necessary constraint of a development we want to be sustainable. The weft of the environment is life itself, at the interface between nature and culture. The environment is the crucible in which our identities, our relations with others and our "being-in-the-world" are formed.

EE is, therefore, not a "form" of education (an "education for ...") among many others. It is not simply a tool for environmental problem-solving or management. It is an essential dimension of basic education focused on a sphere of interaction that lies at the root of personal and social development¹: the sphere of relationships with our environment, with our common "home of life". EE aims to induce social dynamics, first in the local community and subsequently in wider networks of solidarity, fostering a collaborative and critical approach to socio-environmental realities and an autonomous and creative grasp of current problems and possible solutions. Over and above an education "about", "on", "in", "for" or "by means of" the environment, the concern of EE is basically our relationship to the environment. It is, thus, important for educators to take account of the many possible dimensions of this relationship which correspond to different but complementary ways of apprehending the environment:

- Let us first consider the environment as nature (to be appreciated, respected and preserved). Underlying the socio-environmental problems is the fundamental rupture between human beings and nature which needs to be bridged. We must rebuild the sense of belonging to nature, to the flow of life of which we are a part. EE also leads us to explore the close links between identity, culture and nature and to realize that through nature we find part of our own human identity as living beings among other living beings. It is also important to recognize the links between biological and cultural diversity and to value this "bio-cultural" diversity

1. At the root of personal and social development are three closely linked spheres of interaction: interaction with oneself (for construction of one's own identity); interaction with others (for construction of relations with other human beings); and interaction with the shared "home of life", *Oikos*, the setting for both ecological and economic education, where the sense of "being-in-the-world" is enriched by the person's relations with the "non-human world".

- Then there is the environment as a resource (to be managed, to be shared). There is no life without the cycles of matter and energy. EE implies conservation education as well as education for responsible consumption and solidarity, with equitable sharing within and among societies and between present and future societies. The concern is to manage production systems and use of shared resources as well as waste and by-product processing systems. EE integrates economic education focused not on the management of the environment but on that of our own individual and collective relations with regard to vital resources taken from the environment.
- The environment as a problem (to be avoided, to be solved) requires the development of skills for critical investigation into the realities of our milieu and for the enlightened diagnosis of problems. It strives to make people realise that environmental problems are socio-environmental issues. EE invites us to solve real problems and to make plans for preventive action. The development of skills in this field could strengthen the feeling that something can be done, that each one can contribute, a feeling that may in turn trigger the desire to take action.
- The environment as a system (to understand so as to improve decision-making) calls for the development of systemic thinking. By analyzing the components and relationships of the environment as an "eco-socio-system" (according to the expression proposed by Louis Goffin, 1999), one can gain global understanding of environmental realities and thus have the necessary inputs for judicious decision-making. It is here that ecological education basically comes into play. It involves learning about the diversity, richness and complexity of one's environment; learning to define one's human "niche" in the global ecosystem and learning to fill it properly. In a systemic perspective, EE also encourages us to recognize the links between here and elsewhere, between the past, the present and the future, between local and global matters, between the political, economic and environmental spheres, between lifestyles, health and the environment, etc.
- The environment as a place to live (to get to know, to improve) is focused on everyday life - at school, at home, at work, etc. Here the first stage of EE is to explore and rediscover one's own surroundings, that is, the "here and now" of everyday realities, with a fresh look that is both appreciative and critical. It also involves redefining oneself and defining one's social group in terms of our relationship with our surroundings, our living place. Projects can be devised to restore or design environments that enhance comfort, security, health, social interactions or the aesthetic qualities of the place. Through such exploration and projects, EE aims to develop a sense of belonging and to encourage dwelling. The local context is the first crucible for the development of environmental responsibility in which we learn to become guardians, responsible users and builders of Oikos, our common "home of life".

- The environment as the biosphere (in which to live together over the long term) makes us aware of the interdependence of socio-environmental realities at world level, that of our "small planet" which James Lovelock calls Gaia and regards as a self-regulating macro-organism. It is the locus of planetary, even cosmic, consciousness: Earth as a life-giving matrix or shared garden which nurtures the symbolic universe of many indigenous peoples. It is the focus of international solidarity which invites us to think more deeply about the modes of development of human societies. We find here an ideal context for taking advantage of the interface between EE and education for development.
- The environment as a community project (in which to become actively involved) focuses on co-operation and partnership to achieve desired changes within a community. People need to learn to live and work together in communities of learning and practice. The environment is seen as a shared and essentially complex object: only a collaborative approach can foster better understanding and more effective action. People must learn to discuss, listen, argue and convince: in a word, to communicate effectively through a dialogue in which various types of knowledge - scientific knowledge, practical experience, traditional knowledge, etc., are brought into play. Here the idea of praxis is introduced: action is associated with a constant process of critical reflection. Education for democracy, the mainstay of citizenship education, becomes vital. The political aspects of socio-environmental realities are highlighted.

Of course, other representations of the environment could be identified and characterized. For example, the environment as territory among indigenous peoples (who attest the narrow association between cultural identity and the land) or the environment as landscape (the geographer's view, which opens the way to the interpretation of local contexts, highlighting the dynamics of their historical development and their symbolic components). The relationship to the environment depends greatly on the context and is culturally determined. It is therefore expressed through a set of interlinked and complementary dimensions. An EE that is limited to only one of these dimensions is incomplete and nourishes a biased vision of what is "being-in-the-world".

Since it is so wide-ranging and demands in-depth changes, EE is indeed difficult to carry out. It calls for the involvement of the whole educational community: schools, museums, parks, municipalities, community organizations, firms, etc. It is for each actor to identify his/her own educational "niche" in EE, depending on the particular context of his/her action, the target group and the resources available. The issue is to choose objectives and strategies that are relevant and realistic without forgetting the full range of other possible objectives and strategies. Each specific activity or project should be seen as complementary to and preferably integrated with those of the other EE actors and with other associated dimensions of basic education, in particular citizenship education (focused on an awareness of human

diversity and more specifically on questions of democracy, peace and solidarity) and health education (associated inter alia with issues of nutrition, outdoor education and risk education).

Over the years, a growing number of EE actors have added a research or reflection component to their practical action on the ground. An "educational heritage" has thus been built up, including a rich diversity of theoretical propositions, models and strategies capable of stimulating discussion and inspiring practitioners². An analysis of these proposals makes it possible to identify different currents of thought and practice in EE: naturalist, conservationist, problem-solving, systemic, holistic, humanist, critical, bioregional, feminist, etc. (Sauvé, 2002). These currents reflect diverse and complementary ways of relating to the environment. In a professional development process for teachers, animators and other educators, one of the first

tasks is to subject these currents to critical scrutiny in order to highlight the different possibilities, to stimulate reflection and more creative teaching, and to make relevant choices in the light of each particular context of action.

The field of EE is, therefore, developing in a constructive manner. It is, however, faced with major issues that could compromise its basic goals. The main current challenge is the prevalence of the development ideology (Rist, 1996) promoted in the proposal of "education for sustainable development". Here education is perceived as a tool in the service of the long-term conservation of the environment, the latter being regarded as a pool of resources to be utilised for a sustained economic growth, which is itself regarded as the pre-condition for "human development" (Sauvé, Berryman and Brunelle, 2000). In the conceptual framework of sustainable development, often illustrated in the form of three inter-linked spheres (economy, society and environment), the economy is viewed as a separate autonomous entity, outside the social sphere, that determines a society's relationship to the environment. While that does indeed reflect the current alienation of societies in regard to an exogenous and dominant economy, should such a vision of the world be nonetheless promoted as the supreme goal of all humanity? The idea of sustainable development is, of course, relevant in certain certain respects and in certain contexts, such as when it becomes the key to initiating dialogue among actors in the economic, political and environmental spheres. That is in fact how the concept came into being. It has been presented as the product of a social "consensus" (in reality, the outcome of a negotiation round between certain privileged social actors in a specific historical context). Let us note that this idea of a consensus happens to be very seductive at a time when formerly "unquestioned values" and meta-narratives

² We have, among others, identified nine research journals dedicated specifically to EE which reflect the growing vitality, credibility and recognition of this field of educational reflection and action: *The Journal of Environmental Education*; *Environmental Education Research*; *Environmental Education and Communication*; *The International Journal of Environmental Education and Research*; *International Research in Geographical and Environmental Education*; *The Australian Journal of Environmental Research*; *The Canadian Journal of Environmental Education*; *Education relative à l'environnement - Regards, Recherches, Réflexions* and *Tópicos en educación ambiental*

are collapsing: consensus-building confers a measure of legitimacy on decisions and makes it possible to "manage" the diversity of possible approaches to the issues at stake.

But is consensus (too often false consensus) an appropriate basis for intervention and action in the matter of education and environment? Is it not a mistake to confuse the strategy of sustainable development (however astute it may seem for some specific purposes) with a blueprint for all society, with a social ideal, and to redefine education as a whole, in all countries, in terms of this now dominant vision of the world? The utilitarian conception of education and the resource-based representation of the environment adopted by "education for a sustainable development" are clearly reductionist from the standpoint of a basic education aimed at fully developing the web of relations between persons, the social group to which they belong and the environment. The relationship with the world cannot be seen solely as a question of "resource management"; human activities cannot be interpreted only within the context of "development" overusing the language of durability (or viability or sustainability)³ in a sort of "newspeak" that is spreading throughout the world, superimposed on each culture and reducing the ability to think differently about realities. It must also be recognized that the ethics of sustainability is a product of the "heuristics of fear" (to quote Hans Jonas, 1992) associated with the current crisis in security (one of its manifestations being the interest in human cloning). While it may constitute a first step towards an upturn in ethics, it is certainly not broad enough to found a blueprint for a society, and even less for humanity. As a result of strong criticism from all quarters (philosophers, sociologists, educators, other economists, etc.) directed at the idea of sustainable development,⁴ the current trend is to invite each one to redefine, in one's own way, this inescapable concept that has now been established in the various spheres of society. It is thus agreed that sustainable development is not a clearly defined goal (to sustain development is indeed vague) but a road to open up towards this goal, which will progressively appear more clearly. Each must chart his/her course as he/she sees fit. After the argument of the existence of a universal consensus for sustainable development, this new argument about the legitimacy, even the necessity, of identifying different paths to the goal seems to work well in promoting the idea of "sustainable development" as the saviour of humanity. In this context emerged the proposal of "education for a sustainable future", a quasi-synonym of education for sustainable development. This concept has the advantage of proposing a framework that integrates the various dimensions of contemporary education (relating to peace, democracy, international cooperation, the environment, etc.), but this framework limits the scope of each of these educational fields. As these other theme-based "forms of education", environmental education is reduced to a

³ People talk, for example, about "sustainable meals", "sustainable mining industry", "sustainable consumption" or "sustainable water", even seeking "sustainability criteria" for education ...

⁴ See in this connection the report on the debate in: Jarnet, A., Jickling B., Sauvé, L., Wals, A. and Clarkin, P. *The Future of Environmental Education in a Postmodern World?* Whitehorse: Yukon College (*Canadian Journal of Environmental Education*), 244 pages.

mere instrument in the service of sustainable development. Moreover EE ceases to be seen as a setting for interdisciplinarity and the dialogue of knowledge systems (knowledge related to the biophysical and human sciences, traditional knowledge, experience, common sense, etc.); it becomes more narrowly associated to the field of biophysical sciences and technology, the key area of the new "knowledge economy".

It is possible, however, to conceive of an EE that considers the sustainable development proposal (as a socio-historical phenomenon), but that is not locked into it. EE can only be achieved in a context in which social criticism is not impeded; the relationship to the environment is not a priori a matter of social compromise, even less of world wide consensus. EE accompanies and supports the emergence and implementation of a project to improve a person's own relationship to the world, whose significance it helps to clarify in the light of each particular context. In a global perspective, EE contributes to the development of responsible societies. This last expression seeks to clarify the deliberate vagueness surrounding the word "development" (generally centered on the economy) by linking it to the development of societies (each one integrating its own endogenous economy) and to an ethics of fundamental responsibility, that is significantly richer than the essentially minimalist ethics of sustainability ("so long as it lasts" or "so long as we survive"). The ethics of responsibility goes beyond a legalist and civic approach to rights and duties; it calls for a sense of responsibility for one's own being, knowledge and action, which implies commitment, lucidity, authenticity, solicitude and courage.

It is to be hoped that the forthcoming Johannesburg Summit, focused from the very beginning on sustainable development for the whole planet, will afford an opportunity to stimulate a genuine debate on the "consensus" underpinning this blueprint for humanity, which has not borne much fruit since the previous summit held in Rio. It will be particularly important to stimulate discussion among all the actors in the field of education, which is both "the mirror and the crucible" of a society's development, and more specifically among those involved in the field of environmental education, whose vision of education cannot develop fully unless the diversity of ways of apprehending and relating to the world is recognized and valued.

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<p>IOSTE</p>	<p>Information about us can be found at the following websites:</p> <ul style="list-style-type: none"> • http://www.ipn.uni-kiel.de/projekte/ioste/ioste.htm • http://www.modelab.ufes.br/ioste/ <p>or for future reference:</p> <ul style="list-style-type: none"> • http://www.ioste.org 	
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*11th IOSTE Symposium 2004 in Poland:***Science and Technology Education for a Diverse World; overcoming dilemmas, meeting needs and forming partnerships**

The next IOSTE Symposium will be held in Poland from 25 – 30 July 2004. Recently we have witnessed rapid changes in various fields of our life beginning with economic and political ones and ending with those concerning the conditions of everyday life all over the world. These changes result largely from constantly developing science and technology. Unfortunately, in many cases these changes are not better and the profits they provide are not equally distributed. Overcoming the resulting problems and proper orientation of further changes will depend largely on the development of science and technology education. This requires verification of the aims of this education and formation of optimal teaching methods in given conditions where developing international cooperation is to play a significant role. We, therefore, chose this theme for the proposed Symposium.

Compared with the tradition for the symposium to be held every three years a change took place. Due to many international conferences and meetings on science and technology education scheduled for 2005, the decision was made for the 11th IOSTE Symposium to be held one year earlier. Its organizer will be the Maria Curie-Skłodowska University in Lublin, which is set up for such events. The participants will have either inexpensive but good standard accommodation in student hostels or rooms in deluxe hotels at their disposal.

The stay in Lublin which is one of the greatest university centres in Poland will make it possible to get to know the almost 700-year old history of this town and to enjoy its extraordinary atmosphere.

Generally, the Symposium organisation will not differ significantly from the previous ones. The language of the Symposium will be English. Plenary lectures delivered by world famous specialists, mini symposia, workshops as well as poster session are planned. All contributions will be reviewed. There will be suitable conditions for direct exchange of experiences during formal and informal discussions.

The organisers will try to keep the participation costs as low as possible, which should encourage a greater number of teachers. They will be able to get familiar with the results of recent investigations in science education, which will provide better possibilities for their practical application at school. Furthermore, in sharing their practical experience teachers will disclose new, important problems worth studying.

The fact that the Symposium will be held in this part of the world makes another difference compared with the previous ones. This will create possibilities for participation of people from many countries who so far have had little chance for international cooperation. These countries possess great and interesting achievements in science and technology education though not popularised so far. So next the Symposium will be a good opportunity for getting to know the achievements of the participants from all parts of the world better.

For the further information please contact:

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4th IOSTE Symposium for Central and East European Countries:

Importance of science education in the light of social and economic changes in the Central and East European countries.

Kursk, Russia, 18-23 June, 2003

The Symposium took place at Kursk State University and was funded by the IOSTE Committee and Kursk State University. The main subject of the Symposium's work was "Importance of science education in the light of social and economic changes in the Central and East European countries" and this work was organized in five sections:

1. Learning process, curricula, educational plans and programs, textbooks, studies, teaching aids, assessment.
2. Interdisciplinary relations and interaction.
3. Educational methodology. Teacher training.
4. The role of science and technology education in the modern society.
5. International cooperation.
6. Environmental sciences.

97 researchers and lecturers from Russia (Moscow, St. Petersburg, Irkutsk, Orel, Belgorod, Krasnodar, Kazan, Vladimir, Murmansk), Ukraine (Nikolaev), Lithuania (Shaulai), Czech Republic (Praha) participated in the Symposium.

The scientific program included 122 section talks and 6 posters. You can find the full text of the Symposium's program on the site http://www.kgu.lgb.ru/nauka/simp_eng.htm.

The program of IV IOSTE Symposium for Central and East European Countries is completed.

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Conferences

ASE Annual meeting

7 - 10 January 2004

Location: University of Reading, England
Contact: June Durnin (ASE Conferences Team)
Tel.: 0044 - 1707 - 283000
e-mail: conferences@ase.org.uk
Website: www.ase.org.uk/

Society for Information Technology and Teacher Education 15th International Conference

1 - 6 March 2004

Location: Atlanta, Georgia, USA
Website: <http://www.aace.org/conf/site/call.htm>

International Technology Education Association 66th Annual Conference

18 - 20 March 2004

Location: Albuquerque, New Mexico, USA

Website: <http://www.iteawww.org/D1.html>

NARST Annual Meeting

1 – 4 April 2004

Location: Vancouver, British Columbia, Canada

Contact: Prof. Dr. John Penick

NC State University

e-mail: John Penick@ncsu.edu

Website: <http://www2.educ.sfu.ca/narstsite/>

17th Symposium on Chemical Education

3 – 5 June 2004

Theme: Quality in Practice-Oriented Research in Science Education

Location: Dortmund, Germany

Contact: Prof. Dr. Bernd Ralle, Dr. Ingo Eilks

Department of Chemistry, Didactics of Chemistry I

University of Dortmund

Otto-Hahn-Str.6

44227 Dortmund, Germany

e-mail: bralle@pop.uni-dortmund.de

eilks@pop.uni-dortmund.de

Website: <http://www.chemie.uni-dortmund.de/groups/dc1/>

World Conference on Educational Multimedia, Hypermedia and Telecommunications

21 – 26 June 2004

Location: Lugano, Switzerland

Website: <http://www.aace.org/confedmedia/call.htm>

11th IOSTE Symposium 2004 in Poland

25 - 30 July 2004

Theme: Science and Technology Education for a Diverse World: overcoming dilemmas, meeting needs and forming partnerships.

Location: Lublin, Poland

Contact: Dr Ryszard M. Janiuk

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For further information, please see page 13 of this Newsletter.

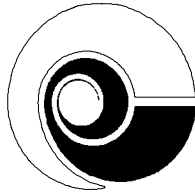
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IOSTE

International Organization for Science and Technology Education

The International Organization for Science and Technology Education was established to advance the cause of education in science and technology as a vital part of the general education of the peoples of all countries and to provide scholarly exchange and discussion in the field of science and technology education. Its origins trace to a Symposium on World Trends in Science Education convened in August 1979 in Halifax, Nova Scotia, Canada. At the third symposium, held in Brisbane (Australia) 1984 the informal circuit of 'World Trends' was transformed into a formal organization with membership in over fifty countries. IOSTE has achieved recognition by UNESCO as an official non-governmental organization.

Membership in the International Organization for Science and Technology Education is open to all who subscribe to its Constitution. The fee for membership for the period 2002 until the beginning of the Eleventh Symposium 2004 in Poland is US \$ 20.00. Inquiries and membership applications (with the membership fee) should be sent to the following address:

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