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FINAL REPORT

**Expert Group Meeting for the
PROMOTION OF NEW TECHNOLOGIES
IN PLASTIC INDUSTRY
IN THE FRAMEWORK OF EAST WEST
COOPERATION**

The House of Scientists of the Slovak Academy of Sciences

Smolenice, Slovakia

5 - 7 October 2000

**UNIDO PROJECT No : TF/GLO/00/105
CONTRACT No : 2000/194**

INTRODUCTION

The Expert Group meeting for the Promotion of New Technologies in Plastic Industry in the Framework of East – West Cooperation was organised by ICS UNIDO, Trieste in cooperation with Polymer Institute of the Slovak Academy of Sciences, Bratislava and Dutch Polymer Institute, Eindhoven, The Netherlands. The event was held under auspices of European Polymer Federation. The EGM has been scheduled to be held in Slovakia due to the importance of this issue in the Countries in Transition of Central and Eastern Europe (CIT). The countries possess rather high industrial potential with a great deal of plastics consumption and developed plastics industry. The research in the region was on quite high level in the past. Nevertheless, during the transition period, the support for scientific research is highly undercapitalised, due to lack of funds in both, country budget and large local industrial enterprises, which used to support the research institutes. Therefore, most of research groups in the CIT fell into serious funding problems, threatening their existence.

On the other hand, it would be useful to find another way of supporting the most of the groups, since they possess interesting and usable scientific knowledge and experience and they employ many highly competent scientists who might be lost for science. Furthermore, keeping a high standard of science would be necessary also considering the joining the many of the respective countries to European Union. Thus, the exchange of ideas on current trends and needs in polymer research with a special emphasis on environmental issues of production, processing and waste management, including Environmentally Degradable Plastics, would result in a global view on the current problems in polymer research and may outline the ways of prospective solutions.

It is believed that the large basis in CIT for chemistry in general and polymer science in particular would be beneficial also for developed countries of Western Europe especially bearing in mind the dramatic decrease in a number of students in Western Europe comparing to steady or even increasing number of students in CIT. Besides this, the special knowledge and experience in the CIT's institutes may be useful for a direct contacts and contracts with Western European companies, leading to a cooperation where both parties would profit.

Therefore ICS-UNIDO and DPI consider this EGM as very important with possible benefits reflecting in bilateral, multilateral, as well as global European level.

OBJECTIVES

The main goal of the EGM is to put together leading scientists from Universities and Academy with representatives of industry responsible for research and development. Participating scientists will come mainly (but not entirely) from most important institutes from European countries in transition (CIT) while mainly major companies will represent the industry from Western Europe.

The main objectives of the EGM have been defined as follows:

- To provide to participants the review of current trends in polymer research aimed to industrial application including Environmentally Acceptable Polymers (EAP) and special polymers.
- To provide an overview of experiences and new ideas developed in CIT research institutes.
- To discuss the opportunities of cooperation of CIT research institutes and industries with Western companies.
- To discuss legal aspects of cooperation between academic community and industry
- To provide to participants from academy a detailed information on management of cooperation on contract basis with industry.
- To provide to participants from Central European countries the updated knowledge and information on recent achievements of research as well as new technologies regarding environmentally related problems in polymer producing, processing and end of life disposal industries.
- To stimulate international research and technology transfer and enhance international co-operation through possible joint or follow-up projects, and feasibility studies by identifying regional R&D centres in CITs through contacts established with the participants in the workshop, thus giving ICS the possibility for identifying competent academic and industrial centres for future joint ventures for the EDPs development.

ORGANISATION

The workshop was organised by Polymer Institute of the Slovak Academy of Sciences, Bratislava in cooperation with ICS UNIDO Trieste and Dutch Polymer Institute, Eindhoven. Following bodies took responsibility for the scientific and organisation level of the event:

Local Organising Committee :

Dr. Ivan Chodák, DSc., chairman of the Local Organising Committee

Ms. Katarína Csomorová, secretary of the Local Organising Committee

Prof. Dušan Bakoš, DSc.

Dr. Ivica Janigová, PhD.

Ms. Zuzana Hloušková

International Organising Committee :

Prof. Stanislav Miertus, ICS Trieste, chairman

Prof. Dušan Bakoš, Slovak Technical University Bratislava

Prof. Emo Chiellini, University of Pisa

Prof. Jacques Joosten, DSM Research, Geleen

Prof. Piet Lemstra, Eindhoven University of Technology

DATE AND SITE

The workshop was held in The House of Scientists of the Slovak Academy of Sciences (Smolenice castle) in Smolenice, Slovakia on October 5 - 7, 2000. The facility provides both accommodation including full board services and conference hall equipped with projecting and audio tools.

FUNDING

The total expenses for the organisation was US\$ 11,581 compared to planned US\$ 12,300.

The amount received from UNIDO was US \$ 6 400 and additional US \$ 1 600 will be invoiced to the total US \$ 8 000 planned as UNIDO contribution. Whole amount was spent in accordance with the planned budget as shown in the Final Budget. Generally all the expenses correspond to the planned budget. In no case the really spent amount as specified in Terms of Reference exceeded the planned funds by more than 10 %. The details of the

Item	planned US \$	spent US \$	
Accommodation and meals of 25 international participants	3 600	3 760	Invoice 111
Accommodation and meals of 10 participants from the country	750	770	Invoice 111
Travel of invited international participants	3 000	3 042	travel tickets
Travel of invited participants from the country	300	300	invoice 110
Transport	350	282	invoice3105+2
TOTAL	8 000	8 094	
Contribution of the hosting institution	4 300	3 487	
GRAND TOTAL	12 300	11 581	

PARTICIPATION

Participants have been selected with the aim to cover fully the scope of the workshop regarding the key lectures and to cover the participation from all the countries from the region. From the latter point of view, participation from Russia, Slovakia, Czech Republic, Hungary, Poland, Slovenia, Ukraine, Bulgaria, and Latvia was considered to be necessary, representing all the important countries in the region. Thus, total 51 participants from 18 countries took part in the workshop.

1) Participants

Around 120 institutions, companies and governmental as well as non-governmental organisations and individuals have been contacted to announce the meeting. The meeting was announced at the web site as well. The participants have been selected so that all important aspects of the meeting should be covered and at the same time a balanced participation regarding the representatives of different countries should be reached. The overview of all the participants is given in Table 1.

Table 1: Participants according to the countries

<i>Country</i>	<i>number of participants</i>	<i>univ. R&D companies</i>		
Belgium	4	1	1	2
Bulgaria	1	1		
Czech republic	2	1	1	
Denmark	1		1	
Germany	6	4	1	1
Hungary	1	1		
Italy	2	2		
Latvia	1	1		
Netherlands	7	2	2	3
Poland	4	4		
Portugal	2	1	1	
Russia	4	4		
Slovakia	11	4	2	5
Slovenia	1	1		
Sweden	1	1		
Switzerland	1	1		
United Kingdom	2	1	1	
Ukraine	1	1		
		30	10	11

Participants came from universities (54 %), R&D (20 %) and companies (22 %). The portion of the scientists coming from the companies and R&D was 46 % from the total number of the scientists present.

WORKSHOP MATERIALS

Each participant and lecturer obtained conference materials. The Aide Memoire was distributed as electronic version only by email. This was sent not only to the participants and lecturers but it was a part of the announcement sent to all the persons and institutions which were informed about the event prior to the workshop. The invitation containing the main objectives of the workshop and some details on the organisation was distributed by the same way as the Aide Memoire.

At the registration following materials were given to all the registered persons:

Program

List of participants

The Proceedings from ICS UNIDO Workshop on Environmentally Degradable Plastics hold in 1999 in Smolenice, Slovakia was distributed free during the workshop. The participants obtained the book on request.

OPENING CEREMONY

Since the meeting was scheduled for four full sessions only, the opening ceremony was rather brief. The short introductory addresses have been delivered by Dr. Ivan Chodak, Prof. Piet Lemstra and Prof. Miertus. The speakers welcomed the participants and explained the reasons why the ISC – UNIDO and European Polymer Federation consider the meeting to be important.

PROGRAM

During the EGM 17 lectures have been presented, covering whole range of the workshop's scope. The list of the lecturers together with the topics of the lectures is given in Table 2. Besides lectures, panel discussion and several ad hoc general discussions took place.

Table 2: Keynote lecturers

<i>Lecturer</i>	<i>affiliation, country</i>	<i>topic of the lecture</i>
G. Capaccio	BP, UK	Trends in society
J. Joosten	DSM, NL	Industrial view
A. Khokhlov	Moscow State Univ., Russ	Research in CIT
S. Slomkowski	Centre Macro. Studies,	PLTrends in scientific community in CIT
G. Hoffmann	BASF, D	Human resources, European view
D. Bakoš	STU, SK	Human resources, CIT view
S. Miertuš	ISC UNIDO, I	Global actions ICS UNIDO
J. Put	DSM, NL	Trends in Polymer Science
A.C. Albertsson	Royal Inst. Technol., S	Environmental aspects
E. Chiellini	Univ. Pisa, I	Waste management, EDPs
T. Pakula	MPI, D	Selected activities MPI
I. Johanssen	Danish Polym. Ctr., DK	Cooperation East West
J.P.H. Bakker	DPI, NL	Activities of Dutch Polym. Inst. in EDPs
T. van Kemenade	ATO, NL	Applied research in plastics in Europe
B. Pukanszky	TU Budapest, H	Cooperation opportunities in Hungary
S. Fakirov	Univ. Sofia, BG	Selected projects
P.J. Lemstra	DPI, NL	EPF goals in promoting European networking

SOCIAL EVENTS

During the workshop a conference dinner was served on the first evening (Thursday). During the dinner, the welcome addresses have been presented.

On Friday, typical Slovak goose party was served outside of the castle. This was used for informal discussions, mainly related to the preliminary conclusions of the workshop.

ASSESSMENT

A standard questionnaire was distributed to participants, 31 participants returned the filled questionnaires. The opinion of the participants is summarised in Table 3.

A. Organisation

	<i>Excellent</i>	<i>Very good</i>	<i>Good</i>	<i>Fair</i>
	%	%	%	%
Information process	45	55	0	0
Announcement	94	6	0	0
Scientific Programme	52	42	6	0
Applied lectures	52	45	3	0
Time spent in class	90	10	0	0

	<i>Balanced</i>	<i>Unbalanced</i>
	non answered	non answered
Students' knowledge		

B. Duration of programme

	<i>Just right</i>	<i>Too long</i>	<i>Too short</i>
No of days	65	0	35
Length of working days	48	29	23

C. Training facilities

	<i>Excellent</i>	<i>Very good</i>	<i>Good</i>	<i>Fair</i>
Lecture room	38	52	10	0
Breaks/refreshment	42	55	3	0
Accommodation	55	45	0	0
Meals	61	39	0	0

D. Organisers response

<i>E. Overall organisation</i>	81	19	0	0
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F. Would you recommend the participation in the future to the others ? 100 % yes

Regarding the written part of the questionnaire, following suggestions and comments are worth to mention :

1. Most useful part of the activities

Generally all the parts of the programme have been approved; several participants appreciated informal ad hoc discussions.

2. Which part should be expanded?

Poster sessions should be considered to be included.

3. Which part should be dropped

No suggestions

4. Other suggestions to the programme

Extend the participation of young scientists and students

Presentation of new results, small local exhibition

5. Could the topics of the workshop be used by the industry ?

Definitely yes, several useful contacts have been established with a prospective of a cooperation in near future

6. Suggestion for future activities

Consider a concerted activities of ICS UNIDO and European Polymer Federation

7. How do you and your institution benefit from the workshop ?

The majority of participants appreciated mainly the established personal contacts.

8. How will you disseminate the information acquired ?

Mainly via immediate information to selected responsible persons in particular company / institution

RESULTS AND SUGGESTIONS FOR FOLLOW UP

The workshop was generally considered as very successful and useful by most of the participants. The participants stressed a friendly atmosphere, stimulating site of the meeting and balanced programme as positives.

It was suggested that European Polymer Federation might consider supporting the activities of ICS UNIDO and vice versa. In any case, closer contacts between the two should be established in the future, e.g. using the new information bulletin, E - journal, which will be issued by EPF from 2001 for advertising of activities of ICS UNIDO.

Several contacts between representatives of companies and research institutes have been established, which may lead to a cooperation. Several possible projects have been discussed for a submission to European financing schemes, e.g. 5th Framework programme.