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Final Report

**ICS-UNIDO Forum on
“Sustainable Development and Environmentally
Degradable Plastics”**

October 24-27, 2002, Tsinghua University, Beijing, China

UNIDO Project No.: TF/GLO/00/105

UNIDO Contract No.: 2002/218/IR

INTRODUCTION

Due to the importance of the issue of **“Sustainable Development and Environmentally Degradable Plastics”** in China, ICS-UNIDO decided to organize the event in Beijing. China possesses rather high industrial potential with a great deal of plastics consumption and developed plastics industry. On the other hand, the knowledge on EDPs is still rather limited and the applications are marginal. Therefore the region provides a large opportunity for spreading the EDPs concerning a developed industry and research organizations active in China. Furthermore, the region suffers from rather serious environmental problems among which plastic waste disposal is a closely monitored issue at present and is supposed to be even more important when of the economy the country will improve.

The event was also used for information of public on the environmental issues related to plastics. It is foreseen that the data on the advanced way of plastics waste disposal represented by EDPs will be broadly spread by newspapers and electronic media and will contribute to the awareness of public of this topic.

China has faced the challenge of population explosion and unrestricted exploitation of resources, as petroleum reserve can not match the demand, other alternative ways have to be found to tackle the resource limitation challenge during the development. In the case of China, as the largest developing country in the world, rapid economic development has created a lot of pollution and overexploitation of resources, these problems, if not resolved properly, will eventually affect the global development. In a few years from now, China will become the largest plastic consuming country in the world, therefore, policy has constantly emphasized in sustainable development and environmentally friendly materials. Among them, biodegradable plastics is the focus of governments in various levels and plastic industries. This workshop will bring together experts from oversea and domestic institutions, central government agents and provincial officers from the Environmental Departments and plastic manufacturing industries, as well as multinational companies involved in degradable plastics, to discuss the future development of the biodegradable plastics and, to exchange views on the policy to encourage the biodegradable plastic industries. The 2008 Beijing Olympics will be the target for the use of degradable plastics.

Based on the prerequisites mentioned above, the organization of the workshop will be held in cooperation with the Degradable Plastics Specialized Committee under the China Plastics Processing Industry Association.. Both academic and industrial institutions coming from China will participate in the event. It is assumed that the workshop will be held under the auspices of China Ministry of Environment Protection, 2008 Beijing Olympic Organization Committee and many other provincial organization involved in setting up plastic deposition policy. The corresponding representatives of various Ministries of China as well as local branches are supposed to be active participants taking part in discussions on various levels.

An important part of participants were from companies. The companies which are involved in activities connected with production or processing of EDPs as well as

those which would be considered to be willing to enter this area in near future were invited.

Tsinghua University is a leading University in the research on chemistry and physics of polymers. It is one of the major Universities in China and has a lot of research capacities in engineering. Tsinghua University was therefore the host of this event.

OBJECTIVES

The main proposed objectives of the workshop are defined as follows:

To provide participants from China and countries in neighbor to China with 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 update the scientific and technological knowledge of the participants in terms of the waste management of polymeric materials and to stimulate planning for the minimization of waste generation.
- To provide recent information regarding legal aspects of plastic waste formation and waste disposal management and the role which environmentally degradable plastics can play in the whole system.
- To raise industrial, academic and public concern on the issues of environmental effects of plastics, and to emphasize the positive contributions which manufacturing industries can make including the increased utilization of environmentally degradable polymers (EDPs) in those production segments in which they can play an exclusive role.
- 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 developing countries 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.
- To discuss the requirements of candidate degradable plastics for 2008 Beijing Olympic games being produced by various companies.

ORGANIZATION

The Forum on “Sustainable Development and Environmentally Degradable Plastics in China” was jointly organized by the International Center for Sciences &

High Technology (ICS), United Nation Industrial Development Organization (UNIDO), Degradable Plastics Specialized Committee under the China Plastics Processing Industry Association, as well as Tsinghua University. Following bodies took responsibility for the scientific and organization of the event:

Local Organzing Committee:

Chairman (Domestic):

Mr. Xing Tao (China Degradable Plastics Specialized Committee)

Ms Saizhen Tang (China Degradable Plastics Specialized Committee)

Co-Chairman (International):

Professor George Guo-Qiang CHEN (Tsinghua Univ.)

International Advisory Committee:

Stanislav MIERTUS (ICS-UNIDO)

Emo CHIELLINI (Italy)

Gerhalt BRAUNNEGG (Austria)

Ramani NARAYAN (USA)

Young Ha KIM (Korea)

Jia Fan LIU (China)

Ming JIANG (China)

DATE AND SITE

Tsinghua Unisplendour International Center on the eastern gate of the Tsinghua University campus was used as conference venue from Oct. 24 to 27, 2002. The hotel provided both accommodation including full board services and conference hall equipped with projecting and audio tools.

FUNDING

The total expenses for the organization were 290,000 RMB which is around US\$35,151.

The planned contribution from ICS-UNIDO amounted to US\$ 8,000 to be spent for the budget items specified in the terms of reference (i.e.: accommodation and meals of international lectures and participants, travel of international lecturers and participants, internal transport). The total disbursement within the mentioned budget items was of US\$6,978 and the amount received from UNIDO was US\$6,400, therefore additional US\$578 will be invoiced to UNIDO

The other sponsors of the workshop were:

Tianjin Dawnhalo Appliance. Inc

Rohm and Haas Company

Weimon Industry Co. Ltd

Procter & Gamble Company (P&G)

PARTICIPATION

In total 102 persons from 9 countries including China, Italy, USA, Japan, Germany, Korea, Australia, Austria and Singapore participated in the forum. Among them 16 from abroad and the rest domestic. Participants have been selected with the aim to cover fully the scope of the forum regarding the key lectures and to cover the participation from countries and regions where EDPs are well developed.

1) Lecturers (Keynote speakers)

24 keynote speakers participated in the forum. They presented 20 lectures covering the whole range of the workshop's scope. The list of the lecturers together with the topics of the lectures is given in the attached "Program and Time Schedule".

2) Participants

More than 280 announcements have been sent to various institutions, companies and governmental as well as non-governmental organizations. The forum was also announced in two websites (www.microbes.net and www.saien.com.cn, which is the website for the China Degradable Plastics Specialized Committee). Most domestic participants came from the industries. They represent the EDPs industry in China.

Representatives from the Ministry of China Sciences and Technology, Ministry of Foreign Trades, Ministry of Environmental Protection, Chinese Light Industry Association, Chinese General Packaging Company and the 2008 Beijing Olympic Preparatory Committee were also presented in the forum. They also delivered speech to support the EDP industries.

Tab1: participants according to the regions, countries and affiliation (including invited speakers)

Country	Total Number	University	R&D	Companies	Government
Austria	1	1			
Australia	1			1	
China	82	8	7	52	15
Germany	2			2	
Italy	5	2			3
Japan	5			5	
Korea	1	1			
Singapore	1			1	
USA	4	1		3	

The portion of the scientists coming from companies, R&D and government organization was around $(102-13)/102 \times 100\% = 87\%$

WORKSHOP MATERIALS

Each participant and lecturer obtained conference materials. The Aid Memoire was distributed as electronic version by e-mail and should be find on the website of China Degradable Plastics Specialized Committee (www.saien.com.cn). The invitation containing the main objectives of the forum and some details on the organization was distributed by the e-mail or regular mail.

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

- Book of abstracts plus full text in both English and Chinese translation

- Final program of the forum

- Office supplies

Some companies also distributed advertisement of various EDPs during the forum. At least 15 companies showed their EDP products.

OPENING CEREMONY

The opening ceremony was chaired by Professor George Guo-Qiang CHEN of Tsinghua University. Welcome speech was made by Professor ZHAO Nan-ming, Dean of School of Life Sciences, Tsinghua University. Forum introduction speech by Professor S. Miertus of ICS-UNIDO, Welcome speech by Mr. ZP Liao, Director and Secretary General of China Plastics Processing Industry Association, Speech was also given by Mr. S. Miranda da Cruz, Representative of UNIDO Field Office in China. Keynote speeches presented by Mr. Dexiu MA, Director of Dept of National High Tech Development under the State Planning Commission, Mr. Zhihua GAN, Vice-Secretary General of Ministry of Foreign Trades, representatives from Dept of High Tech Enterprises Management, Ministry of Sci & Technol, Director of the Dept of Pollution Control, Ministry of Environmental Protection, Vice-Director of China Light Industry Union and, Mr. Jiafan LIU, President of the China Degradable Plastics Specialized Committee

PROGRAM

Please refer to the attached final program and time schedule for the details.

SOCIAL EVENTS

Since the forum was held in a closed facility where the participants stayed for the whole day with little possibility to leave, the social events were carefully selected to enjoy the participants and to show them the life and history in this ancient city. The following social events were organized:

Oct 25, 2002

19:15: Departure to the Aventi Restaurant to Dinner and Watch Performance.

October 26, 2002

18:30: Departure to the famous LAOSHI Teahouse to have tea and to watch traditional old Beijing Performance

October 27, 2002

8:00: Visit The Great Wall and Summer Palace

ASSESSMENTS

ICS Workshop/Training Course: Evaluation Questionary

Following results were obtained from the 26 Standing Members of the China Degradable Plastics Specialized Committee.

A. Organization

1. How did you obtain information about this workshop/course?

Via Chinese Degradable Plastics Specialized Committee

	Excellent	Very Good	Good	Fair	No
2. The information process was	12	9	4		
3. The announcement and pre-course material was Describe the content of the workshop/course:	4	12	7	1	
4. I found the scientific programme	5	11	7		
4.1 Applied Lecture/Workshop	5	14	5		
4.2 Use of small working groups			6	14	4
4.3 Case Studies	2	16	5	1	
4.4 The time spent by lecturers in class and after class on specific questions/examples	2	14	7	1	
	Balanced	Unbalanced			
4.5 Students scientific knowledge was	24	1			

B. Duration of programme:

	Just right	Too long	Too short
1. Number of days	22	2	1
2. Length of working days	22	3	

C. Training facilities & Hotels:

	Excellent	Very Good	Good	Fair
1. Lecture/Training Rooms	13	9	2	1
2. Breaks/refreshments	6	12	7	

3. Hotel accommodation	11	9	5	
4. Meal at the hotel	1	11	8	4
If "Fair" Please explain why:	1. The food isn't fit for people from South of China. 2. Simple			
D. Organizer's response to participants needs	12	10	3	
E. Overall programme organization	8	14	3	
F. Would you recommend to others from your institution/ country to attend a similar activity in the future ?	Yes	May	No	
	16	7	1	
1. Which part of the Activity did you find most useful?	courses, lectures, new technology exchanges, product show; exchanges between internal and abroad; communication; information from foreign experts & united on degradable plastics trends and standard lecture ; exchanges			
2. Which part of the Activity do you think should be expanded?	exchanges, product show and courses; new technology exchanges; science research discussion;			
3. Which part of the Activity do you think should be dropped?	time prolonged; product lecture			
4. Any other suggestions for future improvements to the programme?	more exchanges are needed; more new technology exchanges provided; One time every year; establish academic research committee on completely degradable plastics; Collect the paper ahead of schedule; The training time is too short.			
5. topics/tools could be used by industries in your country? If so, how? If not, why not?	yes; information, technology suggestions; Give a general directing for developing in degradable plastics. Good for developing; yes; Can provide the product trends;			
6. Can you suggest any programme and future activities which ICS could pursue in order to help with the technology.	Yes. I maybe; training in information, standard and technology; gain more and adjust the strategy in time; To influence our government, Exchange information and publish the relative technologies, introduce current progress of other countries. By these means, could provide some constructive help to our government. Hope to give special training and more opportunities to exchange and cooperate.			
7. Do you think you have benefited from part. in this course/workshop ? If so , how?	Yes; To obtain more information, help to adjust the strategies in time, learn more advices and become more productive and progressive.			
8. How to disseminate the information acquired once back in your country?	By the training to ma Co.; communicate with others; pass information to our company board of directors; news reports、magazines、newspaper, network 、commission proceeding; Hold a special seminar to my company and related field partner.			

G. Evaluation of Lectures and Speakers

	Excellent	Very Good	Good	Fair
1. Course material	11	13	1	
2. Resident Lecture presentation	2	16	7	
3. International Lecture Presentation	7	13	5	
4. Ability of lectures to answer specific questions	4	14	5	2

Any comments: Hope to find more excellent papers, but not only advertisement.

RESULTS AND SUGGESTIONS FOR FOLLOW UP

The forum was generally considered as very successful and useful by most of the participants. A friendly atmosphere and balanced program were welcomed by the participants. The forum was widely reported by the newspapers in Beijing city and this has increased the awareness of sustainable development and EDP in Beijing and the whole country. The forum is recognized by the 2008 Beijing Olympic Preparatory Committee as an eye opening events, the representative said that it is important to know that there are so many EDP available for selection for the game that has been designed as "GREEN OLYMPIC AND HIGH TECH OLYMPIC". Following follow-up actions will be taken:

1. Analysis of Chinese Situation on EDPs, to understand what types of EDP are available, how big the market will be and how to exploit the market, detailed country report will be ready by December 31, 2002;
2. Selection of promising EDP both for the 2008 Olympic game and beyond. For this, an EDP evaluation standard needs to be established. At the moment, no a homologous standard is available to regulate the local market. The China Degradable Plastics Specialized Committee will closely work with ICS-UNIDO and the international standard organization to homogenize the local standard so that a list of parameters can be used to select a list of possible candidate EDPs. Suitable candidates will be scaled up for study of their properties and biodegradability under standard conditions.
3. Under the support of ICS-UNIDO, local EDP community will work to develop testing and standard certification procedure and facilities.
4. Successes of EDP application also rely on waste management of EDPs. Pilot study should be conducted on separation and composting. Only after successful development of these can EDPs become truly environmentally friendly.
5. Creation of a Chinese network on EDPs between institutions, industries through the China Degradable Plastics Specialized Committee. This will be linked to ICS-UNIDO global network. The existing website on EDPs www.saien.com.cn

can be used as a starting point. However, the current website needs to add an English version on it so that international visitors can gain an understanding of the EDPs in China

6. Local EDPs industry and organization can make full use of the ICS-UNIDO focal point in China including Training, Database, Pilot Projects development as well as Promotion action.
7. The majority of the Chinese participants hope to have an annual EDP conference in China to promote this new industry and push the application of EDP for the 2008 Olympic game and after. This could be organized under the auspices of ICS-UNIDO.

SUMMARY OF THE FINAL BUDGET

ICS-UNIDO Contribution	Planned US\$	Actual US\$
Accommodation and meals For international lecturers	1,120	1,500
Contribution for travel and Accommodation for International participants	1,480	2,182*
Travel for international lecturers	4,800	2,500
Transport	600	796
Total	8,000	6,978

Note:

* Due to the size of the country, many Chinese participants were coming from long distances and they needed accommodation, which was covered by the local organization with the ICS-UNIDO budget. A total of 18,000 RMB=US\$2,182 have been spent to cover to the accommodation for domestic participants and speakers

Beside the US\$8,000 contributed by ICS-UNIDO, other costs were covered by financial support from the following industrial companies participating in the meeting:

Tianjin Dawnhalo Appliance. Inc
 Rohm and Haas Company
 Weimon Industry Co. Ltd
 Procter & Gamble Company (P&G)
 BASF

China Degradable Plastics Specialized Committee
Tsinghua University

The local organizing committee wants to thank them for their generous supports.

Other organizational expenses were:

1. A total of 680 Proceedings were printed and distributed not only to the participants but also to various libraries and governmental institutions with a cost of 50 RMB/copy. Totally 34,000 RMB=US\$4,121
2. The rental fee for the conference room over three days were 20,000 RMB=US\$2,424
3. Facilities including earphone, Multi-medium projectors and other services provided by the hotel were 9,500 RMB=US\$1,151

Appendix I

Final Program and Time Schedule

For the ICS-UNIDO Forum on
“Sustainable Development and Environmentally Degradable Plastics”
October 24-27, 2002, Tsinghua University, Beijing, China

October 24, 2002

10:00-19:00: Registration in the conference venue: Tsinghua Unisplendour International Center on the eastern gate of the Tsinghua University campus. Participants can assess the University campus during days and nights.

19:30-21:00: Reception dinner hosted by Tsinghua University and the China Degradable Plastics Specialized Committee in the conference venue

October 25, 2002

1. Opening Session: 8:30-11:00 am

(Chairman: *Professor George Guo-Qiang CHEN*, Tsinghua University

Ms Sai-Zhen Tang, Secretary General of China Degradable Plastics Specialized Committee)

9:00-9:05: (Prof GQ Chen & Ms SZ Tang) Opening speech & introduction of Honored Guests

9:05-9:15: Welcome speech by Dean of School of Life Sciences, Tsinghua University

9:15-9:20: Forum introduction speech by Professor S. Miertus of ICS-UNIDO

9:20-9:25: Welcome speech by Director and Secretary General of China Plastics Processing Industry Association (Mr. ZP Liao)

9:25-9:30: Speech given by Representative of UNIDO Field Office in China

9:30-10:20: Keynote speeches presented by

Mr. Dexiu MA, Director of Dept of National High Tech Development under the

State Planning Commission

Mr. Zhihua GAN, Vice-Secretary General of Ministry of Foreign Trades
Dept of High Tech Enterprises Management, Ministry of Sci & Technol
Director of the Dept of Pollution Control, Ministry of Environmental
Protection,

Vice-Director of China Light Industry Union

Ms Xiaoxuan YU, Director of the Dept of Environmental Protection, Beijing
2008 Olympic Preparatory Committee

Mr. Jiafan LIU, President of the China Degradable Plastics Specialized
Committee

2. R&D and application of degradable plastics in various countries and Regions:

10:20-11:40

(Chairman: Professor Ramani Narayan, Michigan State Univ. USA)

10:20-10:40: (Prof. S. Miertus, ICS-UNIDO) Environmentally Degradable
Plastics and ICS-UNIDO Global Program

10:40-11:00: (Mr. Miranda Da Cruz, ICS-UNIDO) Survey of activities and
programmes of UNIDO field Office in China in the field of waste
management

11:00-11:30: (Ms Saizhen TANG, China Degradable Plastics Specialized Committee,
China) Role of Environmentally Degradable Plastics in Environmental
Protection and Sustainable Development + Current Progress and
Prospect of Chinese EDP

11:30-12:00: Take photo for all participants

12:00-13:30: Lunch Break

3. Continued Section 2 (13:30-15:50)

(Chairman: Professor Gerhalt Braunegg, Technical University Graz, Austria)

13:30-14:00: (Professor Emo Chiellini, Univ Pisa, Italy)

Environmentally Degradable Polymeric Materials Plastics.

Present Status and Perspectives + Plastic Waste Management

and Environmentally Degradable Plastics in Europe. Directives and Standards

14:00-14:30: (Professor Young Ha Kim, Kist, Korea) Status on Plastic Waste
Treatment, Recycling and EDP Developments in Korea +Review on
Biomedical Application of Biodegradable Polymers

14:30-15:00: (Mr. Huang ZX, Environmentally Biodegradable Polymer Association
Taiwan, China) Overview: Development of
Biodegradable Plastics in Taiwan

15:00-15:15: (Mr. Rudolf Walder, Switzerland) Segregated
Collection of the Municipal Solid Waste - a Base for
Plastic Recycling

15:15-15:30: (Mr. L Lai, Shenzhen, China) Green Chemistry-Solution to
Global Sustainable Development

15:30-15:50: Coffee Break

4. Standard to Evaluate Performances of Degradable Plastics (15:30-16:30)

(Chairman: Professor Emo Chiellini, Univ Pisa, Italy)

15:50-16:20: (Prof. Narayan, Michigan State Univ, USA) Development of a

Rational Standard to Evaluate Performances of Degradable Plastics

16:20-16:50: (Dr. Weng YX, Plastics Processing and Application Research Inst, China)

Development of International Standards for Evaluating Biodegradable Materials

16:50-17:00: Coffee Break

4. Starch Based Degradable Plastics (17:00-18:30)

(Chairman: Professor Stanislav Miertus, ICS-UNIDO)

17:00-17:30: (Dr. H Zhe, Tianjin Dawnhalo Appliance. Inc) Trend in Development of Degradable Starch/Polyolefin Material

17:30-18:00: (Mr. YanJing ChenFu, Wonder Co. Ltd, Japan) "SUSHI" Biodegradable Material Application in Japan

Social Program

October 26, 2002

5. Microbially Produced Plastics: Polyhydroxyalkanoates (PHA) (8:00-9:30)

(Chairman: Mr. Jia Fan Liu, Director of China Degradable Plastics Specialized Committee)

8:00-8:30: (Prof. Braunegg, TU Graz, Austria) Production of Polyhydroxyalkanoates: A Contribution of Biotechnology to Sustainable Development

8:30-9:00: (Ms Norma McDonald, P&G, USA) Nodax™ Polymers based on PHA

9:00-9:30: (Professor George Guo-Qiang Chen, Tsinghua Univ, China) Industrial Production of Polyhydroxyalkanoates

9:30-10:00: Coffee Break

6. Other Degradable Plastics Currently Available (10:00-12:20)

(Chairman: Prof. George Guo-Qiang Chen, Tsinghua Univ. China)

10:00-10:30: (Dr. Masahiro Maeda, BASF, Japan) Ecoflex, A New Type of Degradable Plastics

10:30-11:00: (Professor Yuzhong Wang, Sichuan Univ. China) Starch based Totally Biodegradable Plastics

11:00-11:30: (Prof. Qinghua Chen, Fujian Normal Univ., China) Synthesis of Alkalic Inorganic Ca(OH)₂ /Bioactive macromolecular Composite Materials

11:30-12:00: (Ms. FengXia Xu, Tianjin Dawhalo Appliances. Inc) Technology and Application of STARATE Biodegradable Plastics

12:00-12:20: (Dr. Aiming Xiang, Beijing Industrial & Commercial University) Study on Plasticized and Blowing Technology for PVA

12:20-13:30: Lunch Break

7. Other Aspects Related to Environmentally Degradable Plastics (13:30-14:30)

(Chairman: Mr. Miranda Da Cruz, ICS-UNIDO)

13:30-14:00: (Mr Hong-Guo Hu, Shanghai Shenyue Degradable Plastics Research Inst, China) Effect of Particle Dispersion on Viscoelasticity of CaCO₃-filled Polypropelene Melts

14:00-14:30: (Prof Cunjiang Song, Nankai Univ., China) A New Method to Estimate Degrading Microorganisms of Biodegradable Plastics and the Isolation of These Bacteria-the Film-MPN Method

14:30-15:00: Coffee Break

8. Technology and Products Showcase

(Chairman: Ms Saizhen TANG, China Degradable Plastics Specialized Committee, China)
(15:00-16:20)

15:00-15:20: Mr. Zhixian Huang

Environmentally Biodegradable Polymer Association Taiwan, China
Introduction of Nature Green™ Product

15:20-15:40: (Mr. Li Lai, Shenzhen China Packaging BioEnviron Co. Ltd) Application of High Efficient Separation and Chemical Transformation in the R&D and Application of EDP

15:40-16:00: (Mr. XinJian Ye, JiaYang Spring Degradable Products Co. Ltd)
Processing Technology for Ultrafine Starch Based Plastics

16:00-16:20: (Mr. Yunchuan Yuan, Gejiu City Plastics Factory, Yunnan, China) Light/Heat/Biodegradable Plastics Products

16:20-16:50: Coffee Break

16:50-17:30: Discussion on possible follow-up actions and joint projects promotion

17:30-18:00: Conclusions and Recommendations (By Professors GQ Chen, S Miertus and Mr. JF Liu, President of the China Degradable Plastics Specialized Committee)

Speakers will be arranged to stay in the Tsinghua Unisplendour International Communication Center addressed as:

Tsinghua Unisplendour International Communication Center
East Gate of Tsinghua University
Beijing 100084, China
Tel: +86-10-62791888, Fax: +86-10-62620358
e-mail: international@thunis.com
Sales Hotline: +86-10-62556705

For those hotel reservation, please let me know at: chengq@mail.tsinghua.edu.cn

Social Program

Oct 25, 2002

19:15: Departure to the Aventi Restaurant to Dinner and Watch Performance. Buses will wait for you in front of the Hotel main entrance

October 26, 2002

**18:30: Departure to the famous LAOSHI Teahouse to have tea and to watch traditional old Beijing Performance (By registration only)
Buses will wait for you in front of the Hotel main entrance**

October 27, 2002

Sightseeing (Organized by the local organizing committee, registration only)

**8:00: Departure from the hotel: Tsinghua Unisplendour International Communication Center. Tours to:
The Great Wall
Summer Palace
Buses will wait for you in front of the Hotel main entrance**

APPENDIX II

List of participants (See attachment)

No.	Name	The title of a technical post	Unit	Address	Post Code	Telephone	Fax	Email	Homepage
1	ZHANG Shanmei	vice-chairman	China light industry League	22 B Fuwai Street Beijing, China	100833	-	-	-	
2	GAN Zhihe	Vice secretary-general	State economic & trade commission	No.26 Xuanwumen West Street Beijing, China	100053	010-63193207			
3	SHAO Liqin	director general	The people's republic of China the ministry of science and technology	15 B .Fuxing Road Beijing, P.R.China	100862	010-68514038			
4	XIA Tiandong	Doctor	The people's republic of China the ministry of science and technology	15 B .Fuxing Road Beijing, P.R.China	100862	010-68512622	010-68512622	xiatid@gsut.edu.cn	
5	ZHAO Nanming	Dean	Department of Biological Science and Biotechnology, Tsinghua University	Tsinghua University	100084				
6	YANG Lixing	Vice Deputy director	China Plastics processing industry Association	No.6 Chang'an East Street Beijing, China	100740	010-65122056	010-65278590	cppia@cppia.com.cn	www.cppia.com.cn
7	MA Zhanfeng	engineer	Plastics processing industry Association, China	No.6 Chang'an East Street Beijing, China	100740	010-65592882	010-65225254	mzf@vip.sina.com.cn	www.cppia.com.cn
8	DU Lin	Vice secretary-general	Environmental Protection industry, China	No.9 Shanlihe Road Beijing, China	011835	010-68393892			
8	XU Beilei	president	high-tech committee council expert mavin savant shark specialist swami whiz whizz, China international talent development	22 B Fuwai Street Beijing, China	100833	010-68396435			

9	MA Li	President assistant	China National Packaging Corporation	3002 Room, Zhongji Xindongfang Office building, No. 42 Dongsanhuan North Road, Chaoyang District, Beijing, China	100020	010-65819049	010-65818620	ima@cnpcc.net.cn	www.cnpcc.net.cn
10	CHEN Weicheng	Po superior engineer	science and technology department of China National Packaging Corporation	Room 3002, office building of Zhongji New Orient, North Dong Sanhuan Road, Chaoyang District Beijing China	100020	010-65662250	010-65662239	weicheng@packchina.com.cn	www.packchina.com.cn
11	ZHU Lanying	Chief manager	chinapack plastic Imp & Exp Corporation	Middle Cuiyanglu street 4, Chaoyang District Beijing China	100022	010-87774918	010-87782713	Lanying88@hotmail.com	
12	LV Zongyin	Director assistant	Xinhua News Agency	West Xuanwumen Street 57, Beijing, China	100803	010-66021580	010-66021580		
13	LIU Wei	reporter	China Environment News						
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