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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

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The other sponsors of the workshop were: 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

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 (<u>www.microbes.net</u> and <u>www.saien.com.cn</u>, 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)/102X100%=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 (<u>www.saien.com.cn</u>). 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	0	
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		-14	7		
	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	22	3	
davs			

C. Training facilities & Hotels:

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

3. Hotel accommodation		11	9		5	.	1]
4.Mealas at the hotel		1	11		8	<u>.</u>	4	1
If "Fair" Please explain w	'ny:	1. The food is 2.Simple	n't fit for	peop	le from South	n of (China.	
D. Organizer's respon	nse to	12	10		3			
participants needs	· ,,							-
E. Overall programme orga	r	8	14		3		I	-
F. Would you recomme		Yes		Ma	у	No		
others from your inst country to attend a similar a in the future ?	itution/ activity	16		7		1		
1. Which part of the	courses	, lectures, new	v technolog	gy ex	changes, pro	oduc	t show; exchai	nges
Activity did you find most	between	n internal and a	broad; co	mmu	inication; in	form	nation from for	eign
useful?	experts	& unido on d	egradable	plas	tics trends a	nd s	tandard lecture	;;
	exchan		U	•				
2. Which part of the	-	ges, product sho	w and cor	irses	new technol	09V	exchanges: scie	ence
Activity do you think		h discussion;				~8)		
should be expanded?	rescure							
3. Which part of the	timo nr	olonged; produ	ot leature					
•	f time pro	bioligea; produ						
Activity do you think								
should be dropped?		4	<u> </u>					
4. Any other suggestions		changes are nee						
for future improvements		me every year					rch committee	
to the programme?	-	tely degradable	-	Collec	t the paper a	head	l of schedule;	The
		time is too sho						
5. topics/tools could be	•	formation, tech				-	-	
used by industries in you	-	ing in degradab	le plastics	. Goo	od for develo	ping	; yes; Can pro	vide
country? If so, how? If	the proc	luct trends;						
not, why not?								
6. Can you suggest any	Yes. I n	naybe; training i	n informa	tion,	standard and	tech	nology; gain n	nore
programme and future	and ad	ljust the strategy	in time;	To i	nfluence our	gove	ernment, Excha	inge
activities which ICS could	inform	nation and pub	lish the 1	elati	ve technolog	gies,	introduce cur	rent
pursue in order to help	progre	ss of other co	ountries.	By t	hese means,	, coi	uld provide s	ome
with the technology.	constr	uctive help to o	ur govern	ment	. Hope to gi	ve s	pecial training	and
	more o	opportunities to	exchange	and c	cooperate.			
7. Do you think you have		obtain more i				the	strategies in ti	ime,
benefited from part. in		ore advices and						
this course/workshop? If						•	-	
so, how?								
8. How to disseminate the	By the t	raining to ma C	o.: comm	unic	ate with othe	rs: 1	pass informatio	n to
information acquired once	-	npany board of				-	-	
back in your country?		c commission			-	-	al seminar to	-
		y and related fie	-	-		1		
	compan	y and related fie	au partner					

	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

G. Evaluation of Lectures and Speakers

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 <u>www.saien.com.cn</u>

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 Commitee)
- 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 WasteTreatment, 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

<u>5. Microbial</u>	ly 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 TM 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

10:30-11:00:(Professor Yuznong wang, Sichuan Univ. China) Starch based Totaliy
Biodegradable Plastics11:00-11:30:(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 Plastics12:00-12:20:(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 Viscoelastcity 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 GreenTM **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: <u>international@thunis.com</u> 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)

Homepage						www.cppia.co m.cn	www.cppia.co m.cn			
Email	ł			xiatid@gsut.edu.c n		cppia@cppia.com .cn	mzf@vip.sina.co m.cn			
Fax	1			010-68512622		010-65278590	010-65225254			
Telephone	I	010-63193207	010-68514038	010-68512622	, ,	010-65122056	010-65592882	010-68393892	010-68396435	
Post Code	100833	100053	100862	100862	100084	100740	100740	011835	100833	
Address	22 B Fuwai Street Beijing, China	No.26 Xuanwumen West Street Beijing, China	15 B. Fuxing Road Beijing, P.R.China	15 B. Fuxing Road Beijing, P.R.China	Tsinghua University	No.6 Chang'an East Street Beijing, China	No.6 Chang'an East Street Beijing, China	No.9 Shanlihe Road Beijing,China	22 B Fuwai Street Beijing, China	
Unit	China light industry League	State economic ™ commission	The people's republic of China the ministry of science and technology	The people's republic of China the ministry of science and technology	Department of Biological Science and Biotechnology, Tsinghua University	China Plastics processing industry Association	Plastics processing industry Association, China	Environmental Protection industry, China	high-tech committee council expert mavin savant shark specialist swami whiz whizz, China international talent development	
The title of a technical post	vice-chairman	Vice secretary-gene rai	director general	Doctor	Dean	Vice Deputy director	engineer	Vice secretary-gene ral	president	
Name	ZHANG Shanmei	GAN Zhihe	SHAO Liqin	XIA Tiandong	ZHAO Nanming	YANG Lixing	MA Zhanfeng	DU Lin	XU Beilei	
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	3002 Room, Zhongji Xindongfang Office building, No. 42 Dongsanhuan North Road, Chaoyang District, Beijing,China	Room 3002, office building of Zhongji New Orient, North Dong Sanhuan Road,Chaoyang District Beijing China	Middle Cuiyangliu street 4, Chaoyang District Beijing China	West Xuanwumen Street 57, Beijing, China		North Liukangpu street Jia 2, West District of Beijing, China					Room 313, building 8048 Garden street 6, Haidian District , Beijing , China	
centre	China National Packaging Corporation	science and technology department of China National Packaging Corporation	chinapack plastic Imp & Exp Corporation	Xinhua News Agency	China Environment News	Chemical Engeering Newspaper Office of China	Chinapack Newspaper	China Radia	Special committee of degradable	plastic , Plastic Association of China	Degradable plastic website of china http://www.saien.com.cn	Environment and domain department of
	President assistant	Po superior engineer	Chief manager	Director assistant	reporter	reporter	reporter	reporter	general	secretary	Manager	advisor
	MA Li	CHEN Weicheng	ZHU Lanying	LV Zongyin	LIU Wei	ZHAO Xiaoqiang	WANG Yuewei	LIU Zheng	TANG	Saizhen	TAO Xin	AN Jie Li
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Quan General Shipu Engineer Hou Zhe PHD	41	Liu Jiafan	General manager	Danhai stock Company Limt., Tianjin	No. 5 spur track, No. 1 road, Xiqing empolder borough, Tianiin	300381	022-23972193 022-83960646	022-23972193	danhai@chinada nhai.com	
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