

Technical Report

Responsible for information:

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<http://www.advancesincleanerproduction.net>

Summary

Brazilian and foreign researchers discussed, for three days (21, 22 and 23 November, 2007) at the University Paulista (Campus Indianópolis), The Role of the Cleaner Production (CP) in the Sustainable Development of Modern Societies, during the 1st Workshop International Workshop on Advances in Cleaner Production.

The international event was organized by the Postgraduate Program in Production Engineering (PPGEP-UNIP), master and doctorate, and counted with the partnership of the Paulista CP Roundtable, (forum with participation of CETESB, SABESP, FIESP, CIESP, SENAI and IPT among others), Brazilian Association of Production Engineering (ABEPRO) and the Journal of Cleaner Production, which is the most important scientific publication in the area.

The efforts of the Vice-Dean of Post-Graduate Studies and Research of UNIP for the success of the International Workshop are responsible for the infrastructure, including teachers and students of the Tourism course, integrating the Support Committee of the Workshop, and the UNIP Chorus, which provided a masterly presentation. The financial and institutional support received from FAPESP, FINEP, CNPq, SABESP and the Brazilian Navy was remarkable.

The Organizing Committee considered the first international workshop held in Brazil was extremely productive, reaching fully its seven (7) goals.

(1) The purpose of academic information exchange has been fully achieved. It was a significant number of participating academic institutions (111 universities and faculties). Seventy-five (75) academic contributions were presented. The quality of the work presented resulted in an invitation by the Journal of Cleaner Production (JCP), for a special issue of the journal containing the papers presented at the Workshop.

(2) Presentations of recent achievements in CP were made by a significant number of companies. Seventeen (17) cases of success were presented in oral form and twelve (12) plenary sessions reporting institutional cases also were part of the activities. The event provided the contact between academic knowledge and corporate experience (63 companies in the industrial sector and 51 public sector companies sent participants to the event).

(3) The sharing of knowledge between more developed and emerging economies was another of the goals achieved. Example of this was the participation of the invited speakers: Donald Huisingsh, editor-in-chief of the JCP and senior scientist on sustainable development at the University of Tennessee (USA); Jeffrey Burke, executive director of the United States National Pollution Prevention Roundtable (NPPR); Pedro Ochoa George, professor at the University of Cienfuegos (Cuba); Gilberto Huet de Bacellar Sobrinho, advisor of the Environment Management, Department of Ports and Coasts of the Brazilian Navy; Osvaldo Luiz Gonçalves Quelhas, president of ABEPRO and associate professor of the Federal Fluminense University and Fernando Cardozo Fernandes Rei, president of São Paulo's environmental agency, CETESB. Fernando Rei received a tribute, offered by the of the event organizing committee, for his contribution to the dissemination of CP concepts in Brazil

(4) The discussion of common problems and routing of solutions was extensively covered by the plenary sessions, oral presentations, workshops, and the meeting promoted by the Ministry of Environment (MMA). At the workshop working groups were formed to discuss attitudes needed to contribute to sustainable development in modern societies. This activity was coordinated by the editor-in-chief of the JCP and co-directed by the executive director of NPPR-USA. Fifty-nine (59) participants of the workshop, from the most varied sectors, were invited to reflect and answer the following questions: (A) What is the significance of a sustainable society? (B) What are the practices of the present society which need to be changed? (C) What can be done to make progress towards a sustainable society? and (D) How progress towards a sustainable society can be measured? What types of indicators can be used?

(5) The increase in international relationship through individual and institutional contact was a goal achieved. In the event, an agreement of cooperation between the UNIP and UCF (University of Cienfuegos) of Cuba was solemnly signed.

(6) The meeting of Paulista Roundtable members and the MMA has happened in specific sessions: in the forum sponsored by the MMA, with twelve (12) State Environmental Foundations, and the Meeting directed especially to the Paulista Roundtable, coordinated by the Executive Director of NPPR U.S.

(7) The deepening of the discussion in the fundamental theme of the event, The role of Cleaner Production in the Sustainable Development of Modern Societies, was the central concern of the event.

For further information see: www.advancesincleanerproduction.net

Presentation

The efforts of the Vice-Dean of Post-Graduate Studies and Research of UNIP for the success of the **1st International Workshop: Advances in Cleaner Production** are responsible for the infrastructure. Among the external support received, the institutional and financial assistance of FAPESP, CNPq/FINEP, SABESP and the Brazilian Navy is fully recognized.

The event was attended by a number of people involved for its success. This very heterogeneous set of people was composed of invited speakers, speakers, academic papers and organizational experience presenters, coordinators of sessions, participants of the Cleaner Production Roundtable and of the Ministry of Environment (MMA).

The following list is composed by the various institutions of the event's participants. The list allows establishing the institutional representation at the event.

- 3M do Brasil Ltda – SP
- Agência de Desenvolvimento da Amazônia – ADA - AM
- Associação Brasileira de Engenharia de Produção – ABEPRO - RJ
- Associação Brasileira de Metalurgia e Materiais – ABM - SP
- Associação de Combate aos Poluentes – ACPO – Santos - SP
- B. GROB do Brasil AS – São Bernardo do Campo - SP
- Banas Qualidade - SP
- Banco Mundial – Representante no Brasil - SP
- Biotechnology and Natural Products Laboratory, ITP/UNIT, Aracaju -SE
- BSH Continental Eletrodomésticos Ltda, Hortolândia – SP
- Business School of São Paulo - SP
- Câmara Municipal de São Paulo - SP
- Centro das Indústrias do Estado de São Paulo – CIESP/Campinas - SP
- Centro das Indústrias do Estado de São Paulo – CIESP/São Paulo - SP
- Centro de Produção Industrial Sustentável, Campina Grande - PA
- Centro de Recursos Ambientais - BA
- Centro Federal de Educação e Tecnologia de Goiás – CEFET - GO
- Centro Nacional de Tecnologias Limpas – CNTL, Porto Alegre - RG
- Centro Universitário SENAC, Campus Santo Amaro - SP
- Centro Universitário SENAC, São Paulo - SP
- Comissão de Meio Ambiente da AMCHAM - PR
- Comitê Internacional da Cruz Vermelha, Geneve - Suíça
- Companhia de Saneamento Básico do Estado de São Paulo – SABESP - SP
- Companhia de Tecnologia de Saneamento Ambiental – CETESB - SP
- Consultoria em Sustentabilidade Corporativa - SP
- CPMBraxis IT Services, São Paulo - SP
- Daimle Chrysler, São Bernardo do Campo - SP
- Embrapa Meio Ambiente, Jaguariúna - SP
- Escola Politécnica – POLI/USP, São Paulo - SP
- Escola Superior de Agricultura "Luiz de Queiroz", Piracicaba - SP
- Escola Superior de Economia de Berlim - Alemanha
- Escritório Pinheiro Pedro Advogados, São Paulo - SP
- Facility for Ecological and Analytical Testing – FEAT, Indian Institute of Technology, Kanpur - Índia
- Faculdade Anglo-Americano, Foz do Iguaçu - PR
- Faculdade de Engenharia Civil, Arquitetura e Urbanismo - FEC/UNICAMP, Campinas - SP
- Faculdade de Engenharia em Alimentos – FEA/UNICAMP, Campinas - SP
- Faculdade de Engenharia Química, Universidade Federal do Pará - PA
- Faculdade de Tecnologia de São Paulo, São Paulo - SP
- Faculdade de Tecnologia SENAI de Desenvolvimento Gerencial –FATESG, Goiás - GO
- Faculdades COC – Ribeirão Preto - SP
- Faculty of Biology, Complutense University, Madrid, Espanha
- Federação das Indústrias do Estado de São Paulo – FIESP - SP
- Federação das Indústrias do Estado do Rio de Janeiro – FIRJAN - RJ

- Fundação Estadual do Meio Ambiente - FEAM- Belo Horizonte - MG
- Fundação Getúlio Vargas, São Paulo - SP
- Fundação Getúlio Vargas, Vitória - ES
- Fundação Santo André - SP
- Geosystec Consultoria e Planejamento, Espírito Santo do Pinhal - SP
- Gerdau AEP - SP
- Ind. Mec. Samot - SP
- Indústria de Móveis América, São Bento do Sul - SC
- Indústria de Móveis Neumann, Santa Catarina - SC
- Innovative Technologies of São Carlos-Innovatecs - SP
- Institute of Environmental Engineering, Kaunas University of Technology - Lituânia
- Instituto Alberto Luiz Coimbra de Pós-Graduação e Pesquisa de Engenharia - COPPE/UFRRJ - RJ
- Instituto de Eletrotécnica e Energia da Universidade de São Paulo - IEE/USP - SP
- Instituto de Macromoléculas Professora Eloisa Mano - IMA/UFRRJ - RJ
- Instituto de Pesquisa Eldorado, Campinas - SP
- Instituto de Pesquisas Energéticas e Nucleares – IPEN, São Paulo - SP
- Instituto de Pesquisas Tecnológicas – IPT, São Paulo - SP
- Instituto de Tecnologia Promon - SP
- Instituto Fábrica do Milênio – IFM/USP, São Carlos - SP
- Instituto Nacional de Pesquisas da Amazônia - INPA, Manaus-AM
- Instituto Oswaldo Cruz - IOC/FIOCRUZ, Rio de Janeiro - RJ
- Journal of Cleaner Production - EUA
- Kali-Umwelttechnik GmbH Sondershausen – Alemanha
- Laboratório de Estudos Ambientais da Metalurgia - LEAMET- DEMET/UFRRGS, Porto Alegre- RS
- Marinha do Brasil, Rio de Janeiro - RJ
- Medley S/A Ind. Farmacêutica, Campinas - SP
- Mesa Redonda Paulista de P+L - SP
- Ministério da Fazenda, Brasília - DF
- Ministério do Meio Ambiente, Brasília - DF
- National Pollution Prevention Roundtable – NPPE - EUA
- NGO 'Casa da Mulher do Nordeste' - CE
- Núcleo de Caracterização de Materiais - Universidade do Vale do Rio dos Sinos/UNISINOS - RS
- Núcleo de Produção Mais Limpa do Sistema Firjan - RJ
- Pinheiro Pedro Advogados - SP
- Pontifícia Universidade Católica – PUC, Rio de Janeiro - RJ
- Prefeitura São Bernardo do Campo - SP
- Programa das Nações Unidas para o Meio Ambiente – PNUMA, Representante no Brasil – Brasília-DF
- Programa de Planejamento Energético, Instituto de Pesquisa e Pós Graduação em Engenharia Alberto Luiz Coimbra, Universidade Federal do Rio de Janeiro (PPE/COPPE/UFRRJ), Rio de Janeiro
- Rheinischen Friedrich-Wilhelms-Universität Bonn, Alemanha
- Rhodia Poliamida e Especialidades LTDA, São Bernardo do Campo - SP
- Serviço de Apoio às Micro e Pequenas Empresas de São Paulo - SP
- Serviço de Apoio às Micro e Pequenas Empresas do Amazonas - AM
- Serviço de Apoio às Micro e Pequenas Empresas do Rio Grande do Norte - RN
- Serviço Nacional de Aprendizagem Comercial - SENAC, São Paulo - SP
- Serviço Nacional de Aprendizagem Industrial, SENAI, Bahia - BA
- Serviço Nacional de Aprendizagem Industrial, SENAI, São Paulo - SP
- Serviço Nacional de Aprendizagem Industrial, SENAI-CETAE, Fortaleza - CE
- Sigma Pesquisa – São Paulo - SP
- Sindicato de Paranapanema – SINDIPAR - SP
- Sociedade Educacional de Santa Catarina, Joinville, Santa Catarina - SC
- Super Zinco Tratamento de Metais Com. Ind. Ltda , Diadema - SP
- Tecnel Eletrônica Ltda, São Paulo - SP
- Tenesse University - EUA
- The ESRC BRASS Centre and CAIR, Cardiff University - Reino Unido
- The University of Tokyo - Japão
- Universidad Complutense de Madrid - Espanha
- Universidad de Cienfuegos - Cuba
- Universidade Católica de Brasília, Brasília - DF
- Universidade de Caxias do Sul, Caxias do Sul - RS
- Universidade de Ciências Aplicadas do Noroeste da Suíça, Bern - Suíça
- Universidade de Minas Gerais - Uniminas, Uberlândia - MG
- Universidade de Santa Cruz do Sul, UNISC, Santa Cruz do Sul - RS
- Universidade de São Paulo - USP, São Carlos - SP
- Universidade de São Paulo – USP, São Paulo - SP
- Universidade do Estado de Santa Catarina - UDESC - SC
- Universidade do Vale do Itajaí – UNIVALI - SC
- Universidade do Vale do Rio dos Sinos – Unisinos, São Leopoldo - RS
- Universidade Estadual Paulista – UNESP, Bauru - SP
- Universidade Estadual Paulista – UNESP, Botucatu - SP
- Universidade Estadual Paulista – UNESP, Guaratinguetá - SP
- Universidade Estadual Paulista – UNESP, Sorocaba - SP

- Universidade Federal da Paraíba - UFPB, João Pessoa, PB
- Universidade Federal de Pelotas - RS
- Universidade Federal de Santa Catarina - SC
- Universidade Federal de São Carlos - SP
- Universidade Federal de Viçosa, Viçosa - MG
- Universidade Federal do Pará - PA
- Universidade Federal do Rio de Janeiro – UFRJ - RJ
- Universidade Federal do Rio Grande do Norte – UFRN, Natal – RN
- Universidade Federal do Rio Grande do Sul – UFRGS - RS
- Universidade Federal Fluminense, Niterói, Rio de Janeiro
- Universidade Federal Rural de Pernambuco – UFRPE - PE
- Universidade Federal Rural do Rio de Janeiro – UFRRJ - RJ
- Universidade Federal Tecnológica do Paraná, Medianeira - PR
- Universidade Municipal de São Caetano do Sul – IMES - SP
- Universidade Paulista, São Paulo - SP
- Universidade Regional de Blumenau – FURB, Blumenau -SC
- Universidade Tecnológica Federal do Paraná - UTFPR/Campus de Curitiba - PR
- Universidade Tecnológica Federal do Paraná, Curitiba - PR
- Universidades de Caxias do Sul - RS
- University of California - EUA
- University of Sonora, Industrial Engineering Department - Mexico
- US Environmental Protection Agency – EPA - EUA
- Valetec Capital Investimentos, São Paulo - SP
- Votorantim Celulose e Papel S/A - SP
- Whirlpool, Joinville - SC

Plenary sessions

Three foreigners and three Brazilians invited speakers addressed important issues related to Cleaner Production (Table 1).

Table 1. Invited speakers, delivered themes and their origin.

Invited Speakers	Theme		Country
Donald Huisigh	Why is the Cleaner Production of Cleaner Products and provision of Cleaner Services INSUFFICIENT FOR ACHIEVING SUSTAINABLE SOCIETIES?????	Senior Scientist in Sustainable Development & Editor-in-Chief of the Journal of Cleaner Production Institute for a Secure and Sustainable Environment University of Tennessee	United States
Oswaldo Luiz Gonçalves Quelhas	Reflections on CP development in Brazil and the production Engineering actions	Associate Professor of Federal Fluminense University President of ABEPRO - Brazilian Production Engineering Association	Brazil
Jeffrey Burke	The Role of Pollution Prevention in Sustainable Development	Executive Director National Pollution Prevention Roundtable	United States
Gilberto Huet de Bacellar Sobrinho	Brazilian Navy initiatives for environmental pollution prevention	Captain-of-Sea-and-War (RM1) Adviser of the Environment Management Director of Ports and Coasts - Brazilian Navy	Brazil
Pedro A. Ochoa George	The Cleaner Production as tool for development of the environmental strategy of a Centre of higher education	Researcher of Cienfuegos University	Cuba
Fernando Cardozo Fernandes Rei	São Paulo State's Initiatives Towards Achieving Sustainable Development Trough Cleaner Production	President of CETESB, Company of Technology Environmental Sanitation	Brazil

Participants Profile

The **1st International Workshop: Advances in Cleaner Production** had 319 participants from various sectors committed with the theme: The Role of Cleaner Production in Sustainable Development of Modern Societies (Figure 1).

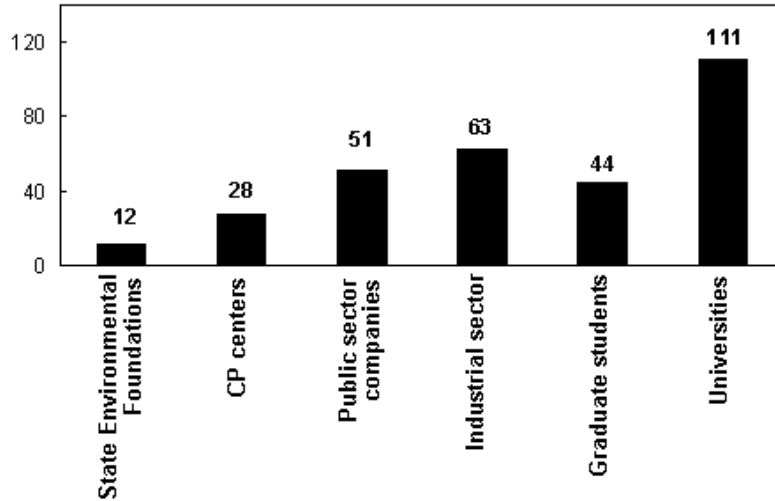


Figure 1. Profile of participants of the 1st International Workshop: Advances in Cleaner Production.

In addition to the lectures presented by invited speakers (three foreign and three Brazilians), there were presented 75 academic contributions and 17 organizational experiences. There were also papers presented by foreign universities, and works from various regions of Brazil (Figure 2). All Southeastern states were represented at the event, and this was the region with the highest number of representatives. However, it should be highlighted the participation of the South states and the Northeast states, with participants of Bahia, Pernambuco and Paraiba.

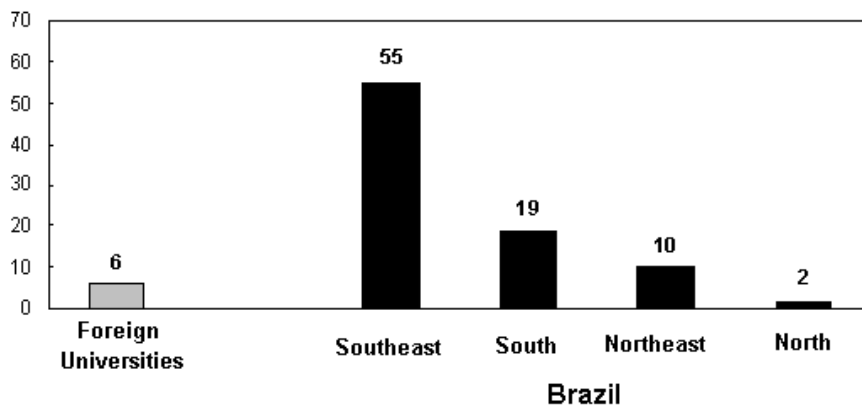


Figure 2. Presented works at the 1st International Workshop: Advances in Cleaner Production, accordingly to the place of origin.

Quality of work

The quality of the work presented resulted in an invitation by the Journal of Cleaner Production, for a special issue of the journal containing papers related to the **1st International Workshop: Advances in Cleaner Production**.

Training Sessions and meetings

Training sessions

Six training sessions were offered (Table 2) addressing issues of interest to the participants of the **1st International Workshop: Advances in Cleaner Production**.

Table 2. Training Sessions offered in the 1st International Workshop: Advances in Cleaner Production.

Training session	Instructor	Participants
"Industrial Combustion - A CP Approach "	Laiete Soto Messias (IPT)	3
"Cleaner Production in mitigation of the Greenhouse Effect"	João Wagner Silva Alves (CETESB)	8
"Water Reuse in the Metropolitan Region of Sao Paulo"	Sheila de Oliveira (SABESP)	11
"The Program of Rational Use of Water (PURA) in the metropolitan region of Sao Paulo"	Ricardo Reis Chahin (SABESP)	12
"Evaluation of the environmental performance of products"	Gil Anderi da Silva (POLI-USP)	13
"Applicability of the Cleaner Production methodology for businesses"	Tânia Machado de Souza Costa (SENAI)	26
	Total	73

Meeting of the Cleaner Production Brazilian Forum of the Ministry of Environment (MMA)

The event hosted the Second Extended Meeting of the Management Committee of Sustainable Production and Consumption promoted by the Executive Secretary of the Department of Economics and Environment, the Ministry of Environment (MMA).

The meeting, called Cleaner Production Brazilian Forum of the Ministry of Environment, counted with 17 participants representing the following institutions:

- o Brazilian Forum of NGOs and Social Movements for the Environment and Sustainable Development (FBOMS)
- o CP Forum of Bahia (CRA)
- o Gaucho Forum of CP and Sustainable Consumption (FGP + L & CS)
- o Getúlio Vargas Foundation (FGV)
- o Paulista Cleaner Production Roundtable (MRPP + L)
- o Company of Technology of Environmental Sanitation (CETESB)
- o Ministry of Finance (MF)
- o Ministry of Environment (MMA / DEMA)
- o Ministry of Environment (MMA / DQAM)
- o United Nations Environment Programme (UNEP)
- o Support Service for Micro and Small Enterprise (SEBRAE / DF)
- o National Center for Clean Technology (CNTL / SENAI)
- o National Industrial Apprenticeship Service (SENAI / SC)
- o University of the State of Santa Catarina (UDESC)
- o Valetec Capital Investments (VALETEC INVEST)

Meeting of the Paulista Cleaner Production Roundtable with the Executive Director of NPPR

In addition to the sessions promoted by the Paulista Cleaner Production Roundtable, which presented cases of success and institutional reports, there was a workshop led by Jeffrey Burke (Executive Director of the National Pollution Prevention Roundtable - U.S.). At the workshop, the organization and goals of NPPR were presented and discussed. The participants were institutional representatives of Paulista CP Roundtable.

Workshop: "Working Groups discussing attitudes needed to contribute to sustainable development in modern societies", organized by Donald Huisingsh and co-directed by Jeffrey Burke.

In the workshop, themes concerning the role of Cleaner Production in the path of sustainability were discussed. Fifty-nine participants (Figure 3), from the most varied sectors were invited to reflect and answer the following questions:

- A) What is the significance of a sustainable society?
- B) What are the practices of the present society which need to be changed?
- C) What can be done to make progress toward a sustainable society?
- D) How the progress toward a sustainable society can be measured? What types of indicators can be used?

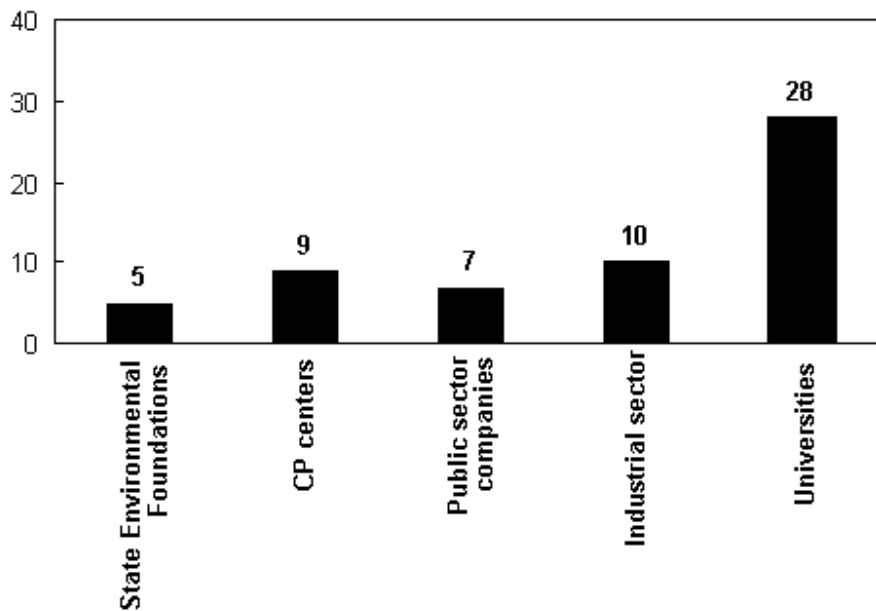


Figure 3. Participants profile of the Workshop directed by Donald Huisingsh and Jeffrey Burke.

Evaluation of the event according to its goals

It was considered that the event organized and hosted by the Paulista University was a great success, reaching fully its objectives, namely:

- The goal of academic information exchange has been fully achieved, by the significant number of participating academic institutions.
- The presentations of recent achievements made by companies (featuring success stories); seventeen organizational reports were submitted in oral form; institutional reports also were part of the activities. Therefore, this objective was achieved. The event provided contact between academic knowledge and corporate experience.
- The sharing of knowledge between emerging and more developed economies happened upon the presence of invited speakers and participants from foreign research centers, as the meeting between the Executive Director of NPPR - U.S. and the Paulista CP Roundtable.
- The discussion of common problems and routing of solutions was extensively covered by the plenary sessions, oral presentations and, particularly, in the workshop and in the meeting promoted by the Ministry of Environment.
- The increase in international relationship through individual and institutional contacts was a goal achieved. In the event an agreement of cooperation between two universities (one Brazilian and one of Cuba) was signed.
- The deepening of the discussion on the fundamental theme of the event "The Role of Cleaner Production in Sustainable Development of Modern Societies" was the central issue of the event.
- The meeting among Paulista CP Roundtable members and the Ministry of Environment happened in specific sessions and reached its specific goals.

Acknowledgements

The Organizing Committee of the 1st International Workshop on Advances in Cleaner Production expresses its special thanks to Dr. Marília Ancona-Lopez by her leadership, which allowed the support of UNIP. Another sincere thanks, expressed by the President of the Organizing Committee who recognizes the active participation of the Support Committee, is addressed to Dr. Marina Soligo, Dr. Ghislaine Gliosce da Silva, Profa. Maria de Fatima Dias, Profa Alessandra Ancona de Faria, Dr. Marília Gomes dos Reis Ansarah, Profa Célia Maria dos Santos and Profa. Luana Cunha Palma, the team of the Post-Graduate Studies and Research Department and students, teachers and coordinators of the UNIP's Tourism course.

It should be highlighted the participation of the invited speakers and the other congressmen who contributed to the success of the 1st International Workshop on Advances in Cleaner Production. Of considerable value, under the aspect of institutional and academic recognition, was the support received from FAPESP, CNPq / FINEP, SABESP and the Brazilian Navy.