



10th INTERNATIONAL WORKSHOP ADVANCES IN CLEANER PRODUCTION

“TEN YEARS WORKING TOGETHER FOR A SUSTAINABLE FUTURE”

realization by



organized by

Advances in Cleaner Production Network

Boosting Knowledge Exchange Seeking for Sustainability

in participation with



Technical Report

Responsible for the information:

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Abstract

The topic of the **6th International Workshop Advances in Cleaner Production (IWACP): Ten Years Working Together for a Sustainable Future** was discussed by Brazilian and foreign researchers for three days at the University Paulista, Indianópolis Campus).

The international conference was organized by the Postgraduate Program in Production Engineering (Master's and Doctoral Program) and counted with the partnership of the UNIFI (University of Firenze, Italy), UNISON (Universidad de Sonora, México), the University of Manitoba (Canada), BNU (Beijing Normal University, China), the Journal of Cleaner Production, and the ACPN (Advances in Cleaner Production Network).

The conference received financial support from the funding agency FAPESP (Fundação do Amparo à Pesquisa do Estado de São Paulo), which was fundamental to the achievement of the 6th IWACP. The 6th IWACP also counted with financial support from TNO Innovation (through the inno4SD.net) and from Instituto Jatobás along with the sponsorship of ABEPRO (Brazilian Association of Production Engineering).

The partnership with the Journal of Cleaner Production, that was started during the 1st IWACP was maintained with the support of the Co-Editors in Chief: Prof. Cecilia M. V. B. Almeida, Prof. Yutao Wang and Prof. Jiri Klemes and resulted, as occurred at the other five previous conferences, in the Call for Papers (<https://www.elsevier.com/journals/journal-of-cleaner-production/0959-6526/guide-for-authors>) for a special issue of the journal to be published with the best works presented in this sixth edition.

The Vice Dean for Post-Graduate Studies and Scientific Research of UNIP had the merit of the conference success, having been responsible for infrastructure support. Also the UNIP Chorus performed a Brazilian repertoire.

The organizing Committee considered that all the pre-established goals proposed to be attained during the 6th IWACP were fully reached:

(1) The academic information exchange goal was fully achieved. It was significant the number of participating academic institutions (78 universities and colleges), that reflected in the 149 academic contributions presented. The excellent quality of the contributions presented, in a process of continuous improvement as was seen edition by edition, resulted in another invitation by the Journal of Cleaner Production (JCLP), for a sixth special issue, and for a first special issued in the Journal of Environmental Accounting and Management (JEAM).

(2) Presentations of recent achievements in CP were made by a significant number of participants.

(3) The common problems and routing of solutions was extensively and deeply discussed at plenary sessions, oral presentations, and workshops. Six workshops were offered during the conference, where working groups were formed to discuss attitudes needed to contribute to the integration of CP practices and strategies in the search for sustainability. These activities were coordinated by foreigner and national invited speakers.

The first workshop "**Sustainability of Supply Chains**", with 55 participants, was conducted by Dr. Bruno Silvestre (University of Manitoba - Canada) and provided a deep discussion on the pillars on which sustainability may lie, and how perform fairer environmental-social directed evaluation.

The second workshop "**Industry Innovation**" was conducted by Dr. Carlos Montalvo (Netherlands Organisation for applied Scientific Research (TNO) - Netherlands). The fifty two (52) participants who attended the workshop discussed about the features of Smart Industry (industry 4.0) and on examples of new production processes with Key Enabling Technologies. The problem of aligning heterogeneous preferences in business models was used to build a behavioral convergence approach across actors through the exploration of dynamic drivers with two actors (regulators and companies).

Dr. Luís Eduardo Velázquez Contreras (University of Sonora - Mexico) offered the workshop titled "**Decreasing Corporate and Family Carbon Footprint**". There, the fifty six (56) participants discussed feasible and unfeasible ideas for the main causes and the main alternatives to decrease the carbon footprint.

The fourth workshop "**Sustainable Cities**" was directed by Dr. Gengyuan Liu (Beijing Normal University - China). The sixty-two participants were invited to reflect on options towards urban future sustainability, and based on a discussion on resources usage measures, to reflect about indicators to measure cities sustainability and wealth of urban societies.

The fifth workshop, "**Ten Years Working Together for a Sustainable Future**", was conducted by Dr. Donald Huisingh (University of Tennessee-USA), Emeritus Editor-in-Chief of Journal of Cleaner Production. There, 148 participants were invited to reflect on options towards future sustainability.

Participants were invited to answer: "To which of the Sustainable Development Goals could your research potentially contribute? How?", and to contribute to build a joint document for the "Declaration on the visions and objectives of "The Advances in Cleaner Production Network, (ACPN)"

"Applying the Ecological Footprint: Unleashing Innovation for One-Planet Cities" was the topic of the sixth workshop, where 166 participants discussed with Mathis Wackernagel (Global Footprint Network - USA & Switzerland) the importance of measuring people's uses of nature that compete for biologically productive space, including areas for providing their food and fibers, productive areas built over for their urban infrastructure, and areas needed to absorb the carbon dioxide from their fossil fuel use.

(4) The increase in **international relationship** through individual and institutional contact was a goal achieved. Participants of 14 countries attended the conference.

(5) The deepening of the discussion on the fundamental theme of the conference: Ten Years Working Together for a Sustainable Future was the concern of the conference. Given these impressive results, the Organizing Committee is honored for having organized the 6th International **IWACP**.

Presentation

The **6th IWACP** was carried out with the participation of a group of people committed to the success of the conference. This team consisted of guest speakers, lecturers, presenters of academic and organizational experiences and sessions' coordinators.

The institutions represented at the event through active participants are listed below. The list evidences the broad institutional representation at the conference.

Agência de Habitação Popular de Mato Grosso do Sul	Pontifícia Universidade Católica-GO
Aristotle University	Pontifícia Universidade Católica-PR
Beijing Normal University	Roma Tre University
Centro de Tecnologia Mineral	Serviço Nacional de Aprendizagem Comercial - SENAC
Centro Universitário Cesumar	State Key Laboratory of Water Environmental Simulation, School of Environment
Centro Universitario FEI	Tennessee University
Centro Universitário Internacional	Universidad de la Costa
Companhia Ambiental Do Estado De São Paulo	Universidad de Sonora
Deakin University ACES	Universidad Nacional de Córdoba
Escola de Administração de Empresas de São Paulo	Universidade de Caxias do Sul
Escola de Artes, Ciências e Humanidades	Universidade de Passo Fundo
Escola Politécnica da USP	Universidade de São Paulo
Faculdade de Ciências Aplicadas - Unicamp	Universidade do Aveiro
Faculdade de Economia e Administração - USP	Universidade do Estado de Santa Catarina
Faculdade de Saúde Pública da USP	Universidade do Sagrado Coração
Faculdade Drummond de Andrade	Universidade do Sul de Santa Catarina
Faculdade Meridional	Universidade do Vale do Rio dos Sinos
Faculdade Santo Agostinho	Universidade Estadual de Campinas
Faculdade Tecnológica Carlos Drummond de Andrade	Universidade Estadual de Maringá
Fundação Getúlio Vargas	Universidade Estadual do Maranhão
GKN Driveline do Brasil	Universidade Estadual do Norte Fluminense
Global Footprint Network	Universidade Estadual do Oeste do Paraná
Instituto Alberto Luiz Coimbra de Pós-Graduação e Pesquisa de Engenharia -COPPE	Universidade Estadual Paulista
Instituto de Energia e Ambiente da Universidade de São Paulo	Universidade Federal de Alfenas
Instituto de Pesquisas Energéticas e Nucleares	Universidade Federal de Pelotas
Instituto de Pesquisas Tecnológicas-SP	Universidade Federal de Santa Catarina
Instituto Federal de Educação, Ciência e Tecnologia de Goiás	Universidade Federal de São Carlos
Instituto Federal de Educação, Ciência e Tecnologia de São Paulo	Universidade Federal de São João del-Rei
Instituto Federal de Educação, Ciência e Tecnologia do Rio Grande do Norte	Universidade Federal de Viçosa
Instituto Federal de Educação, Ciência e Tecnologia do Rio Grande do Sul	Universidade Federal do ABC
Instituto Federal do Espírito Santo	Universidade Federal do Acre
Instituto Federal do Sul de Minas Gerais	Universidade Federal do Ceará
IRIS um olhar para o Futuro	Universidade Federal do Paraná
Netherlands Organization for applied Scientific Research (TNO)	Universidade Federal do Piauí
	Universidade Federal do Rio de Janeiro
	Universidade Federal do Rio Grande do Sul
	Universidade Federal Rural de Pernambuco
	Universidade Guarulhos
	Universidade Metodista de Piracicaba
	Universidade Nove de Julho
	Universidade para o Desenvolvimento do Alto Vale do Itajaí

Universidade Paulista
 Universidade Presbiteriana Mackenzie
 Universidade Santa Cecília
 Universidade Tecnológica Federal do Paraná
 Universidade Virtual do Estado de São Paulo
 Università Bari Aldo Moro

University of Aquila
 University of Manitoba
 University of Maryland
 University of Ontario Institute of Technology
 Weather Consulting

Participants Profile

The **6th IWACP** had 402 participants from various sectors committed with the theme: **Ten Years Working Together for a Sustainable Future** (Figure 1). 149 scientific works from 14 different countries. Scientific works of Brazilian researchers from 12 different states, all of them in 57 hours of oral sessions aiming intense and pro-active information exchange among participants.

Comparison with the earlier conferences shows an increase in the total number of participants. Worth of notice are the increase in the participation of universities and colleges and maintenance in the number of undergraduate students, companies and CP Centers.

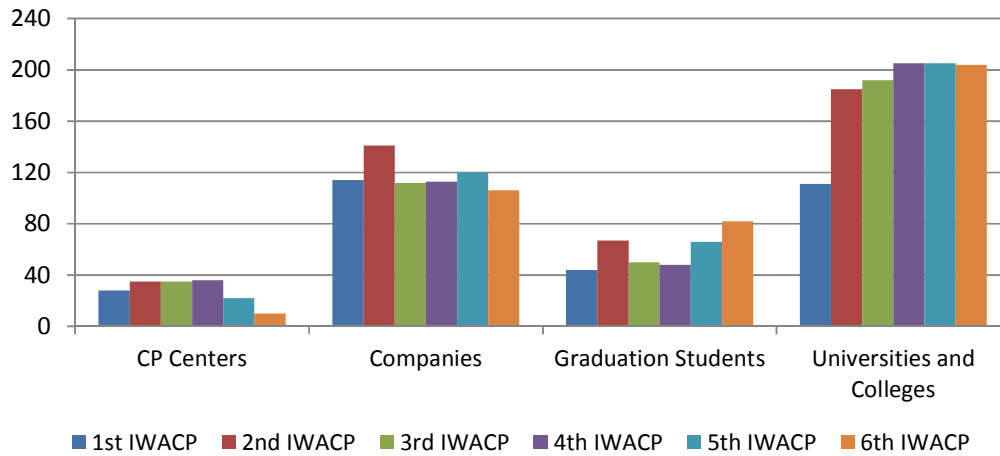


Figure 1. Participants of the 6th IWACP Profile compared to the profile of the previous conferences.

Various regions of Brazil were represented at the conference (Figure 2), among them all Southeastern states were represented, and this region had the highest number of representatives. It should be highlighted the continuous increase in participation of the Southern states and the Northeastern states. The participation of Central-West Region also increased at this sixth edition, with the participation of new institutions.

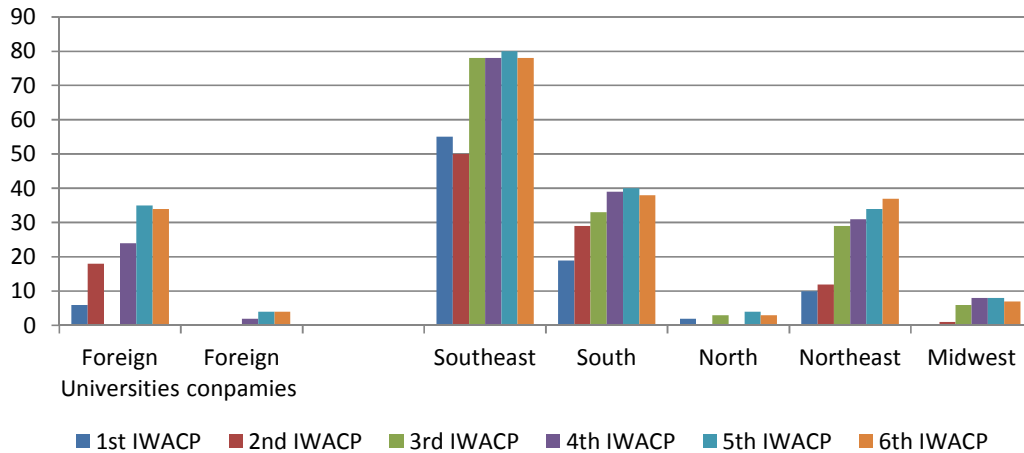


Figure 2. Number of participants who present works at IWACP according to geographical origin.

Plenary Sessions

Besides the opening conference provided by Dr. Mathis Wackernagel, CEO of Global Footprint Network, 7 conferences focused on new approaches towards the advancement of cleaner production and sustainability (Table 1).

Table 1 Invited speakers, topic addressed and speakers' institution.

Speaker	Topic addressed	Institution	Country
Mathis Wackernagel	Ecological Footprint - Fundamentals for Building a Successful Future	Global Footprint Network	USA & Switzerland
Luís Eduardo Velázquez Contreras	International perspectives from Climate Change	University of Sonora	Mexico
Klaus Hubacek	Global Income Inequality and Climate Change	University of Maryland	USA
Bruno Silvestre	Are you serious? The importance, nature and gaps of managing Sustainable Supply Chains	University of Manitoba	Canada
Gengyuan Liu	The Evolution of Cities: "Brains" or "Parasites" of Sustainable Production and Consumption Processes in China	Beijing Normal University	China
Carlos Montalvo	Inno4sd Network: Promoting Sustainability	Netherlands Organization for applied Scientific Research, TNO	Netherlands
Hossam Gaber	Towards Clean and Resilient Energy and Transportation Infrastructures	University of Ontario	Canada
Linda Hancock	Bolivia's Lithium Frontier: Can Cleaner Technologies Harness a Mineral Development Boom?	Deakin University	Australia

Quality of work

The high number of citations of the previous issues, allied with the high quality of the participants contributions, resulted in a sixth invitation by the Journal of Cleaner Production, for a special issue of the journal containing papers related to the **6th IWACP**. The call for papers may be accessed at the event website: (www.advancesincleanerproduction.net) and at the website of the Journal of Cleaner Production (<https://www.elsevier.com/journals/journal-of-cleaner-production/0959-6526/guide-for-authors>).

The quality of the work presented during the event also resulted in an invitation for the Journal of Environmental Accounting and Management (JEAM, <https://hscientificpublishing.com/journals/JEAM-Default.aspx>).

Workshops

In the Workshops, issues concerning the event's theme were addressed and debated (Table 2). Five hundred and thirty nine participations (Figure 3), of the most diverse sectors were invited in the six workshops to reflect and discuss on the following important issues.

The first two workshops integrated all the participants of the 6th IWACP, and four workshops brought new insights specific on environmental issues.

Table 2. Workshops delivered at the conference.

	Workshop	Presenter	Number of participants
1	Applying the Ecological Footprint: Unleashing Innovation for One-Planet Cities	Matthis Wackernagel	166
2	Ten Years Working Together for a Sustainable Future: What About the Next Ten?	Donald Huisingh	148
3	Sustainability of Supply Chains	Bruno Silvestre	55
4	Decreasing Corporate and Family Carbon Footprint	Luís Eduardo Velázquez Contreras	56
5	Sustainable Cities	Gengyuan Liu	62
6	Industry Innovation	Carlos Montalvo	52

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The expressive number of 539 participations, distributed along the workshops, showed the increase of concern on this type of group activity by the academy community. Figure 3 shows the profile of participants.

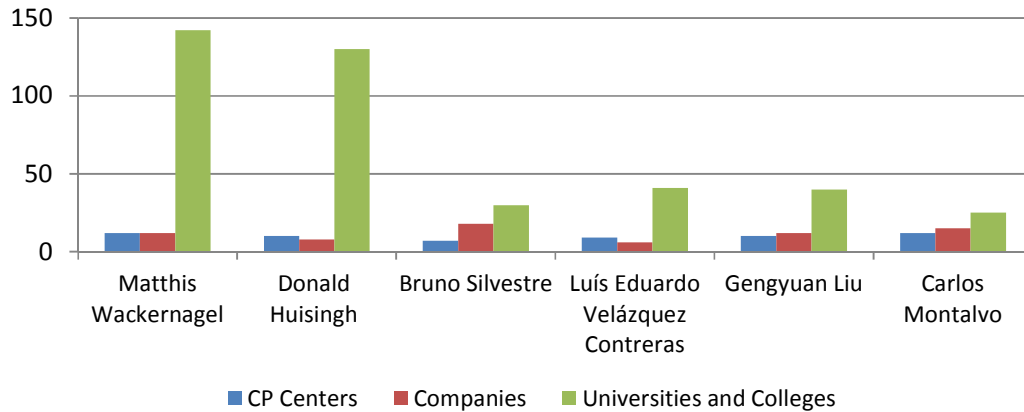


Figure 3. Profile of workshops' participants at the 6th IWACP.

Visibility

The visibility of the event and the search for information through the website increased significantly till 2011 and stabilized for the fourth event (Figure 4). The increase of the number of visits to the website can be evidenced by the crescent trend of graphic (Figure 4). The first peak with 10.732 visits is simultaneous to the **1st IWACP**, held in November 2007. Subsequent peaks are related to the Call for Papers for the **1st Special Issue** – Journal of Cleaner Production. The peak that corresponds to 20.515 is related to the **2nd IWACP** (May 2009) and the subsequent ones to the Call for Papers for the **2nd Special Issue** – Journal of Cleaner Production. The 37.047 peak corresponds to the Call for Papers of the **3rd Special Issue** and this high number of visits is in agreement to the number of manuscripts sent (more than 250) and the number of papers effectively published (48 papers). The peak 32.276 is simultaneous to the occurrence of the **4th IWACP** (18, 19 and 20 May 2011), and a higher peak is expected regarding the Call for papers of the **4th Special Issue** in the next months. The peak of 2015 is related to the **5th IWACP** and the subsequent ones to the Call for Papers for the **5th Special Issue** – Journal of Cleaner Production, which was published with 43 articles. For the **6th IWACP**, the number of visits to the website www.advancesincleanerproduction.net increased, and a higher peak is expected for the two Calls for Papers (Journal of Cleaner Production and Journal of Environmental Accounting and Management) in the upcoming months. The pizza graph represents the returning visitors (in blue) and the new visitors (in green) to the site in 2017.

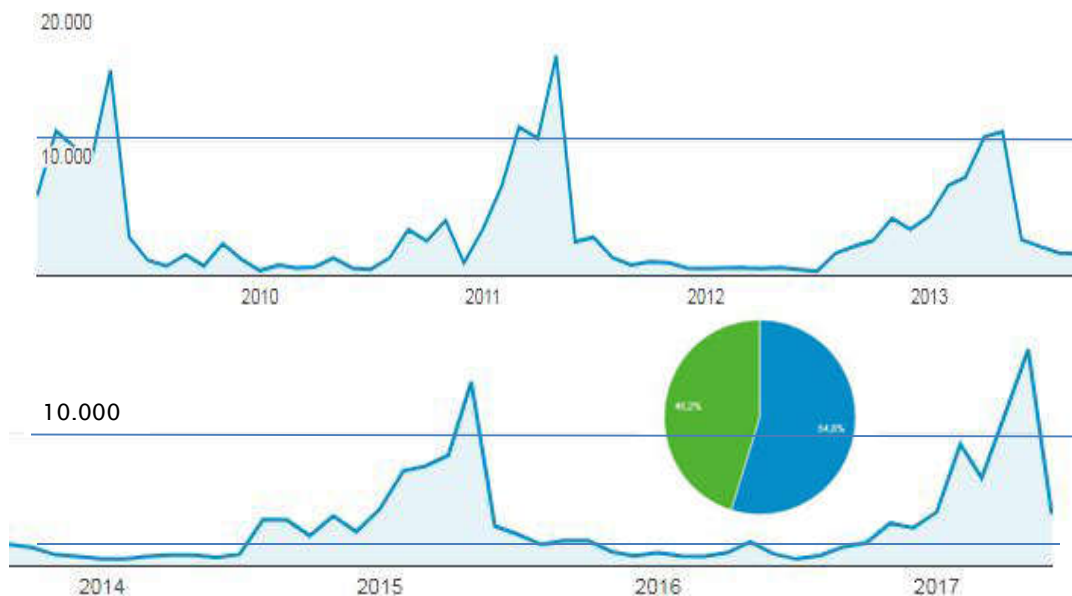


Figure 4. Number of visits to the website www.advancesincleanerproduction.net from January 2009 to June 2017.

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Evaluation of the conference according to the goals

It is considered that the conference planned 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 (78 universities and colleges and the presentation of 149 academic contributions).
- ✓ The presentations of recent achievements made by companies (featuring success experience) promoting the share of knowledge between academic and corporate experience.
- ✓ The discussion of common problems and routing of solutions was extensively covered by the plenary sessions, oral presentations and, particularly, at the six workshops.
- ✓ The increase in international relationship through individual and institutional contact was a goal achieved. Participants of 14 countries attended the conference.
- ✓ The deepening of the discussion on the fundamental theme of the event "*Ten Years Working Together for a Sustainable Future: What About the Next Ten?*"
- ✓

Evaluation of the conference according to audience

The audience in the oral presentation rooms received a form for conference evaluation (Figure 5).

**FORMULÁRIO DE AVALIAÇÃO DO EVENTO**

Este questionário tem como objetivo a melhoria do evento numa próxima edição.

Por gentileza, conceda-nos alguns minutos de seu tempo para responder às questões abaixo, manifestando sua opinião sobre o evento.

- a) Você avalia que o evento atingiu _____ % (de 0 a 100) de seu objetivo.
- b) O evento correspondeu a sua expectativa? () Sim () Não
- c) Você considera importante o apoio de instituições parceiras a este tipo de evento
- d) Qual é a sua avaliação dos assuntos abaixo?

	Ótimo	Bom	Regular	Insuficiente	Ruim
Organização do evento	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Instalações	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Atendimento	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Comente, se desejar:

Figure 5. Evaluation form distributed to participants at the 6th IWACP.

Accordingly to the evaluation of 45% of the participants, the event's goals were achieved in more than 90%. On the average score, goals reached 91% of it was expected. The conference attained the audience expectations of all respondents. Partnerships and sponsorship of other institutions were considered important by 100% of participants who answered the form.

Regarding the organization of the conference, 89% consider this item as excellent / good. The facilities were considered excellent / good by 97% of respondents and 97% considered the service excellent / good. There were no insufficient or bad assessments.

Acknowledgments

The success of the 6th IWACP would not have been possible without the support of important partners such as FAPESP, significantly to the event's achievement.

The Vice Dean of Post Graduate Studies and Research UNIP was responsible for infrastructure support. The Organizing Committee thanks all the institutions involved and, in particular, lecturers and participants that made the conference possible