



7th INTERNATIONAL WORKSHOP ADVANCES IN CLEANER PRODUCTION

“CLEANER PRODUCTION FOR ACHIEVING SUSTAINABLE DEVELOPMENT GOALS”

Realization by



Organized by

Advances in Cleaner Production Network

Boosting Knowledge Exchange Seeking for Sustainability

in participation with



Technical Report

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Abstract

For the first time, the **International Workshop Advances in Cleaner Production (IWACP)**. The topic of the **7th IWACP: Cleaner Production for achieving the Sustainable Development Goals** was discussed by Colombians, Brazilian and foreign researchers for three days at the Universidad de la Costa in Barranquilla, Colombia.

The Postgraduate Program in Production Engineering of Universidade Paulista and the Universidad de la Costa organized the international conference. The event counted with the partnership of the NPPR (National Prevention Pollution Roundtable, from United States), UNISON (Universidad de Sonora, México), BNU (Beijing Normal University, China), the Firenze University (Italy), the Deakin University (Australia), the Journal of Cleaner Production and the ACPN (Advances in Cleaner Production Network).

The conference received financial support from TNO Innovation (through the inno4SD.net) along with the sponsorship of Instituto Jatobás and ABEPRO (Brazilian Association of Production Engineering).

The partnership with the Journal of Cleaner Production, that 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 in the Call for papers for Special Volume of the Journal of Cleaner Production: Cleaner Production for Achieving the Sustainable Development Goals, dedicated to the 7th IWACP (<https://www.journals.elsevier.com/journal-of-cleaner-production/call-for-papers/-cleaner-production-for-achieving-the-sustainable>) to be published with the best works presented in this seventieth edition.

In the first time that the conference was organized outside Brazil, the organizing Committee considered that all the pre-established goals proposed to be attained during the 7th IWACP were fully reached:

(1) The academic information exchange goal was fully achieved. It was significant the number of participating academic institutions (58 universities and colleges), that reflected in the 99 academic contributions presented. The excellent quality of the contributions presented, in a process of continuous improvement as was seen edition by edition, resulted in the seventieth invitation by the Journal of Cleaner Production (JCLP), for a 7th special issue. There is also a second special issued in the Journal of Environmental Accounting and Management (JEAM), and for a first time a special volume for a Latin American journal, Inge CUC.

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

(3) The common problems and routing of solutions were discussed extensively and deeply at plenary sessions, oral presentations, and workshops. Four workshops were offered during the conference, where working groups were formed to discuss the contribution of their research to achieve the sustainable development goals. These activities were coordinated by foreigner and national invited speakers.

The first workshop "**Responsible Consumption and Production**", with 28 participants, was conducted by Dr. Feni Agostinho (Universidade Paulista, Brazil) and Dr. Gengyuan Liu (Beijing Normal University, China) and provided a deep discussion the contribution of researchers to the **SDG 12**, and how perform fairer environmental-social directed evaluation.

The second workshop "**Climate Action and Affordable Clean Energy**" was conducted by Dr. Luis Velazquez (Universidad de Sonora, Mexico) and Dr. Carlo Vandercateele (Leuven University, Belgium). The twenty four (24) participants who attended the workshop discussed about the problem of aligning cleaner production actions to contribute to the **SDGs 7 and 13**.

Dr. Luca Coscieme (Trinity College Dublin, Ireland) and Dr. Paul Sutton (University of Denver, USA) offered the workshop titled "**Sustainable Cities and Communities**". There, the twenty six (26) participants discussed feasible and unfeasible ideas for the main causes and the main alternatives built sustainable cities and Communities and contribute to **SDG 11**.

The fourth workshop "**Industry Innovation and Infrastructure**" was directed by Dr. Carlos Poveda (TNO, Netherlands) and Dr. Cecilia M. V. B. Almeida (Universidade Paulista, Brazil). The 22 participants were invited to reflect on options towards industry future and its sustainability, and to reflect about potential contributions to **SDG9**.

(4) The increase in international relationship through individual and institutional contact was a goal achieved. Participants of 20 countries attended the conference.

(5) The deepening of the discussion on the fundamental theme of the conference: I Cleaner Production for achieving the Sustainable Development Goals was the concern

of the conference. Given these impressive results, the Organizing Committee is honored for having organized the 7th International **IWACP in Colombia**.

Presentation

The **7th IWACP** was carried out with a 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.

Chulalongkorn University	Universidad Libre
Deakin University	Universidad Militar Nueva Granada
Fluminense Federal University	Universidad Nacional
Instituto de Pesquisas Tecnológicas	Universidad Pedagógica Nacional de Colombia
Instituto Federal De Alagoas	Universidad Pontificia Bolivariana
Instituto Federal do Paraná	Universidad Santo Tomás
Instituto Universitario de la Paz	Universidade Católica Dom Bosco
Itm. Colombia	Universidade de Brasília
Lisam Ecoadvisor Systems	Universidade de Caxias do Sul
Pontificia Universidade Católica do Paraná	Universidade de Passo Fundo
Servicio Nacional de Aprendizaje Comercial	Universidade de Santa Cruz Sul
State University of Maringá	Universidade de São Paulo
Tianjin Agricultural University	Universidade do Sul de Santa Catarina
UNIOESTE	Universidade do Vale dos Sinos
Universidad del Atlantico	Universidade Estadual de Campinas
Universidad Autonoma de Occidente	Universidade Estadual de Maringá
Universidad Autonoma de San Luis Potosí	Universidade Federal da Grande Dourados
Universidad de la Costa	Universidade Federal de Goiás
Universidad De La Guajira	Universidade Federal de Itajubá
Universidad de Medellín	Universidade Federal de Pernambuco
Universidad de Pamplona	Universidade Federal de Santa Catarina
Universidad de Sonora	Universidade Federal de São Carlos
Universidad del Atlántico	Universidade Federal Rural de Pernambuco
Universidad del Cauca	Universidade Nove de Julho
Universidad del Norte	Universidade Paulista
Universidad Distrital	Universidade Reubens da Silva
Universidad Ecci	University of Florence. Italia
Universidad Francisco de Paula Santander Ocaña	University Of L'Aquila
Universidad Icesi	University of Manchester

The ACPN Medal Award

The first ACPN award ceremony was held during the **7th IWACP**, two researchers representing the new and the senior generation of Advances in Cleaner Production Network (ACPN) were

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chosen. Dr. Gengyuan Liu (Beijing Normal University - China) and Dr. Carlo Vandecasteele (University of Leuven - Belgium).

The ACPN Medal is to recognize the contribution of young and experienced researchers to the advances of cleaner production and to the preservation of the environment. The medal is inspired by the logo of the International Workshop on Advances in Cleaner Production 2007. Elements of the biosphere - nature and society - are represented in trees and buildings. The main driving force of the natural services used by society, renewable solar energy, transforms and circulates within the ecosystem. The arrow represents the ideal flow of resources in the biosphere as the basis of the planet's sustainability.

The tallest building is the icon building of the Paulista University, symbolically representing a teaching and research institution not only as the highest and most prominent institution of a sustainable society, but also the institution where the International Workshop and Advances in Cleaner Production Network was founded.

The medal and the box were made by hand, respectively, of brass and wood. The wood is from a special native tree from the Brazilian Atlantic Forest: jequitibá. Its leaves are reddish in the spring, its small flowers are white or red, and have a sweet and delicious aroma. In the native language (Tupi), it means "forest giant", which is understandable. Jequitibás appear in the relation of the largest trees of Brazil. In the forest, the adult tree of this species can be seen well above the others. Jequitibás may reach sixty meters high (approximately a twenty-story building).

A Jequitibá-rosa in the State Park of Vassununga, in Santa Rita do Passa Quatro, São Paulo, Brazil, can be considered one of the largest and oldest living beings in the world, with an estimated age of 3,050 years.

Participants Profile

The **7th IWACP** had 270 participants from various sectors committed with the theme: **Cleaner Production for achieving the Sustainable Development Goals** (Figure 1). 99 scientific works from 20 different countries. Scientific works of Brazilian researchers from 9 different states, all of them in 52 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.

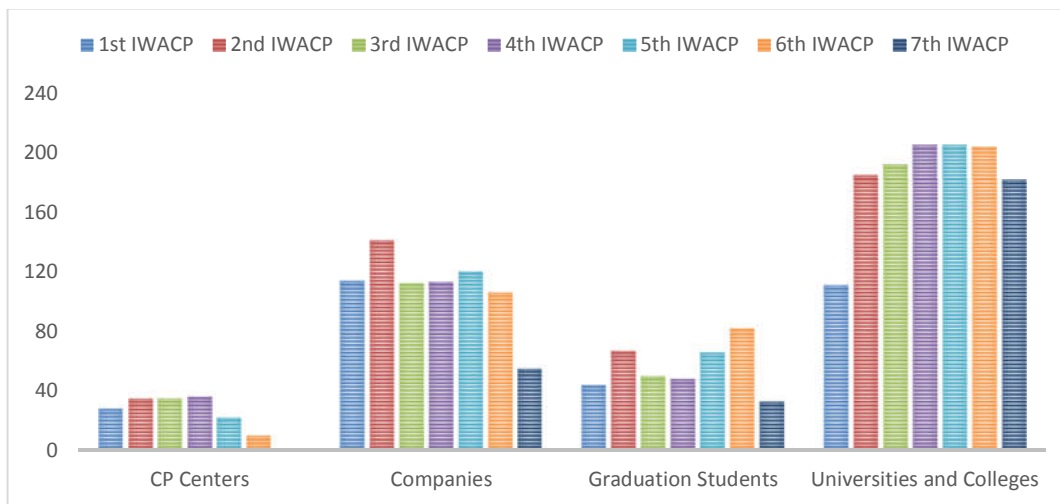


Figure 1. Participants of the 7th IWACP Profile compared to the profile of the previous conferences.

Various regions of Brazil were represented at the conference. Following the tendency of the previous events, all Southeastern Brazilian states sent participants as well as the Brazilian Northeastern states. The participation of the Colombian participants was impressive (Figure 2). Besides Colombia and Brazil, 18 countries sent representatives Australia, Belgium, Brazil,

Canada, China, Colombia, France, Germany, Ireland, Italy, Mexico, Netherlands, Portugal, Sweden, Spain, Thailand, UK, USA, Venezuela and Vietnam.

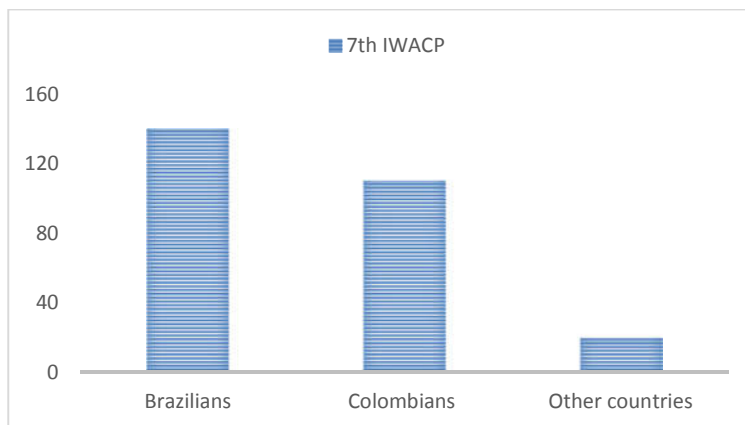


Figure 2. Number of participants who present works at 7th IWACP according to geographical origin.

Plenary Sessions

The opening conference was presented by Dr Paul Sutton, and was followed 8 conferences focused on new approaches towards the advancement of cleaner production to contribute to the achievement of the sustainable development goals (Table 1).

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

Speaker	Topic addressed	Institution	Country
Paul Sutton	Do the Limits to Growth Apply to Smart Cities that Have Achieved the Sustainable Development Goals?	University of Denver	USA
Luca Coscieme	The Paradoxes and Delusions of Economics	Trinity College Dublin	Ireland
Carlos Poveda	Creating Value from Industrial Waste	Netherlands Organisation for Applied Scientific Research (TNO)	Netherlands
Gengyuan Liu	Managing the Food-Energy-Water Nexus for Achieving the Urban Sustainable Development Goals in China	Beijing Normal University	China
Carlo Vandecasteele	Cleaner Production (in industry and services) to Mitigate Climate Change	University of Leuven	Belgium
Chantal Block	Circular Economy, a Way to Sustainability?	2C Ecosolutions	Belgium
Samira Garcia-Freites	Cleaner Energy Production to Support Sustainable Agriculture in the Global South	University of Manchester	UK
Soraya El-Deir	Education for Sustainability	Federal Rural University of Pernambuco	Brazil

Quality of work

The high number of citations of the previous issues, allied with the high quality of the participants contributions, resulted in a seventieth invitation by the Journal of Cleaner Production, for a special issue of the journal containing papers related to the 7th **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.journals.elsevier.com/journal-of-cleaner-production/call-for-papers/-cleaner-production-for-achieving-the-sustainable>).

The quality of the work presented during the event also resulted in an invitation for the Journal of Environmental Accounting and Management (JEAM, <https://lhscientificpublishing.com/journals/JEAM-Default.aspx>) and for Inge CUC (<https://revistascientificas.cuc.edu.co/ingecuc/about>).

Workshops

In the Workshops, issues concerning the event's theme were addressed and debated (Table 2). Participations of the most diverse sectors were invited in the four workshops to reflect and discuss on the importance and the potential contribution of their research work for achieving the sustainable development goals.

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 Responsible Consumption and Production	Feni Agostinho and Gengyuan Liu	28
2 Climate Action and Affordable Clean Energy	Luis Velazquez and Carlo Vandercateele	24
3 Sustainable Cities and Communities	Luca Coscieme and Paul Sutton	26
4 Industry Innovation and Infrastructure	Carlos Poveda. Cecilia M. V. B. Almeida	22

The expressive number of 100 participations, distributed along the workshops, showed the concern on this type of group activity by the academy community.

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 3). 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 15,188 visits 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 16267 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 10,650 is simultaneous to the occurrence of the **4th IWACP** (18, 19 and 20 May 2011), and a higher peak is expect 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. The peak of 2017 is related to the **6th IWACP** and the subsequent ones to the Call for Papers for the **6th Special Issue** – Journal of Cleaner Production, which has 64 accepted articles.

For the **7th 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 – on line 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 2018.

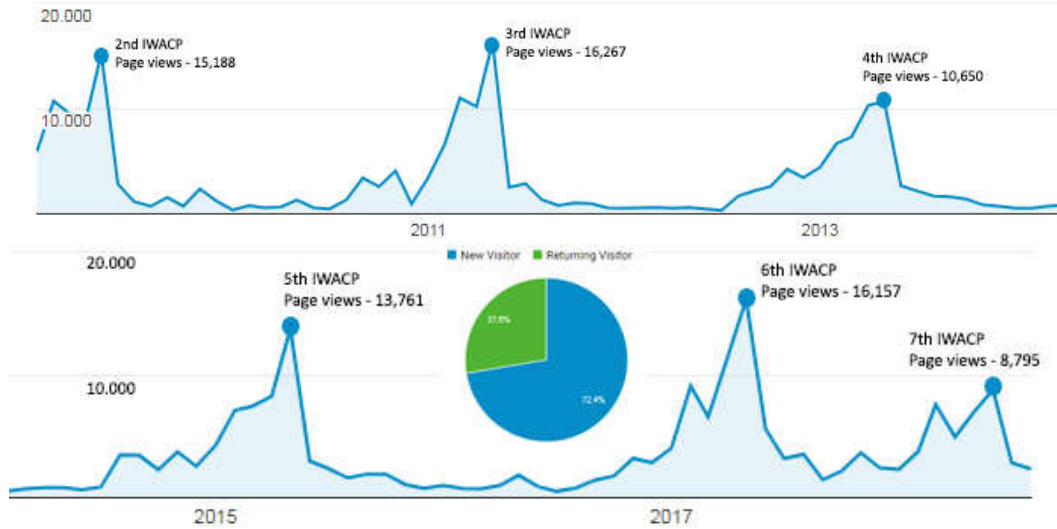


Figure 4. Number of visits to the website www.advancesincleanerproduction.net from January 2009 to June 2018.

Evaluation of the conference according to the goals

It is considered that the conference planned by the Paulista University and hosted by the Universidad de la Costa, 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 20 countries attended the conference.
- ✓ The deepening of the discussion on the fundamental theme of the event "**Cleaner Production for achieving the Sustainable Development Goals**"

Evaluation of the conference according to audience

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

7th IWACP - Events' Impressions

In order to improve the next edition of IWACP, we kindly ask you to respond the questions below. Your impressions about the event is very important to us.

***Obrigatório**

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Name
Sua resposta

Institution
Sua resposta

E-Mail

Figure 5. Evaluation form distributed to participants at the 7th IWACP.

The evaluation was improved and made available online to facilitate the audience’s responses. According to the evaluation of 76% of the participants, the event's goals were achieved in more than 90%. On the average score, goals reached 93% of it was expected. The conference attained the audience expectations of all respondents. Partnerships and sponsorship of other institutions were considered important by 98% of participants who answered the form.

Regarding the organization of the conference, 87% consider this item as excellent / good. The facilities were considered excellent / good by 98% of respondents and 94% considered the service excellent / good. There were no insufficient or bad assessments.

Acknowledgments

The success of the 7th IWACP would not have been possible without the support of important partners. Special thanks are addressed to the Universidade Paulista and Universidad de La Costa support committees. Special Thanks are addressed to all the staff of the Universidad de la Costa who has contributed to the preparation of the event, particularly the Rector, Dr. Tito José Crissien Borrero who, from the beginning, fully supported this project. Special thanks are also addressed to Dr. Yugo Okida, the Vice-Rector of Post Graduation and Research of Universidade Paulista, Dr. Marília Ancona-Lopez, the Vice-Rector of Graduation of Universidade Paulista, and to Dr. Marina Soligo, Main Coordinator of Post Graduation and Research of Universidade Paulista, for their unconditional support.