

The topic of the **13th International Workshop Advances in Cleaner Production (IWACP): Fostering Sustainability: ESG Strategies for Cleaner Production, Social Equity and Ethical Governance** were discussed in a hybrid way. The event, hosted at the PUCPR, Brazil, had both local and virtual audiences. The content of the **13th IWACP** (Conferences, Plenary and Oral Presentations, etc.) has been available on the events' website since December 2024.

The international conference was organized by the Postgraduate Program in Production Engineering (Master's and Doctoral Program) and Co-organized by the PUCPR. The event counted with the partnership of the Stellenbosch University (South Africa), University of Kent (UK), BNU (Beijing Normal University, China), SEEDS (Sustainability Environmental Economics and Dynamic Studies), Illinois Institute of Technology (USA), the University of Manitoba (Canada), CUC (Universidad de la Costa, Colombia), UNISON (Universidad de Sonora, México), Deakin University (Australia), the Journal of Cleaner Production, Frontiers in Sustainable Cities and the ACPN (Advances in Cleaner Production Network).

The partnership with the Journal of Cleaner Production (JCLP) (<https://www.journals.elsevier.com/journal-of-cleaner-production/>) began during the 1st IWACP in 2007. This collaboration has been sustained with the invaluable support of the Co-Editors in Chief, Prof. Cecilia M. V. B. Almeida and Prof. Yutao Wang.

The organizing Committee considered that all the pre-established goals for the 13th IWACP were fully achieved:

(1) The academic information exchange was significant in the number of participating academic and private institutions (48 universities and colleges), as reflected in the 57 academic contributions presented; the remarkable quality of the submissions, continually improving with each edition, has culminated in the creation of a book. The book, "Cleaner Production, Circular Economy, and ESG Strategies to Foster Sustainability," will be published by Springer Nature and indexed by Scopus. This publication results from a collaborative effort between ACPN, Springer Nature, and PUCPRESS.

(2) A significant number of participants made presentations of recent achievements in CP. In this event, the participants with the best papers received a 'Special Mention Award'; some were invited to record their presentations. All these presentations are available on the 13th IWACP's website via streaming. The papers were presented both in person and virtually.

(3) The common problems and solutions routing were extensively and deeply discussed at plenary sessions and oral presentations.

(4) The increase in international relationships through individual and institutional contact was achieved. Participants from 11 countries attended the conference.

(5) The conference was deeply committed to advancing the discussion on the fundamental theme, "Fostering Sustainability: ESG Strategies for Cleaner Production, Social Equity, and Ethical Governance." In light of these impressive outcomes, the Organizing Committee is honored to have had the opportunity to organize the 13th IWACP.

Presentation

The **13th 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 session coordinators.

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

Atitus Educação	UCS
Centro Paula Souza	UERJ
CESMAC	UFPR
Control Union Brazil	UFSC
Curtin University	UNESP
Faculdade Dom Alberto	UNINOVE
FECAP	UNIP
Federal University of São Carlos	UNISINOS
Flemish Institute for Technological Research	Universidad Católica San Pablo
HEC Paris	Universidade de Brasília
HORSE HOLDING	Universidade Estadual de Maringá
Instituto Mais Brasil	Universidade Federal de Pelotas
Instituto Senai de Inovação em Eletroquímica	Universidade Federal do Amazonas
Macquarie University	Universidade Federal do Rio Grande do Sul
Malawi University of Science and Technology	University Of Johannesburg
Nanchang University	University of Manitoba
PUCPR	University of Pisa
Sapienza University of Rome	University of Technology Sydney
State University of Maringá	University of the West of England
Stellenbosch University	

Participants Profile

The 13th IWACP had 102 participants. Seventy-three participants attended physically, and 29 participants remotely participated at the 13th IWACP. The participants fully committed to the theme: **Fostering Sustainability: ESG Strategies for Cleaner Production, Social Equity and Ethical Governance**.

Fifty-seven papers presented during the event were organized in three oral presentation sessions, totaling 15 hours of activities with intense and proactive information exchange among participants. Our Scientific Committee evaluated the other 31 contributions, and the authors of the best contributions were invited to record their presentations. All these presentations are available on the 13th IWACP's website via streaming.

China represented participants from Asia. The European Union's participation was also significant, with Italy leading the way with four participants. Additionally, the EU had representatives from Belgium, France, Spain, and the United Kingdom. As the host country, Brazil had the most significant number of participants in the Americas, complemented by participants from Canada and Peru. All five African participants in the 13th IWACP hailed from South Africa. In Oceania, the conference saw participation from four representatives from Australia.

Conferences and Invited Speakers

Ten invited speakers, divided into three conferences, two plenary presentations, one roundtable and one workshop focused on new approaches toward the advancement of cleaner production and sustainability were presented (Table 1).

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

Speaker	Topic addressed	Institution	Country
Bankole Awuzie	Conference: Unlocking Sustainability Futures: The Power of Digital Product Passports in Advancing a Carbon Neutral and Circular Built Environment	University of Johannesburg	South Africa
Claudia Viegas	Conference: While AI falls asleep with electric sheep, what public and private managers do with reverse logistics? A claim for effective medicines wastes management	UFRGS	Brazil
Fernando Díaz López	Conference: ESG strategies and cleantech innovation for addressing the plastics circularity challenge.	HEC Paris	France
Luc Hens	Conference: Life Cycle Assessment (LCA) and Health Import Assessment as Instruments for Environmental Management	Frontiers in Sustainable Cities Flemish Institute for Technological Research	Belgium
Minelle Silva	Conference: Moving beyond ESG Discourse: How Sustainability can Help Building Supply Chain Justice?	University of Manitoba	Canada
Miriam Borchardt	Conference: The ethics of sustainability: some concerns and challenges. What should we consider when making more assertive decisions?	UNISINOS	Brazil
Scott Wilson	Conference: The Role of Citizen Science in the Management of Microplastic Pollution: An AUSMAP Perspective	Macquarie University	Australia
Marcelo Reis	Networking Session: Opportunities for International Collaboration	CESMAC	Brazil
Selenobaldo Sant'Anna	Forum: Presentations of Results of the Groups of Institutions Participating in the Plastic Oceans Project	CESMAC	Brazil
Tamara Fonseca	Workshop: Challenges and Opportunities in Implementing Anti-Plastic Policies	Control Union Brazil	Brazil

Meeting

The 13th IWACP hosted a meeting titled Building Cleaner and Sustainable Production: From Theory to Practice in Territorial Public Policies. This meeting was exclusively for invited participants and the Organizing Committee of the upcoming 14th IWACP. Among the attendees were distinguished guests, including Fernando Díaz López (HEC Paris, France), Luc Hens (Flemish Institute for Technological Research, Belgium), and Maritza Chirinos (San Pablo Catholic University, Peru). During the meeting, it was decided that the 14th IWACP will occur in France.

Educational Cinema

The 13th IWACP included an educational cinema session titled "Between the Plastics and the Ocean," aimed at educating children about plastic pollution in the oceans. The audience was composed exclusively of students from public elementary schools in Curitiba. Following the film screening, the students were provided with lunch.

Advances in Cleaner Production School (AmICUS)

AmICUS was an important part of the 13th IWACP, held on November 7th, 2024. AmICUS is an advanced studies workshop that provides opportunities for close interaction between students and young researchers of the Advances in Cleaner Production Network (ACPN), conducting cutting-edge research in pursuit of more sustainable production systems. It also encourages interdisciplinary discussions on relevant and current sustainability topics. To achieve this goal, the program is structured around (i) lectures and (ii) research project presentations by participants.

The detailed activities for the event are as follows:

Activity	Details
Opening - Dr. Biagio F. Giannetti (UNIP)	AmICUS: Importance and Objectives
Dr. Marcell M. Maceno (UFPR) Jaylton Bonacina de Araujo (Grupo Boticário)	Theme: "Utilization of Life Cycle Assessment (LCA) for evaluating sustainability in production systems."
Dr. Feni Agostinho (UNIP)	Theme: "A systemic approach based on Odum's macroscope for sustainability evaluation."
Dr. Biagio F. Giannetti (UNIP)	Theme: "Using the 5SEnSU model as a tool for sustainability evaluation in production systems."
Dr. Cecília Almeida (UNIP) and Maritza Chirinos (San Pablo Catholic University)	Closing Remarks: a) Potential synergies between LCA and Energy. b) Opportunities for partnerships between research groups.
Presentation Session of up to 5 Works (Research Projects, Theses, Dissertations, etc.)	Selected participants presented their research work (13±2 minutes). Following each presentation, a Q&A session was opened (13±2 minutes).

Workshops, Networking, and Results on Tackling Plastic Pollution"

Alongside the conferences and paper presentations, the 13th IWACP hosted other significant activities under the theme "Results on Tackling Plastic Pollution."

- Workshop: Challenges and Opportunities in Implementing Anti-Plastic Policies. Coordinated by Tamara Fonseca (Control Union Brazil);
- Networking Session: Networking Session: Opportunities for International Collaboration. Coordinated by Marcelo Reis (CESMAC);
- Forum: Presentations of Results of the Groups of Institutions Participating in the Plastic Oceans Project. Coordinated by Selenobaldo Sant'Anna.

Visibility

The visibility of the event and the use of its website have grown significantly since the **first IWACP in 2007**. Since then, the website *advancesincleanerproduction.net*, which hosts all IWACP editions, ACPN, and other related events, has recorded **562,812 views from 109,603 users**. The largest percentage of users came from Brazil (33%), followed by the USA (14%), South Africa (8%), the United Kingdom (6%), and Australia (4%).

Evaluation of the conference according to the goals

It is considered that the conference was a great success reaching fully its objectives, namely:

- ✓ The purpose of academic information exchange has been fully achieved by the significant number of participating academic institutions (48 universities and colleges reflected in the 57 academic contributions).
- ✓ The plenary sessions and oral presentations extensively covered the discussion of common problems and routing of solutions.
- ✓ The increase in international relationships through individual and institutional contact was achieved. Participants from 11 countries attended the conference: Australia, Belgium, Brazil, Canada, China, France, Italy, Peru, South Africa, Spain, United Kingdom
- ✓ The deepening of the discussion on the fundamental theme of the event, "**Fostering Sustainability: ESG Strategies for Cleaner Production, Social Equity and Ethical Governance**"

Evaluation of the conference according to audience

The audience of the 13th IWACP received, by e-mail, an evaluation formulary edited In Google Forms (Figure 1).

13th IWACP - Event's 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. We hope to see you in the next edition of IWACP

“Fostering Sustainability:
ESG Strategies for
Cleaner Production,
Social Equity and
Ethical Governance”



INTERNATIONAL WORKSHOP
ON ADVANCES IN CLEANER PRODUCTION

1st IWPPPO

INTERNATIONAL WORKSHOP ON
PLASTIC POLLUTION IN THE OCEANS

“Challenges and Solutions on Monitoring and
Recycling Plastic Production to Protect the Oceans”

1 - From 0 to 100%, how the event reached its goals (Fostering Sustainability: ESG *
Strategies for Cleaner Production, Social Equity and Ethical Governance) ?

2 - Did the event meet your expectations? *

Yes

No

In case of NO for question 2, please tell us the reasons.

3 - How do you evaluate the event's organization? *

Great

Good

Regular

Insufficient

Bad

4 - Do you consider that the 13th IWACP's website covers the event properly? *

Yes

No

5 - Do you intend to join us in 14th IWACP in France? *

Yes

No

Figure 1. Partial view of evaluation form sent to participants of the 13th IWACP.

According to the evaluation, 40% of respondents believed the event's goals were fully achieved, while the remaining 60% felt that more than 85% of their goals were met. The 13th IWACP exceeded audience expectations across all responses.

Regarding conference organization, 60% rated it as excellent, and 40% as good. All participants (100%) rated the event's website as excellent, noting that it provided comprehensive coverage. Respondents highlighted the event as well-structured, with suitable environments and excellent visit proposals. They appreciated the shared lunch option, which encouraged closer connections among participants. The speakers were engaging and approachable, and the networking opportunities were highly valued. Regarding future participation, 80% of respondents expressed their intention to attend the 14th IWACP in France.

Acknowledgments

The success of the **13th IWACP** would not have been possible without the support of the PUCPR. Our important partner significantly contributed to the event's achievement.

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Special thanks go to Prof. Sandra Rejane Gomes Miessa, the Rector of Universidade Paulista, Prof. Dr. Marina Soligo, Vice-Rector of Post Graduation and Research of Universidade Paulista, and Prof. Dr. Marília Ancona-Lopez, the Vice-Rector of Graduation of Universidade Paulista, for their unwavering support since the first event in 2007.

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