

Stellenbosch
South Africa
November
23rd and 24th, 2023



“Ways forward to promote resources equity: The role of cleaner production and circular economy as moderator. Action or Reaction to Save the Planet”

INTERNATIONAL WORKSHOP ON ADVANCES IN CLEANER PRODUCTION

Realization by



Organized by



Advances in Cleaner Production Network

Boosting Knowledge Exchange Seeking Sustainability

In participation with





Technical Report

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“WAYS FORWARD TO PROMOTE RESOURCE EQUITY: THE ROLE OF CLEANER PRODUCTION AND CIRCULAR ECONOMY AS MODERATOR. ACTION OR REACTION TO SAVE THE PLANET?”

Stellenbosch – South Africa – November 23rd and 24th, 2023

The topic of the **12th International Workshop Advances in Cleaner Production (IWACP): Ways forward to promote resource equity: The role of cleaner production and circular economy as moderator. Action or reaction to save the planet?** were discussed in a hybrid way. The event, hosted at the Stellenbosch University, South Africa, had both local and virtual audiences. The content of the **12th IWACP** (Conferences, Plenary and Oral Presentations, etc.) has been available on the events' website since December 2023.

The international conference was organized by the Postgraduate Program in Production Engineering (Master's and Doctoral Program) and Co-organized by the Stellenbosch University. 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/>) started during the 1st IWACP in 2007. It was maintained with the support of the Co-Editors in Chief: Prof. Cecilia M. V. B. Almeida, and Prof Yutao Wang. A special Issue in JCLP will account for the contributions of the **11th and 12th IWACP** participants. A special issue in **Frontiers in Sustainable Cities** (<https://www.frontiersin.org/journals/sustainable-cities>), supported by the Journal Manager Clare Brown, also will account contributions of the **12th IWACP**.

The organizing Committee considered that all the pre-established goals for the 12th IWACP were fully achieved:

(1) The academic information exchange was significant the number of participating academic and private institutions (48 universities and colleges) was reflected in the 57 academic contributions presented. The excellent quality of the contributions, in the process of continuous improvement as was seen edition by edition, resulted in another invitation by the Journal of Cleaner Production (JCLP) for a tenth special issue and an invitation by the journal Frontiers in Sustainable Cities to a special issue.

(2) Presentations of recent achievements in CP were made by a significant number of participants. 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 12th 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 an international relationships through individual and institutional contact was achieved. Participants from 45 countries attended the conference. During the 12th IWACP, the **Declaration of Stellenbosch** was signed. It consists in **FIVE PRINCIPLES** for International Collaboration in Research and Innovation for Sustainability.

(5) The deepening of the discussion on the fundamental theme of the conference: Ways forward to promote resource equity: The role of cleaner production and circular economy as moderator. Action or reaction to save the planet? was the conference's concern. Given these impressive results, the Organizing Committee is honored for having organized the **12th IWACP**.

Presentation

The **12th 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.

Animal Science Institute	UFRJ
Beijing Normal University	UFSC
Centro Universitário Cesmac	UNESP
CIEMAT	UNIMES
Curtin University	UNINOVE
FEI University	UNIP
Guangdong University of Technology	Universidad de la Guajira
IFGOIANO	Universidade de Lisboa
Instituto Politécnico de Santarém	Universidade de Pernambuco
La Salle University	Universidade de São Paulo
Manchester Metropolitan University	Universidade Federal de Pelotas
North-west University	Universidade Federal de Pernambuco
Parthenope University of Naples	Universidade Federal do Amazonas
Politecnico di Bari	University of Chieti
Politecnico di Torino	University of East Anglia
Sapienza University of Rome	University of Florence
Stellenbosch University	University of Ghana
Technical University of Denmark	University of KwaZulu-Natal
Thales Alenia Space Italia	University of L'Aquila
UFAM	University of Naples Parthenope
UFES	University of Pisa
UFG	University of Pretoria
UFPR	University of Twente
UFRGS	USP

Participants Profile

The **12th IWACP** had 60 participants. Thirty-five participants attended physically, and 25 participants remotely participated at the 12th IWACP. The participants fully committed to the theme: **Ways forward to promote resource equity: The role of cleaner production and circular economy as moderator. Action or reaction to save the planet?** (Figure 1).

Twenty-five papers presented during the event were organized in two oral presentation sessions, totaling 3 hours of activities with intense and pro-active information exchange among participants. Our Scientific Committee evaluated the other 35 contributions, and the authors of the best contributions were invited to record their presentations. All these presentations are available on the 12th IWACP's website via streaming.

The participants in Asia were from China. In the same way, Brazil (with an expressive number) was the leading country in the Americas, but there were also participants from Colombia. The participation of the European Union was also significant, with Italy leading with eight participants. EU also had participants from Denmark, Ireland and Portugal. As the host country, South Africa led the African participation in the 12th IWACP with 19 participants. In Oceania, the 12th IWACP had Australian and New Zealander participants.

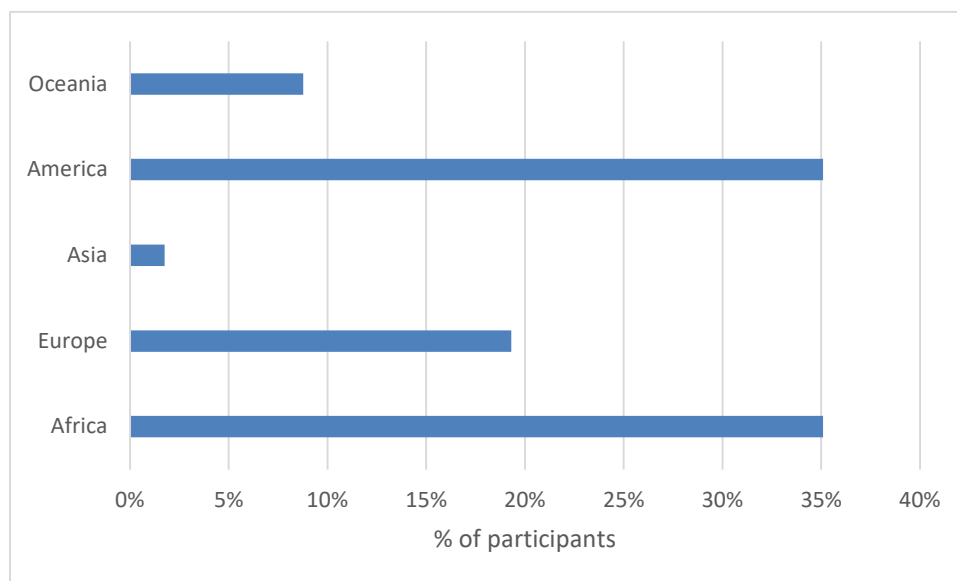


Figure 1. Participants of the 12th IWACP profile according to geographical origin.

Conferences and Invited Speakers

Eleven 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
Mark Swilling	Conference: Rethinking the financing of the green industrial transformation in Africa	Stellenbosch University	South Africa
Massimiliano Mazzanti	Plenary Presentation: Ecoinnovation to Achieve a Sustainable Planet: University of Ferrara	University of Ferrara	Italy
Ubiratã Tortato	Plenary Presentation: Circular Economy and ESG in an Eco-Innovation Perspective	PUC-PR	Brazil
Clare Brown	Conference: Frontiers in Sustainable Cities: High Quality Research to Inform and Promote Urban Sustainability	Frontiers in Sustainable Cities	Ireland
Alan Brent	Conference: Materials Cycles and Our just Transition to Net Zero Carbon Economies: Status Quo, and the Way Forward	Victoria University of Wellington	New Zealand
Jana Breedt	Roundtable: Action or Reaction to Save the Planet? Africa as a New Player on Strategies for Ecological and Societal Transition	Stellenbosch University	South Africa
Thinus Booysen	Roundtable: Action or Reaction to Save the Planet? Africa as a New Player on Strategies for Ecological and Societal Transition	Stellenbosch University	South Africa

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Nayeli Naidee Majia Rivera	Workshop for Collaborative Projects	University of la Guajira	Colombia
Gengyuan Liu	Workshop for Collaborative Projects	Beijing Normal University	China
Bankole Awuzie	Workshop for Collaborative Projects	University of Witwatersrand	South Africa
Mario Canever	Workshop for Collaborative Projects	Federal University of Pelotas	Brazil

Roundtable

The 12th IWACP counted with a roundtable, entitled Action or Reaction to Save the Planet? Africa as a New Player on Strategies for Ecological and Societal Transition. The roundtable was performed by Professors Jana Breed and Thinus Booysen from Stellenbosch University, South Africa and was coordinated by Professor Feni Agostinho from Paulista University, Brazil. During the roundtable the professors discussed the energy perspective in Africa and South Africa and the Africa's role as a New Player on Strategies for Ecological and Societal Transition.

Workshop

The 12th IWACP also hosted the Workshop for Collaborative Projects. The workshop was performed by Professors Nayeli Naidee Majia Rivera (University of la Guajira, Colombia), Gengyuan Liu (Beijing Normal University, China), Bankole Awuzie (University of Witwatersrand, South Africa) and Mario Canever (UFPEL, Brazil) and was coordinated by Professor Cecília Almeida (Paulista University, Brazil). During the workshop the professors presented the projects worked in their universities and discussed it with the participants in the end. After the workshop, the participants signed the **Stellenbosch Declaration**.

Quality of work

The high number of citations of the previous issues, allied with the high quality of the participants' contributions, resulted in an invitation by the Journal of Cleaner Production and Frontiers in Sustainable Cities for Special Issues.

Visibility

The visibility of the event and the search for information through the website increased significantly since 2007, year of the **first IWACP**. From 2007 to this day, the website advancesincleanerproduction.net, that host all IWACP editions, ACPN and other related events, had **543,989 visualizations**, accessed by **102,703 users**. The more expressive percentual of users came from Brazil (65%), USA (7%), China (4%), Italy and Mexico (2%). Users from other 176 countries (22%) also accessed the website.

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, Brazil, China, Colombia, Denmark, Ireland, Italy, New Zealand, Portugal, South Africa, Zimbabwe.
- ✓ The deepening of the discussion on the fundamental theme of the event, "**Ways forward to promote resource equity: The role of cleaner production and circular economy as moderator. Action or reaction to save the planet?**"

Evaluation of the conference according to audience

The audience of the 12th IWACP received, by e-mail, an evaluation formulary edited In Google Forms (Figure 6).

12th 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

* Indicates required question



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Figure 6. Partial view of evaluation form sent to participants of the 12th IWACP.

According to the evaluation, 43% of the respondents believed their event's goals were fully reached. The other 43% of the respondents felt that the event achieved more than 85% of their goals. The 12th IWACP met audience expectations in all responses.

Regarding the organization of the conference, 72% consider this item excellent and 28% good. 100% of the participants thought the event's website was excellent, covering the event properly. The respondents highlighted the recording and availability – in streaming format - of oral presentations and conferences. There were no insufficient or bad assessments. All the respondents intend to join the next IWACP.

Acknowledgments

The success of the **12th IWACP** would not have been possible without the support of the Stellenbosch University. Our important partner significantly contributed to the event's achievement.

Special thanks are addressed to Anton Basson and Imke de Koch, who, from the beginning, as co-organizers, fully supported this project. Thanks to the Head of the Department of Industrial Engineering, Prof. Joubert van Eeden, the Dean of Engineering, Prof. Wikus van Niekerk and the Chair of the Department of Industrial Engineering, Prof. Cornelius S. L. Schutte, for hosting and unconditionally supporting the workshop.

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.