

Florence - Italy
July 15th 2022

11th IWACP

“Environmental Challenges:
Action or Reaction
to Save the Planet?
Local and Global Strategies
for Ecological and
Societal Transition”

INTERNATIONAL WORKSHOP ON ADVANCES IN CLEANER PRODUCTION

Realization by



UNIVERSITÀ
DEGLI STUDI
FIRENZE



Graduation Program on
Production Engineering
Master and Doctorate Levels

Organized by



Advances in Cleaner Production Network

Boosting Knowledge Exchange Seeking Sustainability

In participation with





Technical Report

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“ENVIRONMENTAL CHALLENGES: ACTION OR REACTION TO SAVE THE PLANET? LOCAL AND GLOBAL STRATEGIES FOR ECOLOGICAL AND SOCIETAL TRANSITION”

Florence - Italy – July 15th, 2022

Due to the COVID-19 pandemic, the **11th IWACP** occurred differently. The topic of the **11th International Workshop Advances in Cleaner Production (IWACP): Environmental Challenges: Action or Reaction to Save the Planet? Local and Global Strategies for Ecological and Societal Transition** were discussed in a hybrid way. The event, hosted at the University of Florence, Italy, had both local and virtual audiences. The content of the **11th IWACP** (Conferences, Plenary and Oral Presentations, etc.) has been available on the events' website since September 2022.

The international conference was organized by the Postgraduate Program in Production Engineering (Master's and Doctoral Program) and Co-organized by the University of Florence. 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 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, Prof Yutao Wang, and Prof. Jiri Klemes. A special Issue in JCLP will account for the contributions of the 11th IWACP participants.

In the fourth event organized outside Brazil, the organizing Committee considered that all the pre-established goals for the 11th IWACP were fully achieved:

(1) The academic information exchange was significant the number of participating academic and private institutions (61 universities and colleges) was reflected in the 51 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 an eleventh 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 11th 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.

(5) The deepening of the discussion on the fundamental theme of the conference: A Resilient and Sustainable World: Contributions of Cleaner Production, Circular Economy and Eco Innovation was the conference's concern. Given these impressive results, the Organizing Committee is honored for having organized the 10th International **IWACP**.

Presentation

The **11th 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.

Arizona State University	UFRGS
Aston University	UFRPE
BNU	UFSCar
CSIR-Advanced Materials and Processes Research Institute	UnB
Deakin University	UNESP
Defesa Civil, Estado de Santa Catarina	UNINOVE
Econosp, Recife	UNIP
Environmental Management Research Group in Pernambuco	UNISC
European Commission, DG Research & Innovation	Universidad Autónoma de Baja California
FEI	Universidad Rey Juan Carlos
Guangdong University of Technology	Universidad Tecnológica de Tijuana
IFG	Universidade do Estado de Santa Catarina
IMDEA Energy	Universidade do Sul de Santa Catarina
INDACO2	University of Basilicata
Indian Institute of Technology	University of Chieti-Pescara
Indian Institute of Technology Bombay	University of East Anglia
IUSS Pavia	University of Florence
Parthenope University of Naples	University of L'Aquila
Pharmacy Regional Council-RS	University of Lodz
Politecnico di Bari	University of Parma
Rashtriya Uchcharat Shiksha Abhiyan	University of Pisa
Sapienza University	University of Pisa
Sapienza University of Rome	University of Salerno
UEM	University of Siena
UFAM	University of Twente
UFBA	University of Udine
UFPE	University Potchefstroom

The ACPN Award

For the **11th IWACP**, two researchers representing the new and the senior generation of Advances in Cleaner Production Network (ACPN) were chosen: Maddalena Ripa (Autonomous University of Barcelona) and Federico Pulselli (University of Siena).

The ACPN Award recognizes the contribution of young and experienced researchers to the advances of cleaner production and the preservation of the environment. The logo of the International Workshop inspires the medal 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 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.

Participants Profile

The **11th IWACP** had 123 participants. Thirty participants attended physically, and 93 participants remotely participated at the 11th IWACP. The participants fully committed to the theme: **Environmental Challenges: Action or Reaction to Save the Planet? Local and Global Strategies for Ecological and Societal Transition** (Figure 1).

Sixteen papers presented during the event were organized in four oral presentation sessions, totaling 5 hours of activities with intense and pro-active information exchange among participants. Our Scientific Committee evaluated the other 37 contributions, and the authors of the best contributions were invited to record their presentations. All these presentations are available on the 11th IWACP's website via streaming.

The participants in Asia were from China and India. In the same way, Brazil (with an expressive number) was the leading country in the Americas, but there were also participants from Mexico and USA. The participation of the European Union was also significant. As the host country, Italy led EU participation in the 11th IWACP. Participants from the Netherlands, Poland, Spain, and the UK were also noted. In Africa, South African participants attended the event. In Oceania, the 11th IWACP had Australian participants.

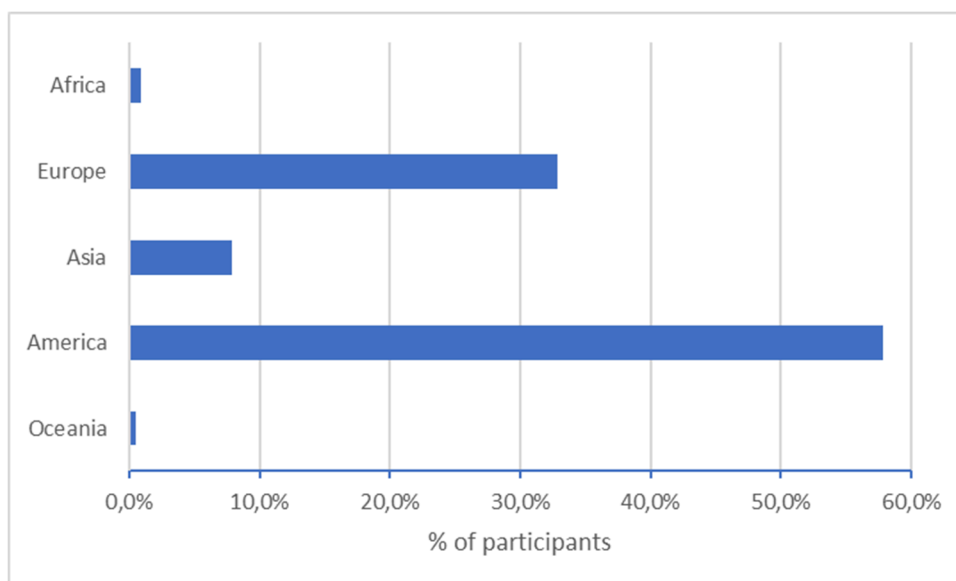


Figure 1. Participants of the 11th IWACP profile according to geographical origin.

Plenary Sessions

Ten conferences 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
Federico Pulselli	Environmental Accounting Experiences for Cleaner and Sustainable Production and Policy	University of Siena	Italy
Maddalena Ripa	Circular Economy beyond Technology. Lessons, Narratives and Research Directions	Autonomous University of Barcelona	Spain
Francesco Degli Innocenti	Biodegradable plastics: The point of view of producers	Assobioplastiche, Italian Network of Bioplastics Producers	Italy
Sara Falsini	Plastic Waste: Instruction for a sustainable future	University of Florence	Italy
Cecília Almeida	Plastics and Bioplastics Littering: A Literature Review and Examples from Brazil	Paulista University	Brazil
Bernardo Piccioli Fioroni	The Waste Management of Compostable Plastics in Italy	National Network of Public Water, Environment and Energy Enterprises	Italy
Imke de Koch	Managing Technology within the Context of Sustainability Transitions	Stellenbosch University	South Africa
Gabriella Maselli	Economic Analysis Models for Cleaner Production Investments	University of Salerno	Italy
Annalisa Mauro	Relevance and Evolution of Land Tenure Rights, Interconnected System and Pathways for Climate Solutions	International Land Coalition	Italy
Rosaria Chifari	Biocircularcities: Exploring the Circular Bioeconomy Potential in Cities. Aims, Methods and Preliminary Results	Fundació ENT	Spain

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 for a Special Issue.

Visibility

The visibility of the event and the search for information through the website increased significantly till 2011 and stabilized for the fourth event. The increase in website visits can be evidenced by the crescent trend of the graphic (Figure 2). 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 corresponding 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 agrees with the number of manuscripts sent (more than 250) and the number of papers effectively published (48 papers). The peak of 32.276 is simultaneous to 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 following 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 related to the **5th IWACP** increased. The Call for Papers for the **6th Special Issue** – Journal of Cleaner Production was published in 2019 with 38 articles. The **7th Special Issue** - Journal of Cleaner production will be launched in 2020. The **8th IWACP** will have Special Issues in three different scientific journals: Journal of Cleaner Production, Journal of Environmental Accounting and Management and Energy

The fall in visits to the website, from the **8th IWACP** onwards, can be justified by the partnership in the organization. In these two last editions, some pages – mainly the submission and registration – were in charge of the host institution. Figure 3 shows that from July/2018 to December/2019, the website had 41,437 page views. Also, the number of new visitors in this period increased from 72.4% to 75.2%. For the **9th IWACP**, the website, even with some pages that had been in charge of the host institution, the website had some improvement in its peaks of views. 5,482 views in April/2020 and 5,623 in May/2020.

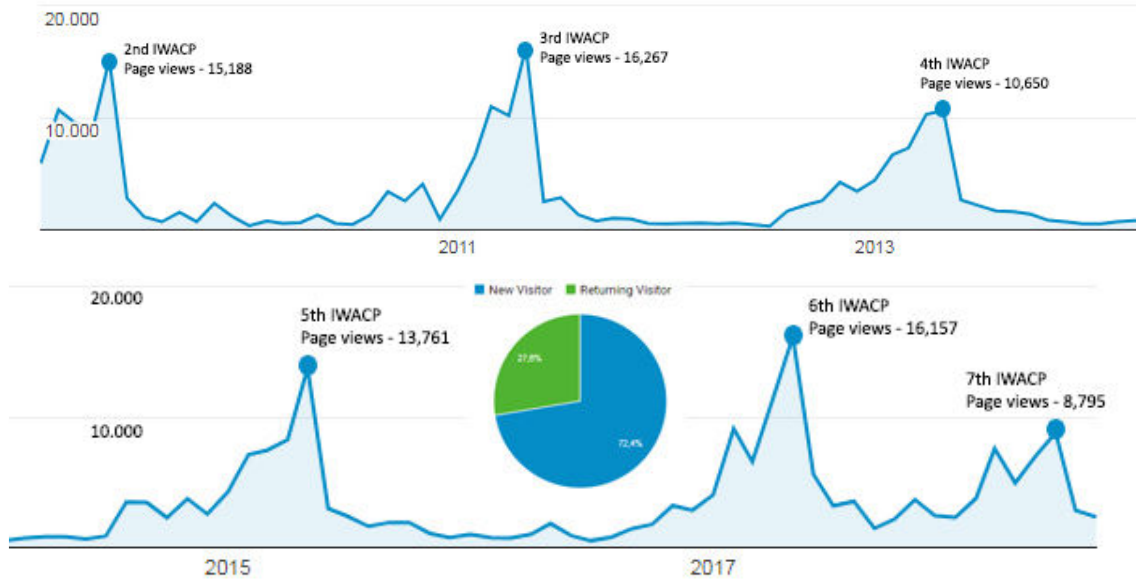


Figure 2. Number of visits to the website www.advancesincleanerproduction.net from January 2009 to June 2018.

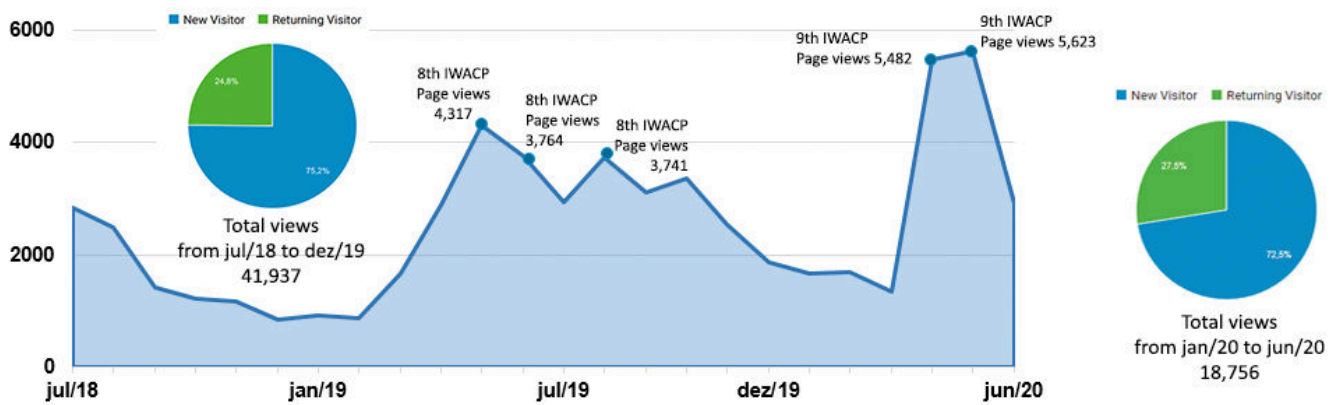


Figure 3. Number of visits to the website www.advancesincleanerproduction.net from July 2018 to June 2020.

Figure 4 shows the website visits after the ninth edition of IWACP. In March and April/2021, respectively, the website had 3,228 and 4,369 views. The **special volumes (SVs) of the 9th IWACP**, on Journal of Cleaner Production and Journal of Environmental Accounting and Management, are responsible for these peaks outside the 'IWACP's season.' The period of the 10th IWACP had more new visitors in comparison with the 9th IWACP. The tenth edition of IWACP had 75.9% new visitors against 72.5% in the previous one. The highest peak of visits in the 10th IWACP was slightly more prominent (5,679) than the 9th IWACP's peak (5,623).

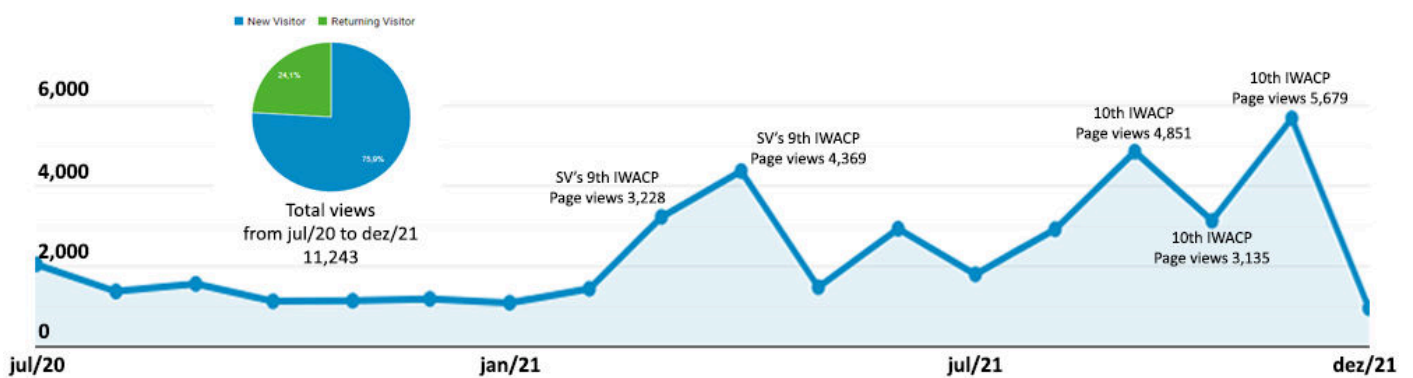


Figure 4. Number of visits to the website www.advancesincleanerproduction.net from July 2020 to December 2021.

Figure 5 shows website visits after the tenth edition of IWACP. After the 11th IWACP announcement, in March 2022, the website views attained 3,026 views on April/22, 4,786 views on May/22, 4,656 views on June/22, and 2,831 in July/22. Even with shorter intervals from 10th to 11th IWACP (usually, the events have a one-year break from one to another), the website maintained a good number of visits. The period of the 11th IWACP had new visitors in comparison with the 10th IWACP. The eleventh edition of IWACP had 76.2% new visitors against 75.9% in the previous one.

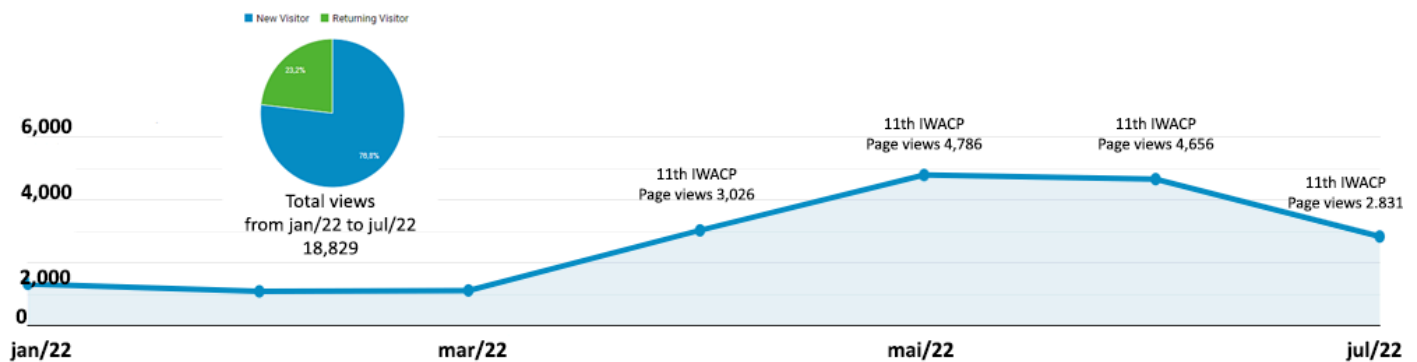


Figure 5. Number of visits to the website www.advancesincleanerproduction.net from January to July 2022

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 (61 universities and colleges reflected in the 51 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 12 countries attended the conference: Australia, Brazil, China, India, Italy, Mexico, Netherlands, Poland, South Africa, Spain, the UK, USA.
- ✓ The deepening of the discussion on the fundamental theme of the event, "**Environmental Challenges: Action or Reaction to Save the Planet? Local and Global Strategies for Ecological and Societal Transition**"

Evaluation of the conference according to audience

The audience of the 11th IWACP received, by e-mail, an evaluation formulary edited In Google Forms (Figure 6).

11th 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



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Figure 6. Partial view of evaluation form sent to participants of the 10th IWACP.

According to the evaluation, 60% of the respondents believed their event's goals were fully reached. The other 20% of the respondents felt that the event achieved more than 90% of their goals. The 11th IWACP met audience expectations in all responses.

Regarding the organization of the conference, 60% consider this item excellent and 40% good. 80% 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 **11th IWACP** would not have been possible without the support of the University of Florence. Our important partner significantly contributed to the event's achievement.

Special thanks are addressed to Iliaria Colivicchi and Ginevra Lombardi, who, from the beginning, as co-organizers, fully supported this project. Thanks to the Head of the School of Economics and Management, Prof. Andrea Paci, and the Head of the Department of Economics and Business Sciences, Prof. Maria Elvira Mancino, for hosting and unconditionally supporting the workshop.

Special thanks are addressed to Prof. Dr. João Carlos Di Genio (in memoriam) and Sandra Rejane Gomes Miessa, the Rector and Rector in Exercise of Universidade Paulista, Prof. Dr. Marília Ancona-Lopez, the Vice-Rector of Universidade Paulista, and to Prof. Dr. Marina Soligo, Vice-Rector of Post Graduation and Research of Universidade Paulista, for their unconditional support since the first event in 2007.