

**Interdivisional Committee on Green Chemistry
for Sustainable Development, ICGCSD
Virtual Meeting
Monday 14th December, h 15-16 CET (Central Europe Time)
Minutes of meeting**

(Thanks to Dr. Aurelia Visa, who managed the virtual meeting thru GoToMeeting site and prepared the Minutes of meeting).

1. Welcome and apologies for absence

The Chair Professor Pietro Tundo welcomed the committee members. He conveyed apologies from absent member.

IN ATTENDANCE: ICGCSD titular members, associate members, division representatives

Prof. Pietro Tundo (PT), STC-Chair, Italy	Dr. Aurelia Visa (AV), AM, Romania
Prof. Buxing Han (BH), STC-Secretary China/Beijing	Prof. Liliana Mammìno (LM), DR III, South Africa
Prof. Florent Allais(FA), AM, France	Prof. Nadia Kandile (NK), DR VI, Egypt
Dr. Jonathan Forman (JF), TM, USA	Prof. Jorge Colón (JC), DR II, Puerto Rico
Prof. Jane Wissinger (JW), AM, USA	Prof. Zhimin Liu (ZL), AB, China/Beijing, <i>invited</i>

APOLOGIES:

Prof. Klaus Kümmere (KK)r, TM, Germany	Prof. Zoltan Mester (ZM), DR V, Canada
Prof. Ana Aguiar-Ricardo (AAR), DR IV, Portugal	Prof. Alan Hutton (AH), DR VIII, South Africa
Prof. Natalia Tarasova (NT), TM, Russia	Prof. Pierangelo Metrangolo (PM), DR I, Italy

PT introduced the main reason for this meeting, namely to discuss new project proposals with Divisions Representatives to highlight our thoughts and to involve the divisions in our project proposals.

2. Call for additional agenda items

No additional items were added to the Agenda. ICGCSD information and reports will continue to be upgraded on the IUPAC website.

3. The 51st IUPAC General Assembly and 48th IUPAC World Chemistry Congress will take place on August 13-20 2021, in Montréal, Canada

PT express a primary need is to meet face to face, hoping that it will happen soon in Venice at the Green chemistry Summer School, July 2021, or/and in Montreal August 2021 or/and in September in Thessaloniki to strength the links to EuChemS, where AAR is involved in the organization.

We will have discussions on the 51st IUPAC General Assembly and the 48th IUPAC World Chemistry Congress that will take place on August 13-20 2021, in Montréal, QC, Canada: There are 3 scenarios possible (person to person, hybrid, or a virtual event) discussed previously. Due to the pandemic situation the balance is tilted in favor of a 100% online congress. A decision will be made in April 2021.

To meet face to face in 2021, titular members can be reimbursed from ICGCSD budget. PT said that we can be supported from the budget of the projects for the person involved. In our previous meeting, NT highlighted that the reimbursement for Montreal meeting can be also made as representative delegates (NAO).

4. Projects

a. Current projects: Metrics for Green Syntheses- Project No.: 2017-030-2-041), Chair: Pietro Tundo

This project has prepared a Technical Report (Metrics, Glossary and Data list) and two research papers (by John Andraos and Marco Eissen) submitted to Pure and Applied Chemistry (PAC).

b. New projects

Assessment of the contribution of IUPAC projects to the achievement of the United Nations Sustainable Development Goals (IUPAC and UN17SDGS) - Project No.: 2020-011-2-041, Chair: Mirabbos Hojamberdiev

Unfortunately, a recent change in Mirabbos Hojamberdiev health will not allow him to continue to be the Task Group Chair for this Project. Therefore, he resigned until his health will allows him to continue working on this Project, Mirabbos Hojamberdiev will be glad to be Member of the Task Group. To go forward with this project PT will act as Chair in the interim and asked all colleagues for supporting him in this temporary work. NT, JW and AV express availability to work on this project, and JF is happy to help in reviewing. Divison Representatives responding with a positive, collaborative response were from LM, NK, AAR, JC and PM. In this respect, PT expressed his gratitude to work together towards the goals of this very interesting topic with Divisions: I, II, III, IV and VI, and committee partners COCI and CCE. He has already asked Chemrawn Chair Francesca Kerton to recommend a member from Chemrawn to be in the TG of the project; she replied that a person will be suggested.

The progress of the project was reported by PT and a strategy was discussed on how to go further with this project. The first task is to update the existing list of the IUPAC Projects dealing with UNSDGs by each division. The next step is a new meeting in two weeks to continue with the tasks and discussions. PT will discuss with Fabienne Meyers to update the Task Group Members on the project.

Systems thinking in chemistry for sustainability: toward 2030 and beyond (STCS 2030+) - Project No.: 2020-014-3-050, Chairs: Peter Mahaffy, Stephen Matlin, Marietjie Potgieter, Bipul Behari Saha, Aurelia Sorina Visa

AV reported on the progress of the project. Every two weeks, Aurelia Sorina Visa, Peter Mahaffy, Stephen Matlin, Marietjie Potgieter and Bipul Behari Saha, organized task group chair meetings to discuss: Project objectives and goals; Discussion of mechanisms to coordinate the work within each of the three coherent strands (Sustainability, Formal Chemistry Education, and Chemical Industry) and the overall project; What do each of us, see the greatest opportunities and challenges are. A meeting will be held on December 21th to introduce some of the project members and advisors to each other, and then discuss our goals for achieving the strands.

The progress of this projects is also in IUPAC web-page.

c. Projects to be developed by the Core Members after their impetus

For 2020-2021 biennium, we were assigned 26.000\$, which is comparable to the other committees. We have committed already 8.000\$.

On the topic of new projects three project draft was shared with us by PT before the meeting:

1. PT drafted the project entitled: ***Green and Sustainable Chemical Processes***

Special issue (on PAC or on other Journals of international importance) dedicated to clean industrial processes. In the Green Chemistry Industry we have support from various organizations such as L’Oreal, PhosAgro, NHU, ENI. FA stressed the interdisciplinarity nature of green chemistry (biotechnology, food chemistry, etc.) and we need to prepare papers, books, symposia in all. It is very important to use green chemistry in a very productive way. We should teach students to look at constraints. Chemical industry from Europe, Asia and America will be involved, beginning from those already known by the current Task Group Members: China, France, Germany, Italy, Russia. Participants who agreed to take part were: PT, KK, FA, BH. On page 3 of the proposal JC suggested to include “selection” of topics to be described. JC asks clarification about the project budget, which was set at 4000\$. JW asks for the costs of publications. PT explains that this is the starting budget, if necessary and appropriate more money can be added, and the PC will be asked for that. JW asked is would be available the budget of the Project Metrics for green Syntheses. PT replied that it is 4.500 US\$; he think appropriate to disseminate such informations among the Committee; at this purpose he will ask Lynn Soby if such Financial reports are confidential information for the Bureau only or not. (Afterwards, PT wrote to Lynn Soby and, after her reply, PT sent the Financial Project Report of November 2020 to all the Committee).

2. JF drafted the project entitled: ***Surveying the Green Chemistry Landscape From Research to Policy***

JF is interested in conducting a survey for academia, industry, international and non-governmental organizations (such as UNEP, OECD, UNIDO, OPCW, ISC3, etc), and government (agencies and ministries responsible for policies on science, chemical oversight, and energy and environmental issues). The survey will collect information from respondents on research interests, exposure to and knowledge of green chemistry, how the responders prioritize (and if applicable, apply) principles of green chemistry, publications and collaborations, knowledge of industrial and policy initiatives in green chemistry and the management of chemicals, and their preferred and recommended green chemistry tools and resources. Publications, patents, and policy trends and indicators will also be researched and combined with survey results. This project will ultimately produce a report on the global state of green chemistry, presenting survey results on green chemistry practice and adoption, and indicators on publications, patents industrial initiatives, and policies. The report will include an inventory of available green chemistry resources. The report will serve as resource for students and researchers, providing information on where green chemistry is being embraced and promoted, lists on useful resources (in multiple languages where possible), and where there may be opportunities for collaboration and also gaps between academia, industry, and policy. The language is a challenging problem. JW was curious to find out if industry would consider the information asked for in the survey propetary and not provide it? JF does not think that this is a problem to worry about, as the survey will inquire about policies and incentives they have for green chemistry and aso.

PT pointed out that during this pandemic situation the Organizations are working at home, making reports. We, the scientists, cannot compete with. Policy in each country is different, therefore we can make a list of organizations which work in this area. This list will be useful for IUPAC to know the organizations. PT highlighted the experience of JF in this field, and express how important is for IUPAC and different organization. JC expresses his willingness to join this project and JF welcomes JC in the team. The budget of this project was discussed and was set at 4000\$.

JC was wondering if those two projects presented are not overlapping, and PT explained that the projects are complementary, not at all overlapping; the content, the actors, and the products are different.

3. LM drafted the project entitled: ***Green Chemistry in Sub-Saharan Africa.***

This book comes as a follow up for the finished IUPAC Project 2007-025-1-300, Chemical issues in biomass burning in Sub-Saharan Africa. The project idea is to prepare a collaborative book on “Green Chemistry in Sub-Saharan Africa”. Suggested subtitle: “Growth, challenges and perspectives”. Editor: Liliana Mammino. Envisaged authors: persons working in academic or other institutions in Sub-Saharan Africa. Envisaged content: chapters presenting the development and achievements of green chemistry research and green chemistry education in specific institutions or specific countries.

JC asked about the number of chapters of the new book. Unfortunately the internet connection was really poor, therefore if we understand correctly, there will be around 20 chapters, but an exact answer is difficult to give at this very beginning. The particular members from Sub-Saharan Africa Universities from will be asked to submit chapters. PT asks the committee to support the project with 1000\$.

All the project budgets proposed were agreed and accepted by the attendees, unanimously.

JW discussed about a new project proposal to promote the contribution of green chemistry to safety. This is a broad international topic where there is a need to be involved in making this connection. PT announced that Division VII has projects that focus on safety and green chemistry. JF highlighted that JW was guest editor of a Chemistry Education Journal on green chemistry, but JW noted that the safety linkage did not feature prominently in many of the papers. Green chemistry’s approach to decreasing risk through hazardous minimization or elimination during synthesis is a strength towards increasing safety. PT asks Jane to define the proposal and to discuss it at our next meeting in January. JF suggested chemical security as another possibly relevant linkage to green chemistry.

5. Summer School on Green Chemistry in Venice (July 4-10, 2021) and related Symposia

In 2021 the Summer School on Green Chemistry will be held in Venice, July 4-10, 2021 and also by remote for students who cannot attend in person; this means that efforts will be made for organizing the school in hybrid mode.

PT stressed the need to have qualified teachers as well as high quality students. Web page of the school is available <https://www.greenchemistry.school/> and dissemination to students has started. PT announces that the January 2021 edition of *Chemistry International* will have a full report of the 12th *Postgraduate Summer School on Green Chemistry 2020*.

6. Venue and timing of next Committee meeting.

PT wishes to address the urgent need to meet in person. Since this is not possible under the current COVID-19 situation, we will meet virtually on 22 or 25 January 2021.

Prof. Pietro Tundo
Chair, IUPAC ICGCSD