

IUPAC COMMITTEE ON CHEMISTRY EDUCATION
46th IUPAC GENERAL ASSEMBLY 2011
San Juan, Puerto Rico
DRAFT Minutes

Meeting times:

Sunday, 31 July, 9:00–12:00 and 13:00–17:00 (joint lunch)

Monday, 1 August 9:00–12:00 and 13:00–16:30 (joint lunch)

Meeting location: Miramar 4

Please note that the supporting materials listed in parenthesis after some items can be downloaded from the IUPAC web site:

<http://www.iupac.org/standing/cce/agenda11/>

Attendees Sunday:

Prof. Peter G. Mahaffy (Canada) – *Chair*, Prof. Eva Åkesson (Sweden) – Vice-Chair, secretary and division liaison

Titular members

Prof. Mei-Hung Chiu (China/Taipei), Prof. Choon H. Do (Korea), Prof. Ram S. Lamba (Puerto Rico), Dr. Lida Schoen (Netherlands), Prof. Mustafa Sözbilir (Turkey), Prof. Natalia P. Tarasova (Russia)

Associate members

Dr. Javier Garcia-Martinez (Spain) DIV II, Prof. Mary Garson (Australia) DIV III, Prof. Dr. Werner Mormann DIV IV, Prof. Maria Filomena Camões (Portugal) DIV V, Dr. Hemda Garelick (United Kingdom) DIV VI, Dr. John Duffus (United Kingdom) DIV VII, Prof. Richard Hartshorn (New Zealand) DIV VIII

National representatives

Prof. Tony Wright (Australia), Prof. Zhigang Shuai (China), Ms. Nina H. K. Aremo (Finland), Rachel Mamlok-Naaman (Israel), Prof. Masahiro Kamata (Japan), Dr. Ting-Kueh Soon (Malaysia), Prof. Erica Steenberg (South Africa), Dr. Maja Elmgren (Sweden), Prof. Morton Z. Hoffman – *Conference coordinator* (United States)

Guests/Observers

Prof Jan Apotheker (The Netherlands), Julia Hasler UNESCO, Prof Norman Holden, Prof Robert Belford (USA), Dr Iwona Maciejowska (Poland), Prof. Michele Floriano (Italy), Zuriati Zakaria (Malaysia), Krishna Ganesh (India) DIV III, Robert Belford (USA), Ionnis Vafeiadis (Greece) Liliana Mammino (South Africa), Christine Hernandez young observer (Philippines), Miki Hasegawa (Japan) young observer, Prof James McQuillan DIV I president, Kaoru Yamanouche DIV I Vice president, Chris Brouwer CI, Dan Rabinovich (USA) DIV II, Prof Jagan Mchan Reddy young observer, Ilya Zharov young observer, Antoly Kolomeisky young observer, Nelson Torto DIV V, Kazuyuki Tatsumi vice president IUPAC, Maria Quintana young observer, Pascal Mimero (France), Judith Poe (Canada)

Attendees Monday:

Prof. Peter G. Mahaffy (Canada) – *Chair*, Prof. Eva Åkesson (Sweden) – Vice-Chair, secretary and division liaison officer

Titular members

Prof. Mei-Hung Chiu (China/Taipei), Prof. Choon H. Do (Korea), Prof. Ram S. Lamba (Puerto Rico), Dr. Lida Schoen (Netherlands), Prof. Mustafa Sözbilir (Turkey), Prof. Natalia P. Tarasova (Russia)

Associate members

Prof. Richard Hartshorn (New Zealand) DIV VIII

National representatives

Prof. Tony Wright (Australia), Prof. Zhigang Shuai (China), Ms. Nina H. K. Aremo (Finland), Rachel Mamlok-Naaman (Israel), Prof. Masahiro Kamata (Japan), Dr. Ting-Kueh Soon (Malaysia), Prof. Erica Steenberg (South Africa), Dr. Maja Elmgren (Sweden), Prof. Morton Z. Hoffman – *Conference coordinator* (United States)

Guests/observers

Prof Jan Apotheker (The Netherlands), Julia Hasler UNESCO, Prof Norman Holden, Prof Robert Belford, Dr Iwona Maciejowska (Poland), Prof. Michele Floriano, Prof Michael Dröescher COCI, Prof Judith Pöe (Canada), Pascal Mimero (France), Christine Hernandez young observer (Philippines), Krishna Ganesh (India) DIV III, Leiv Sydnese CHEMRAWN, Robert Marquart, Jurgen Stohner ICTNS

1. Welcome, introduction and orientation [CCE2011_001]

Welcome address from the chair Peter Mahaffy and presentation round of all attendees.

Opening address:

Welcome to all TMs, AMs, NRs and all our guests. The CCE work is impressive, in particular during IYC2011. Important issues on the meeting will be: new priorities for the next biennium and new projects.

Agenda approved with date for ICCE-ECRICE corrected to 15-20 July 2012.

2. Minutes of meeting in Taipei, Taiwan 2010 [CCE2011_002]

Minutes approved.

3. Matters arising from the minutes of CCE and new Business

To consider matters arising that are not on the agenda

Who writes a short summary of the CCE meeting for CI?

Morton Hoffman

4. Chair's Report to Council [CCE2011_004]

Future directions for CCE – priorities for 2012-2013

Highlights from the chair's report by the chair:

The report is a celebration of what you are doing! Take a look at the priorities for the biennium and CCE's mandate. We need to articulate the priorities for the next biennium 2012-2013.

To be discussed further on Monday

5. Subcommittee reports

Presentation and discussion of past activities. As we normally do each biennium, the existing subcommittees will end their work and new subcommittees for the next biennium will be developed to respond to existing and emerging priorities for the biennium and to coordinate the work of projects and activities.

5.1. Chemistry Education for Development (Mei-Hung Chiu)

[CCE2011_005.1]

PPT – presentation from Mei-Hung Chiu with highlights from the report regarding FCP, YAC, NICE

Creative ways of getting/making low cost equipment: Chemical and Engineering News is telling the story. Suggestions of people, tell Peter!

The subcommittee is dissolved and new subcommittees will be formed on Monday. Thanks to the subcommittee chair and all members for outstanding work! Made wonderful solutions!

5.2. International Year of Chemistry (Mustafa Sözbilir, Anthony Wright)

The subcommittee is dissolved and new subcommittees will be formed on Monday. Thanks to the subcommittee chair and all members for outstanding work!

6. Report from Projects group (Mustafa Sözbilir)

[CCE2011_006]

- 6.1. Membership,**
- 6.2. Review procedure**
- 6.3. Project Budget**
- 6.4. Completed projects**
- 6.5. Current Projects**
- 6.6. Projects under consideration**
- 6.7. Future projects**

Short report from the project coordinator Mustafa Sözbilir; most information is in the written report. Highlights the mandate of CCE: CCE works through projects. Many projects involved IYC activities last and this year. Only one project application is currently under consideration, others have emerged from discussions with divisions.

Important to keep all involved divisions informed and make sure that they get the updates and reports. Better information flow between divisions and CCE is needed, not all divisions have a project group. Final reports are missing from several finished projects. Strong encouragement to everybody involved in these projects to supply the final reports.

*This is a major task. Thanks to Project Coordinator and all members!
Revision of members in the project group will be made after new TMs have been elected.*

7. Review of activities

7.1. Flying Chemist Program (FCP) (Mei-Hung Chiu) [see 005.1]

Done under 5.1

7.2. YAC Program (Lida Schoen) [CCE2011_007.2]

PPT – presentation and a brief history on YAC, Young Ambassadors for Chemistry from Lida Schoen. How will there be financial support for future YACS? Industry? Design new sets of YAC activities, health, food, drink, not only cosmetics.

Lida asks for help: Please come with ideas for new experiments and activities - they should be non toxic, not require much equipment or heating, must be interesting and spectacular! Maybe environment and public health, maybe in relationship with other divisions.

Chair:

Praise to Lida and YAC. Remarkable example how chemistry can bridge people!

7.3. NICE (Choon Do) [CCE2011_007.3]

PPT-presentation from Choon Do on the latest 4th NICE in Seoul, six countries participating. Next will be held in Taiwan 2013, name will be changed from symposium to conference.

Suggestion from CD: CCE/IUPAC to sponsor NICE as a regional activity of CCE.

7.4. UN Decade for Education for Sustainable Development (Natalia Tarasova)

PPT – presentation mainly as an update for representatives from other divisions.

Natalia has brought the sustainable agenda to us in a passionate way. CCE is very grateful for her efforts over many years in this area, and also congratulates her for her recognition at this Congress as one of the “Distinguished Women in Chemistry.”

7.5. Relationship with UNESCO (Julia Hasler, Peter Mahaffy)

UNESCO is involved in partnering with CCE on many activities. The UNESCO collaboration is crucial for IYC. Science education will be restructured within UNESCO. Julia Hasler wants to thank IUPAC and CCE both on personal and individual basis.

Official thanks to UNESCO, Julia and Rovani from CCE.

7.6. Relationship with EuCHEMS, ECRICE (Iwona) [CCE2011_007.6]

Written report from Ilka Parchman and short oral comments from Iwona Maciejowska

A questionnaire will be available in the autumn, please try to distribute it! ICCE-ERCICE conference next year and we hope to see you in Rome next year. Please help to spread the word in your professional societies and communities.

7.7. Relationship with FASC; Federation of African Societies of Chemistry
FASC is an affiliated member of IUPAC. YAC and FCP have been held in Ethiopia, and IUPAC is very grateful to Ethiopia for their role in IYC.

7.8. Relationship with FACS, Federation of Asian Chemistry Societies (Soon Ting Kueh) [CCE2011_007.8]

PPT-presentation: 20 national chemical societies in Asia. FACS want to collaborate closer with CCE.

7.9. Relationship with Chemical Heritage Foundation, USA (Peter Mahaffy)
CHF involved in IYC in USA. CCE officers will follow up with a phone call to CHF to re-energize this important relationship.

7.10. Relationship with ICSU Regional Offices and other unions (Peter Mahaffy)
The connection with ICSU is important for IUPAC, particularly as we move toward Rio + 20. CCE is determined to work together also, maybe on implementation of FCP in Panama. Partnership that might be important

7.11. Future activities
WikiHyperGlossary WHG (Robert Belford) [CCE2011_007.11]
Presentation on WHG and information literacy issues. Product ought to be of interest to CCE.

Please send some examples we can put up on the bulletin board.

8. International Year of Chemistry 2011

8.1. Reports from NRs and TMs [CCE2011_008.1]

Thanks for all national reports; an impressive amount of work has been done all over the world. The national reports were added to the Chair's report to the Council.

8.2. Global experiment (Tony Wright, Javier Garcia-Martinez) [CCE2011_008.2]

Presentation by Tony Wright. Emphasize that it is an educational activity. Can be used in an inquiry type of education in line with the focus of CCE activities. This can be performed without special equipment. It is possible to pick and choose; one does not have to do all activities. More than 10 000

involved, but that is only those who have submitted data, an estimate is that about 100 000 involved. Incentive to submit data: diploma from IUPAC and UNESCO signed.

Translated in many different languages and it is a true international activity. Large media attention Twitter, facebook, and Flickr, blogs, web 2.0 as possible.

Discussion concerning water quality is a political issue, because low quality of water can be exposed.

To All: Become an advocate for the global experiment! Send a mail to teachers in the countries not yet involved!

Do you have rich friends or see other possibilities for funding and sponsorship? Please bring your ideas forward.

Special thanks to Javier, Tony, Erica and Filomina from CCE. Thanks to the whole task group and to UNESCO has supported. Thanks to all who contribute! It is a great achievement with a gigantic task.

- 8.3.** Toolkits for celebrating national chemistry days and weeks (Mustafa Sözbilir)
Collect ideas from all over the world and presented on the IYC web site.
Please send update your national reports and put it up on the IYC web site.

- 8.4.** Chemistry as a cultural activity (Lida Schoen) [CCE2011_008.4]
Chemistry as a cultural Enterprise was too ambiguous when having no budget, and then we limited the project to global stamp competition. Tomorrow we will select the winner of the Global stamp competition from 247 entries from 18 countries.

It was unfortunate that difficulties have been encountered displaying the contributions from young people

- 8.5.** Visualizing the science of climate change (Peter Mahaffy)
This is a partnership with UNESCO, RSC and ACS. It is a set of interactive web-based materials to help 16-19 year old learners with some of the confusion on climate change. It is a complex project with peer review for content with both scientific and pedagogic view. How do we give young people hope so we are not leaving them with a hopeless problem?
The group is on target to have the remaining modules finished by the closing ceremony.

- 8.6.** Sustaining IYC2011 initiatives (see also Item 13)
We do not know all activities going on all around the world. NAO can make a report for each country as a part of the evaluation.
How can CCE contribute to sustain initiatives and keep the enthusiasm after IYC? Is there a way of measuring the impact and optimize the usage of resources? Discussion continues tomorrow Monday in the breakout session.

- 8.7.** Collaborations

9. Interaction with Divisions and Standing Committees

9.1. Oral report from Chair and Divisional Liaison Officer

The chair Peter Mahaffy and Mei-Hung Chiu visited all divisions at the GA 2011 Puerto Rico. Some ideas have come up for new collaborations and projects.

There is an increased interaction with the divisions and an increased presence of AMs and guests from the divisions at CCE meetings which is highly appreciated. CCE thanks Division Liaison Eva Åkesson for her work with divisions to bring us to this point.

9.2. Contributions from Divisional Representatives [CCE2011_009.DIVX] Written reports from DIV VI, VII, VIII

DIV I:

Hand written report from James McQuillan, president.

IYC activities:

- a. Student chemistry cartoon competition
60 entries, winner presented today 6:30
- b. Student physical chemistry video competition

Joint project: 2006-050-3-100 wet surface vibrational spectroscopy experiments.

DIV II Dan Rabinovich:

PPT presentation: Stamps issued in relation to IYC 2011.

Project idea proposal: Periodic table of Life, development of an interactive periodic table that highlights the role of individual elements in biological systems.

Proposal will be submitted soon. Volunteers form CCE wanted! Send an email if you are interested to participate.

DIV III Krishna Ganesh

PPT presentation - Development of teaching framework Chemical Biology project proposal, will be discussed on Monday during breakout session

DIV IV Werner Mormann:

PPT-presentation

Division IV has an active subcommittee on education.

Four ongoing projects, one is finished.

CCE member should be on polymer education committee; Choon Do will participate during GA 2011.

DIV VI Hemda Garelick

PPT presentation sent via email, is posted on the bulletin board.

DIV V Maria Filomena Camões

PPT presentation of various IYC activities.

DIV VII John Duffus,

Wants input on ToxLearn and Toxicology in the classroom. Prepared with an international team.

Please look at the web sites and give feedback (comments and criticism) to John Duffus.

DIV VIII Richard H:

Highlight two things:

First: revision on general principles nomenclature will done this autumn

Second: Brief guide on nomenclature (4 sides), to be published within journals and text books appendices. Get to the heart of nomenclature. RH will send the draft to CCE for comments.

Thanks to all division representatives, your engagement is highly appreciated. We have several joint project ideas.

- 9.3.** Periodic table of the isotopes (Norman Holden, T Coplan) [CCE2011_009.3] DIV II, update on the project. See also the article in last issue of CI.

Q: Any interested in field-testing? Distribution of material, translation, feed back on how accurate and understandable it is. Any suggestions for improvement are highly appreciated. All volunteers, please let Peter know. CCE has agreed to co-sponsor with Div II the next phase of this IYC project, to produce an electronic, fully interactive version of the IUPAC Periodic Table of the Isotopes for dissemination to education communities globally.

- 9.4.** Contributions from Standing Committee Representatives (COCI, CHEMRAWN) (On Monday)
Presentation by Leiv Sydnes CHEMRAWN:
Educational opportunities:

Chair of CCE ex officio member in CHEMRAWN

Looking forward to interacting with the new leadership of CCE and to meet again in Istanbul. To facilitate discussion within the standing committees, we may wish to identify a topic of mutual interest for a joint meeting, as we have done in the past.

CHEMRAWN has a Future action committee, this is good idea also for CCE to apply maybe in Rome.

Report from COCI (Michael Dröscher)

PPT- presentation

COCI's task is to link IUPAC to the industry, increase participation. Capacity building, public appreciation of chemistry, the authoritative role of IUPAC.

Collaboration: PAC, use of Wikipedia and make sure it is up to standards.

The relationship has been solidified with CCE during IYC, important for the Global water experiment.

Joint meetings for CCE, COCI and ChemRawn in the future at General Assemblies.

- 9.5.** Educational implications of changes to the mol definition (Paul deBievre) [CCE2011_009.5] (on Monday)
Revision of the International systems of units the SI. Definition of the mol since 1971, the revision will be decided upon in 2015, which means more or less in final version 2013.

The definition has the effect that the molar mass of carbon 12 is not 0.0012 kg/mol by definition but has to be determined experimentally. Paul is concerned that the group redefining the mol has stated that the teachability is not an issue for them, and looks to CCE for assistance in raising awareness about the teachability of the mol.

Somebody interested to be involved to consider the teachability? Suggestion: Peter Atkins has indicated he is willing to be involved.

IUPAC-CCE should be prepared when mole definition comes out.

- 10. ICCE programme, (Morton Hoffman) [CCE2011_010]**
Emphasize to the range of locations.

10.1. 21st ICCE Taiwan 2010

10.2. 22nd ICCE Italy 2012 (Michel Floriano) [CCE2011_010.2]

PPT-presentation ICCE 22 – ERCICE 11 15-20 July 2012

Web site: www.iccecrice2012.org

Discussion concerning the venue, number of participants and parallel sessions, gender balance of invited lecture and keynote speakers, distinguished awards and scholarships? Mei-Hung agreed to pass on information to the organizers.

Welcome to Rome 2012!

10.3. 23rd ICCE 2014
Candidates: Toronto (Judith Pöe) [CCE2011_010.3a]

PPT presentation of the Toronto bid.

Theme: Developing Learning Communities in the chemical sciences

Unanimous vote to approve Toronto's bid to host the 23rd ICCE 2014.

Recommendation from CCE to consider a lower registration fee in particular for teachers.

The organizers are recommended to have a representative in Rome 2012 to see how ICCE is run and works and to give a presentation at the CCE meeting as well as at GA in Istanbul 2013.

10.4. Considerations for 2016 and beyond

Malaysia – Soon Ting Kueh expressed initial interest in Malaysia hosting the ICCE in 2016. More focus on developing world where the challenges are different. Possibly to be hosted in eastern Malaysia, Sarawak an hour from Kuala Lumpur, 20 flights a day.

At next meeting, we hopefully have an interest for hosting 2018

10.5. Other Educational Conferences

Huge gratitude to Mort Hoffman as conference coordinator!

11. Administrative matters

11.1. Finance (Peter Mahaffy)

Project budget
Operating budget

Two year budget 20 000 project and 20 000 operational budget
4 500 left for projects, which will be allocated before of the end of this year.
Less than \$1000 left in operational budget following Puerto Rico expenses.

11.2. Membership [CCE2011_011.2]

11.2.1. TM and officer appointments (Chair, secretary)

The chair appointed a committee in order to have a more open and transparent procedure for appointments. The committee was asked to get a procedure in place. The suggested procedure was approved earlier by CCE and also brought to the IUPAC Bureau for approval. The very same committee has now become a nominating committee.

In consultation with the IUPAC secretary general, some questions were raised. Despite that, very soon after this meeting there will be a ballot to vote on. TMs, AMs and NRs are eligible to vote. There are now 5 positions for TM which should be filled. After that, the election will be for chair and secretary among the TMs.

For the future: Appoint a committee in the beginning of the next year to revise the procedures for election and also propose mechanisms to provide continuity in leadership, working together with the other standing committees.

11.2.2. Process for approval of conference coordinator, project group chair. These will be recommended by the new CCE chair.

11.2.3. Report on NR and AM appointments

11.2.4. Acknowledgment to members whose terms expire.

Lida Schoen, Natalia Tarasova, Ram Lamda:

You have all contributed enormously within CCE and global chemistry education during your term. Thanks for your generosity with your knowledge, passion, and enthusiasm and for all that you have done. It is highly valued and appreciated.

Monday, 1 August (9:00–12:00 and 13:00–16:30)

Place: Marimar 4

12. Other business, including items carried over from Sunday (for minutes see item earlier)

Item 9.2 Contributions from Divisional Representatives continued

Item 10.3 23rd ICCE 2014

Item 9:4 Report from ChemRawn (Leiv Sydnes)

Item 9.5 Educational implications of changes to the mol definition (Paul deBievre) [CCE2011_009.5]

PPT presentation of the Benchmarking project by Maja Elmgren

13. Future directions for CCE – priorities for 2012-2013 biennium

Discussion continued from Sunday – working groups during lunch

Which priorities should stay, deleted, revised, or be new priorities?

Report back from working groups: appendix 1

New priorities should be agreed upon in February 2012, well in time for the Bureau meeting. A group chaired by Mei Hung Chui will finalize the 2012 – 2013 biennium priorities after the GA2011 and then post them on the bulletin board. This should involve the new leadership.

14. Break out sessions – to focus on new and existing projects, proposed subcommittees, and other focus groups as needed.

- Benchmarking learning outcomes – revising proposal
- Sustainability and Legacy of Global experiment, sustain IYC projects
- FCP-revision
- Project idea proposal: Periodic table of Life Dan Rabinovich
- Isotopic periodic table
- Chemical Biology by division III

15. Plenary meeting to formalize actions arising from breakout sessions.

Formalize project proposals, new subcommittees and any other items from the breakout sessions.

Report from the break out session: Appendix 2

16. Next meeting

Next meeting of CCE will take place during the Rome Italy 22nd ICCE, 15-20 July 2012. CCE meeting Sunday 15 July full day, and evening Wednesday 18 July.

More than 50 people participating in our CCE meeting, several concrete project proposals have been put forward. Thanks to everyone contributing in various ways to create a successful meeting!

**Eva Åkesson, vice chair, Secretary,
August, 2011**

Appendix 1

Reports back from the working groups, priorities for the next biennium:

Rachel: neglecting the gifted future scientist, the very talented ones.

Jan: chemistry Olympiad, getting these students in chemistry students

Mustafa: think about special education, disabled students

Ting: (a): must be revised, how to sustain IYC momentum after 2011

Tony: "Work with partners and stakeholders to engage with school communities around the world in ongoing projects about major chemical issues. Where possible projects will capitalize on social networking resources to engage with students."

Ting: green and sustainable chemistry

Natalia: maybe priority (c) should be priority (a). Goals for CCE should be millennium development goals. Ethics will be more important, (f) should move up in priority.

Richard: leverage more on work in other divisions. CCE be involved earlier on.

Rachel: bridging people culture tolerance together, using chemistry to build bridges among people

Choon Do: world chemistry day, or international chemistry day after IYC

Mustafa: add into (f), perhaps introduce chemistry education as research area.

Maja: (b) priority overall, broad, more suitable as (a). Very important should move up.

Pascal: Multicultural competence, intercultural competence also

Lilliana: (b) concerned that it is a criterion for assessment, open to flexibility

Appendix 2

Reports from break out session

1. Benchmarking learning outcomes – revising proposal Maja Elmgren
Stimulating discussion with many ideas. Want to make a pilot, focus more on process. Work at some chosen university to try this out and develop the method. Want more outside Europe. To make it global.
2. Sustainability and Legacy of Global experiment, sustain IYC projects –
Work with partners and stakeholders to engage with school communities around the world in ongoing projects about major chemical issues. Where possible, projects will capitalize on social networking resources to engage with students.

Soon Ting Kueh, Tony Wright, Erica Steenberg, Julia Hasler

- How to use data further (TSK) – what are implications of data?
 - Reflection on results (ES)
 - IYC was experiential, but it should now be explored further.
 - Social implications
 - Economic implications
 - Environmental implications
 - Broadening and deepening existing experiments.
 - Adding to bank of experiments slowly.
 - Water testing – simplify methods, release additional experiments over time
 - Dissolved oxygen/turbidity?
 - World Water Monitoring Day – different themes every year/UNESCO collaboration
 - Report on GWE to be written - to be lead by UNESCO and IUPAC
 - Get information from European SchoolNet – do we have access to this information?
 - Sustaining the partnerships-
 - Incentive for continued engagement?
 - Partnerships are not necessarily those with corporates, but partnerships within IUPAC, UNESCO.
 - School data bank, teachers
 - Experimental Protocols
 - Social networking experiences
 - Product of Global Experiment – poster of schools by Closing Ceremony
3. FCP-revision Mei –Hung
Mei-Hung, Lida, Christine Hernandez (young observer), Masahiro Kamata, Mustafa, Rachel, Zuriati Zakaria, Mort Hoffman

Happy with name

Project proposal will be prepared

Sustainability of FCP: Future direction--- evaluation of the impact
Generated some indicators to evaluate the effectiveness of FCP
* project initiated, plans addressed in the proposals,
* if the ideas are repeated, whether or not they are adopted in the system.
In other words, whether or not there are follow-up invitations on a similar activity (hosted by the country), or running the similar workshops/activities again with the teachers trained under the FCP)

Strategy

questionnaire (for participants and students, and the organizing committee), any improvement ?, including a set of criterion

How to do publicity?

- FB, social media,
- A need to have official website (part of IUPAC or CCE website (IUPAC website needs to be improved),
- UNESCO,
- universities,
- personal contacts,
- NR,

Database of Resource persons with expertise (including TM, AM, NR, and members of divisions of IUPAC) that could be provided to the host countries

4. Project idea proposal: Periodic table of Life Dan Rabinovich
No group
5. Isotopic periodic table Norman Holden, Bob Loss, Peter Mahaffy
Morton Hoffman and Peter Mahaffy included in the project group
Produce a print version of the IPTL, this version will be interactive
Project proposal almost ready. Referred to the CCE project group.
6. Chemical Biology by division III, Choon Do, Mary Carson, Krishna, Lilliana.
Will send a concept paper to CCE.