

# TECHNICAL ACTIVITIES COMMITTEE, Report 2010-11

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## INTRODUCTION

This report was discussed during the Working Bureau Meeting and presented to the Executive Council during the London IASS Symposium. It was also be presented during the plenary TAC session at the beginning of the Symposium.

## 1 GENERAL COMMENT

### 1.1 Introduction

This year a specific mention has to be made for the participation of working groups for the Jubilee Book. Members of working groups contributed to many chapters, mainly for Part II.

According to our policy, the working group reports are available on the associated web pages, and significant improvements occurred during this year. Dynamic and continuous updating is a key point for advertising working group activities, knowing that the public part will also be illustrated by photos provided in a very next future.

### 1.2 IASS Policy on Technical Activities

The IASS Policy on Technical Activities was initially approved during the IASS Symposium in Acapulco (2008). This policy has been revised during the London Symposium, and it constitutes one appendix of the Guidelines for Organizing and conducting IASS Symposia.

Two points of this policy need to be underlined:

- As usual, each WG was asked to send an **annual report**. It is a matter of fact that most of chairs could this year update themselves their webpage.
- **Organization of a session during the annual Symposium (OS)**. These sessions are very useful not only for giving a taste of the latest developments in the field of the WG, but also to attract new members and relevant experts. This year 10 sessions have been organized by the working groups, comprising 67 lectures.

### 1.2 Technical Activities Committee Session

In order to underline the importance of the working groups in our association, a specific plenary session (TAC session) took place at the beginning of the symposium. Several objectives motivate this initiative:

- Improvement of the knowledge of our association for the delegates
- Presentation of the website, and working group web pages
- Expression of working groups that could not organize a session in London (WG1, WG4, WG19). The chair of WG4 participated to this session and had the opportunity to present the activities of the group Masts and Towers with mainly a report on the colloquium held in September.
- Identification of the organized sessions for delegates who could be interested by one or more of them.
- Information on the Journal of the IASS

### 1.3 Working group websites

We try to have an homogeneous presentation of the web pages, while keeping their specificities. Administrators of the website offered recently new improvements, and it is possible for Working Groups chairs to use them so as to offer a better presentation. All IASS members have access to these Web Pages. It is anticipated to have a shortened presentation of working groups for non IASS members, in the public part. Some photos will be available so as

to illustrate the contents of the working groups' activities.

The main sections in the web pages are:

- In a first set, three sections: “**Mission**”, “**Background**” and “**Current Objectives**”. These sections are brief, further information on “Background” appear in the last part of the webpage “**Documents and Links**”
- The second set begins with an information of the last updating date, and contains a section on “**Activities**” (the period covers the activities since the preceding symposium, and includes those developed for the coming symposium until its beginning), and one of “**Future Anticipated Activities**” (The period may cover several years according to the working group project).
- A third set is devoted to “**Membership**”: it begins by a “call for joining” the working group. The following list contains only IASS members. An additional list of non IASS members can be attached as document at the end the web page. Since the webpage is not completely visible by non-members, several possibilities have been suggested to chairmen so as to make this “call for joining” by other means (flyers to be distributed during the symposia).
- The two last sections concern “**Documentation**” and “**links**”. It is possible for IASS members to download documents previously attached by the chairs as resources, and to benefit of useful links to other websites. Working groups are encouraged to use this possibility. Chairs have also been asked to produce a flyer related to their working group. It is soon operative for some WG.

Every chair has the rights for updating the working group webpage, with the possibility to ask for help either the TAC chairman or the secretariat. The IASS website is an ideal tool to distribute information to all members. Working groups are encouraged to send to the secretariat any information that can be published under “**News**”: all

members of the association could have a clear view of the calendar of coming events that are related to Shell and Spatial Structures.

#### 1.4 Activities of working groups

Organization of sessions during the annual Symposium is essential, but according to their specificities, working groups activities can include other matters such as:

- Organization of scientific meetings. Some of the working groups hold regular colloquia and international seminars. This year WG 4 (Masts and Towers), WG 8 (Metal Spatial Structures), WG 15 (Structural Morphology). WG 13 (organized a session at the 7<sup>th</sup> International Seminar on Structural Morphology), WG 18 (Environmentally Compatible Structures) held a colloquium or a seminar.
- Preparation of reports and state-of-the-art reviews of fields related to the WG, like those published in previous years (for example “Structural design of Retractable Roof Structures” by Kazuo Ishii).
- Preparation of guidelines
- Analysis of real cases.
- Publication of scientific papers in the Journal of the IASS and other international journals.
- Special Issues of the Journal of the IASS. WG 5 edited a special Issue on Heinz Isler
- Organization of special sessions in other scientific meetings.
- Publication of newsletters.
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#### 1.5 Working group membership

If we read our statutes all members of a WG should be members of the Association.

#### ARTICLE 22

The Executive Council may from time to time create Working Groups as described in Article seven of the Statutes. Each

Working Group shall consist of members of the Association and shall be presided over by a Chairperson appointed by the President. Each Working Group shall report to the Executive Council in writing or on website once a year. The report of the investigations of each Working Group shall be submitted to the Executive Council who shall have the right to approve or disapprove the publication of such report under the auspices of the Association.

Non IAASS members who are interested by working group activities can be accepted. The objective is to encourage them to join our Association, by explaining the advantages attached to membership: reduced fees for symposia, access to the totality of website, reception of the four annual Issues of the Journal of the IAASS.

The case of geographical concentration in the working group membership is generally justified by local dominant interest for the field: it is for instance the case for WG 4 “Cooling Towers”, and WG 8 “Metal Spatial Structures” (particularly for earthquakes studies). Financial considerations for

the organization of meetings and colloquia also explain this aspect. But all the groups make significant efforts to enlarge their membership: new co-chairing can help this geographical extension of membership, expression of the international character of the association. This was true for instance for WG 6 “Tension and membrane structures”: two new co-chairs are been chosen so as to cover Europe and USA.

Most of working groups have between **20** and **25** IAASS Members.

## 2. COMMENTS ON WORKING GROUPS REPORTS

Besides the organization of sessions in London symposium that were presented in section 1.2, some specific comments may be enhanced for each of the active working groups. Details appear on the website. Contributions to Jubilee Book are not presented, they appear in the book itself.

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| <p><b>WG 1 Tanks and Silos</b></p> <ul style="list-style-type: none"> <li>• Professor Michaël Rotter could not organize a session in London. He contributed to the Jubilee book. WB and EC will study his proposal for WG reorganization in two years.</li> </ul>   | <p>Prof. Dr. J. Michael ROTTER (Chair)</p>  |
| <p><b>WG 3 Cooling and Solar Updraft Towers</b></p> <ul style="list-style-type: none"> <li>• The new name for this working group was accepted in Shanghai.</li> <li>• Specific action is developed for extending the membership outside Europe.</li> <li>• This group participates to many international scientific meetings, and contributes to the writing of codes.</li> <li>• It will organize the 6<sup>th</sup> International Symposium on Cooling Towers in Cologne in 2012.</li> <li>• WG 3 organized a session in London.</li> <li>• Current membership : <b>15</b> IAASS Members</li> </ul> | <p>Prof. Dr.Eng Reinhard HARTE (Chair)</p>  |
| <p><b>WG 4 Masts and Towers</b></p> <ul style="list-style-type: none"> <li>• Arranged the 25th meeting in Copenhagen, September 2011.</li> <li>• Encourage the Members of the Working Group to be members of the IAASS</li> <li>• Eng. Ulrik Stottrup-Andersen took part to Tuesday TAC session in London, presented its working group and the report of the meeting held in Copenhagen.</li> <li>• Current membership : <b>25</b> IAASS Members</li> </ul>   | <p>Eng. Ulrik STOTTRUP-ANDERSEN (Chair)</p> |

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| <p><b>WG 5 Concrete Shell Roofs</b></p> <ul style="list-style-type: none"> <li>• Helped organize and co-edited a special issue of the J. IASS (Vol. 52, No. 3, n. 169, September 2011) to coincide with the Session in Memory of Heinz Isler at the IASS Symposium in London (co-editors J. Chilton and J. Abel)</li> <li>• Posted on this website the now-completed first drafts of Chapters 2 through 6 of the State-of-the-Art Report and began seeking reviews and suggestions from all WG members on them.</li> <li>• Specific plans in place include sessions at IASS-IACM (Sarajevo 2012), IASS-APCS (Seoul 2013) and IASS (Wroclaw 2013)</li> <li>• Plan, organize and edit a special Issue of the J. of IASS on the works of P.L. Nervi (co-editors J. Abel and M. Chirorino)</li> <li>• WG 5 organized a session in Shanghai and London.</li> <li>• Current membership : <b>25</b> IASS Members</li> </ul>   | <p style="text-align: right;">Prof. John ABEL (Chair)</p>              |
| <p><b>WG 6 Tension and Membrane Structures</b></p> <ul style="list-style-type: none"> <li>• Marijke Mollaert (Blegium) and Ron Shaeffer (USA) were appointed as co-chairs by the President, enlarging the representation of these activities in Europe and USA.</li> <li>• WG 6 organized a session in Shanghai and London.</li> <li>• Current membership : <b>27</b> IASS Members</li> </ul>  | <p style="text-align: right;">Prof. Dr. Ken'ichi KAWAGUCHI (Chair)</p> |
| <p><b>WG 8 Metal Spatial Structures</b></p> <ul style="list-style-type: none"> <li>• The activities of this working group can be summarized with two “key expressions”: buckling and dynamic issues. The WG is finalizing the report for buckling analysis and develops his action for dynamic and earthquake analysis.</li> <li>• Held a mini-domestic symposium based on the recently published review book with the title “Buckling and Strength of Lattice Shells“ ( in connection with the Shell and Spatial Structures Committee of the Architectural Institute of Japan )</li> <li>• Publications of state-of-art reports for “Buckling” and “Earthquake Response” at IASS 2012 in Seoul and for IASS Journal.</li> <li>• Setup groups depending on the anticipated content toward preparing structural guidelines for design and construction of Latticed Roof Metal Structures (as a tentative title). The content is tentatively planned to have two parts: (i) Anti-buckling design and (ii) Seismic design.</li> <li>• WG 8 organized several sessions in Shanghai and London.</li> <li>• Current membership: <b>16</b> IASS Members.</li> <li>• Specific action will be developed for extending the membership outside Asia.</li> </ul> | <p style="text-align: right;">Prof. Dr. Shiro KATO (Chair)</p>         |

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| <p><b>WG 12 Timber Spatial Structures</b></p> <ul style="list-style-type: none"> <li>• Ongoing work on “state-of-the-art” report</li> <li>• Specific action will be developed for extending the membership outside Europe.</li> <li>• Professor Minjuan He, who organized the WG session in Shanghai was appointed as co-chair by the President</li> <li>• WG 12 organized a session in Shanghai and London.</li> <li>• A special Issue of the J. IASS on Timber Spatial Structures is scheduled for 2012.</li> <li>• Current membership: <b>21</b> IASS Members.</li> </ul>   | <p>Prof. John CHILTON (Chair)</p>       |
| <p><b>WG 13 Computational Methods</b></p> <ul style="list-style-type: none"> <li>• Organizes a session at the 7<sup>th</sup> International Seminar on Structural Morphology (September 2011, London)</li> <li>• WG 13 organized a session in Shanghai and London.</li> <li>• WG 13 will organize a session on Beams and Rods in the 2012 IASS-IACM Symposium at Sarajevo..</li> <li>• Current membership: <b>25</b> IASS Members.</li> </ul>   | <p>Prof. Dr. Hiroshi OHMORI (Chair)</p> |
| <p><b>WG 15 Structural Morphology</b></p> <ul style="list-style-type: none"> <li>• Established five “current study groups”: Transformable Structures – Adaptive Formworks – Computation and Geometry – Origami – Curved Surface Structures</li> <li>• Organizes the 7<sup>th</sup> International Seminar on Structural Morphology (September 2011, London)</li> <li>• A special Issue of the Journal of IASS, based on selected papers delivered during the seminar, is scheduled for 2012.</li> <li>• WG 15 organized a session in Shanghai and London.</li> <li>• Current membership: <b>51</b> IASS Members.</li> </ul> | <p>Andrew BORGART (Chair)</p>           |
| <p><b>WG 17 Historical Structures</b></p> <ul style="list-style-type: none"> <li>• Current objective of WG17 is documenting the early shell structures in each country.</li> <li>• Coupled activity with other groups is encouraged ; a first work is achieved with WG 5 “Concrete Shell Roofs”</li> <li>• The “Archives of the IASS: Actors and Projects” is also a field of interest for this Working Group. Discussions are open between the “ad hoc committee” and the working group.</li> <li>• WG 17 organized a session in London.</li> <li>• Current membership: <b>17</b> IASS Members.</li> </ul>                | <p>Dr. Görün ARUN (Chair)</p>           |

**WG 18 Environmentally Compatible Structures**

Prof. Dr. Ludevit VEGH (Chair)

- Preparation of the Proceedings of the 8<sup>th</sup> Correspondence Seminar dedicated to unification of the theoretical fundamentals and terminology of ECS.
- Preparation of the detached WG 18 seminars. The first detached seminar was organized in Milano by Dr Carlo Monticelli within the SEWC Milano Congress in 2011
- Publication of the textbook "Introduction in the theory of ECS", and of the Proceedings of the 8th Seminar. The aim of the textbook is to initiate discussion and research on problems of the theory of ECS.
- WG 18 organized a session in London.
- Current membership: **5** IASS Members.

**WG 19 Temporary Spatial Structures**

Eng. Tatsuo MUROTA (Chair)

- Works on the guideline of the structural design for temporary spatial structures.
- Contribute a presentation to Plenary Panel Discussion on "Temporary and Permanent Structures" for the IASS Symposium 2010 in Shanghai.
- Current membership: **7** IASS Members.

**3. CONCLUSION**

It appears that this year the first step of the new defined policy for technical activities, organized sessions, has been again quite successful. We could this year improve the updating of the website, by using the new possibilities for editing the page, and by adding more "**Documents**" and "**Links**". The public part will be more effective with photos to come.

It should be noticed that the more recent working groups (Computational methods, Structural Morphology, Historical Structures, Environmentally Compatible Structures, Temporary Spatial Structures), are "transverse" groups. Previous ones were dedicated to specified sub classes of Shell and Spatial Structures. As IASS members we should keep this in mind when we are asked to think on future activities and working groups.

*As chair of this Technical Activities Committee I encourage all working groups*

- To organize specific sessions for the Seoul IASS Symposium in 2012. They should

have done when this report will be published.

- To attract relevant experts,
- To benefit of the possibilities of the website; chairs are invited to update regularly the information
- To extend the scope of their activities beyond session organizations
- To produce state of the art reports, newsletters, scientific papers, guidelines
- To take any the initiatives they consider to be positive
- ...

*As chair of this Technical Activities Committee I encourage all IASS members to participate to working groups*

*See you next year in Seoul!*

*R.Motro*

*TAC Chairman*