

## Secretary-General's Closing Remarks

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### Introduction

Distinguished guests, ladies and gentlemen, dear colleagues and friends, participants to this 11th International Congress on Mathematical Education,

As the tradition has it for events of the International Commission on Mathematical Instruction (ICMI), it is an honour and a privilege attached to the position of ICMI Secretary-General to deliver the closing address of this congress, so to bring ICME-11 to its conclusion. Four years ago I spoke in analogous circumstances at ICME-10, for what I was then regarding as my final closing of an ICME. I used that opportunity to present, in the form of a “personal testament”, some reflections dear to my heart concerning the importance and the ultimate aims of mathematics education. In spite of the central character I attach to such considerations within our collective endeavour, I will not go back to these matters today and refer those interested to the beautiful book of Proceedings of ICME-10, just recently published (see therein, pp. 538-549).

Circumstances unforeseen at the time of ICME-10 have had as a consequence that I am given the unique privilege of speaking at an ICME closing session for a third – and definitely last – time. My aim today is mainly to report and reflect on some major changes that have recently taken place in the life of the Commission, changes that can be seen as manifestations of the very positive evolution of ICMI as an institution in the recent past. I will also present some new projects recently launched by ICMI or still under development.

But before doing that, I wish to emphasize how essential to the organisational success of a huge event such as an ICME congress are the commitment and contribution of many many individuals, especially at the local level. My very first words are directed to all the Mexican colleagues who have made this important quadrennial event possible and who have welcomed all of us here with their warm and friendly hospitality. Speaking of warmth, we are even suggested by weather aficionados that by coming to Monterrey in July, many of us from abroad could perhaps have eventually perceived the hotness of the local welcome as possibly a bit too intense — at least in terms of actual Celsius degrees... But thanks to the rain that cooled off the first days of the congress, it was kept just at the ideal level.

On behalf of the ICMI community, and in particular of the Executive Committee of the Commission, responsible for the choice of the countries hosting ICME congresses, I thus want to express our deepest appreciation and gratitude to all our friends from México who have devoted time and energy towards the success of this extraordinarily complex gathering. The number of people involved in the various committees and sub-committees of the organizational infrastructure of ICME-11 makes it impossible for me to mention all of them here, and many have worked anonymously to the majority of the congress participants. But they should all be assured that their dedication and efforts have not remained unnoticed. Please join me in thanking the entire team that hosted us at ICME-11.

An important support to ICME-11 was also provided by colleagues from other countries. I invite you for instance to look into the book of the congress programme for the list of the members of two important external committees of ICME-11, the International Programme Committee and the Ibero-American Committee. But going back to Mexican contributors, it is most appropriate to explicitly mention here the members of the Local Organising Committee, in charge the logistic arrangements and the financial management of the congress:

Esmeralda J. Chávez Verduzco  
 Alejandro J. Díaz Barriga  
 Patricia Martínez Moreno  
 Ubaldo Ortiz Méndez  
 Marcela Santillán  
 Edgar Becerra  
 Azahel Ramírez  
 Dilia Saldívar, and of course  
 Carlos Signoret, Chair of the LOC

I also want to express special thanks to some Mexican colleagues with whom the ICMI Executive has been in frequent contacts over the past months and years, and especially during the intense days of the congress week: besides Marcela, Alejandro, Carlos, Esmeralda and Edgar already mentioned, I wish to add

Perla A. Chávez Verduzco  
 Silvia Alatorre  
 Natalia de Bengoechea, and  
 Dilia Saldívar

Moreover, I want to express my gratitude to a very special team that has played a truly significant role in the daily progression of the congress and helped us feel supported in our to-ings and fro-ings around the campus of the Universidad Autónoma de Nuevo León. I have in mind here the kindhearted guides who were standing at strategic points on the campus and guided us when moving from one building to another, or from one room to another. This has proved to be an important and welcomed ingredient of the Mexican hospitality. You have all recognised that I am speaking here of the students wearing the famous sky-blue polo shirts that could be seen almost everywhere on the congress site. I must add that I am myself extremely proud of the fact that I have been made an honorary member of the sky-blue polo squad — although I am surely not the best qualified person to help you in your wanderings around the campus of UANL.

Finally I wish to thank the authorities of the Universidad Autónoma de Nuevo León, a remarkably convenient place for a congress such as ICME-11, for their hospitality in having hosted the congress on their campus and having allowed the construction of rather exceptional temporary settlements that were essential for a congress of the size of an ICME.

As was just mentioned by the Chair of the Programme Committee, the Mexican organisers have accepted the responsibility of fostering a more balanced participation to ICME-11 by adhering to the tradition established at ICME-8, held in Sevilla in 1996, of forming a solidarity fund on the basis of the registration fees collected for the congress. Our Mexican hosts are especially to be commended as their commitment of devoting at least 10% of the registration fees to the ICME Solidarity Fund was made at time when the exact number of participants to be registered was still unknown. This provided for an amount of 177 300 USD which, combined to a grant of 35 000 USD received from NCTM (USA), allowed to offer partial support to more than 150 participants from 41 non-affluent countries. The distribution of the money generated for the Fund was made by a Grant Committee, jointly appointed by the congress organisers and the ICMI Executive Committee and which, as is customary, has worked autonomously and anonymously in order to minimize potential problems of pressure.

## **About ICMI**

I now move to another part of my presentation in which I will present various aspects of the life of ICMI as an organisation. If it so happens that I move too quickly among the following pieces of information, more can be found in the June 2008 issue of the *ICMI Bulletin*, now accessible on the ICMI website.

***a) The ICMI General Assembly***

The most important element in the recent events around ICMI is undoubtedly the General Assembly of ICMI that was held precisely a week ago, on July 6, on the day prior to the opening of the congress. This was truly an historical moment, as for the first time the Executive Committee (EC) of ICMI was elected by the General Assembly of ICMI, instead of that of the International Mathematical Union (IMU), as had been the case up to now. This extraordinary development is the result of discussions concerning a new procedure for the ICMI election and held between the Executives of both ICMI and IMU. The basic agreement on this new scheme was reached while IMU President John Ball was attending the ICMI Executive meeting during the previous ICME held in Copenhagen four years ago.

I wish to use this opportunity to comment briefly on the exceptional quality of the links that now exist between ICMI and its mother organisation, the International Mathematical Union. In recent years the relation between ICMI and IMU has indeed evolved very positively, after certain periods of dormancy and even at times profound distance. This improvement is for instance reflected through the presence at the recent ICMI Executive meeting and at this congress of two members of the IMU Executive Committee, Manuel de León and Cheryl Praeger. It can also be seen in the regular participation of the ICMI President and Secretary-General to meetings of the IMU Executive Committee, as well as to the IMU General Assembly as observers, or in joint ICMI/IMU initiatives such as the Pipeline or the Klein projects, of which I will say more later. The recent election at the ICMI General Assembly of the next ICMI EC is obviously part of this increased mutual trust between ICMI and IMU.

I am thus pleased to announce that the 2010-2012 Executive Committee of the International Commission on Mathematical Instruction, elected by the 2008 ICMI General Assembly, is composed as follows:

***PRESIDENT:***

*William (Bill) Barton (New Zealand)*

***SECRETARY-GENERAL:***

*Jaime Carvalho e Silva (Portugal)*

***VICE-PRESIDENTS:***

*Mina Teicher (Israel)*

*Angel Ruiz (Costa Rica)*

***MEMBERS AT LARGE:***

*Mariolina Bartolini Bussi (Italy)*

*Sung Je Cho (Korea)*

*Roger Howe (USA)*

*Renuka Vithal (South Africa)*

*Zhang Yingbo (China)*

Because of the shift in the year of the election, while passing from the IMU to the ICMI GA, the term of this Executive will exceptionally be for only three years – as is the case as well for the current EC –, starting on January 1, 2010. The regular four-year terms will resume with the 2013-2016 Committee to be elected in 2012 at the ICME-12 General Assembly.

As remarkable as it may be, this most significant expansion in the duties and responsibilities of the ICMI General Assembly carries with it a radically increased need for a robust representativeness of the GA delegates and, consequently, for reliable and sustainable links

between ICMI and its member countries. It is in that spirit that four ICMI member countries, France, Korea, South Africa and USA, were invited to present at the recent Assembly the infrastructure developed in each of these countries to support the links with ICMI. A report on these four success stories will appear in the December 2008 issue of the *ICMI Bulletin*. While the models presented vary a lot from one country to the other, it is the hope of the ICMI Executive that they could serve as possible inspirations to those countries where the official contacts with ICMI are rather fragile, indeed almost inexistent in some cases, or countries which would aim at reinforcing their local infrastructure, for example via the establishment of a so-called ICMI Sub-Commission.

### **b) The celebration of the ICMI centennial**

Another important recent event in the life of ICMI was the very successful celebration of its centennial at a symposium held last March in Rome, the birthplace of ICMI, at the invitation of our Italian colleagues.

Das Jahr 2008 bedeutet den hundertsten Geburtstag von ICMI, oder besser von IMUK — die *Internationale Mathematische Unterrichtskommission* wie sie damals genannt wurde, zusammen mit ihrer französischen Bezeichnung CIEM — *Commission internationale de l'enseignement mathématique*. Dies waren Jahre, in denen der Gebrauch mehrerer Sprachen — vorrangig europäischer Sprachen, wie ich gleich hinzufüge — in internationalen wissenschaftlichen Treffen üblicher war als heute.<sup>1</sup>

Bereits im Jahr 2001 hat das ICMI-Präsidium erste Kontakte zu italienischen Kollegen hergestellt, um die Durchführbarkeit des Gedenksymposiums in Italien zu prüfen, dem Land, das das Ereignis organisiert hat, bei dem die offizielle Geburt erfolgte. Wir waren sehr erfreut über die begeisterte Reaktion auf diesen Vorschlag sowohl in der Gemeinschaft der Mathematiker wie der Mathematik-Didaktiker in Italien. Das wissenschaftliche Programm stand unter der Verantwortung eines Internationalen Programm-Komitees unter der Leitung von Ferdinando Arzarello. Eines der Ziele des Symposiums im März dieses Jahres in der Accademia dei Lincei, dem tatsächlichen Geburtsort von IMUK, war es, eine angemessene Balance zu erreichen zwischen der Behandlung historischer Ereignisse, die die Entwicklung von ICMI gekennzeichnet haben, und einer anregenden Reflektion über vergangene und zukünftige Beiträge von ICMI für die Mathematik-Didaktik.<sup>2</sup>

Ein höchst interessanter Hauptvortrag dieses ICME-11 Kongresses war der von den vier italienischen Kollegen Ferdinando Arzarello, Livia Giacardi, Fulvia Furinghetti und Marta

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<sup>1</sup> The year 2008 marks the centennial of ICMI, or rather IMUK — die *Internationale mathematische Unterrichtskommission*, as it was known in those days, together with its French acronym, CIEM — la *Commission internationale de l'enseignement mathématique*. Those were years when the use of many languages in international scientific gatherings, mostly European languages I hasten to say, was more predominant than may be the case today.

<sup>2</sup> As far back as 2001, the ICMI Executive Committee established preliminary contacts with Italian colleagues so to explore the feasibility of celebrating the centennial of the Commission in Italy, the country that hosted the event having witnessed its official birth. And we were very pleased by the enthusiastic reaction to this suggestion among both the Italian communities of mathematicians and of mathematics educators. The scientific content of the centennial symposium was under the responsibility of an International Programme Committee chaired by Ferdinando Arzarello. One of the aims of the symposium hosted in Rome last March in the home of the Accademia dei Lincei, the very birthplace of ICMI, was to achieve an adequate balance between the consideration of historical events that marked the life of ICMI and an inspiring reflection on the past and future contribution of ICMI to mathematical education.

Menghini gegebene. Dieser Vortrag enthielt sowohl einen Bericht über das Symposium in Rom und einen historischen Abriss über Aspekte der Entwicklung von ICMI wie er sich aus vor kurzem unternommenen Studien in den Archiven von IMU und ICMI in Helsinki ergibt. Ich freue mich berichten zu können, dass die Proceedings des Geburtstags-Symposiums sehr bald erhältlich sein werden und dass ein beträchtlicher Rabatt den Teilnehmern dieses Kongresses gewährt wird.<sup>3</sup>

On the occasion of the celebration of the ICMI centennial, a website on the history of the Commission, was launched, under the direction of Fulvia Furinghetti and Livia Giacardi. The aim of the website is to offer elements that allow to delineate the full history and some important features of ICMI. Components of this historical website are: a *Timeline*, listing moments in the history of ICMI together with the references to the sources of information; a section devoted to *Documents*, providing direct access to historical documents and people; a section of *Interviews and Film Clips* with important chief characters in the life of ICMI; and a *Portrait Gallery*, containing the biographic cameos of the ICMI officers and of the honorary members who have passed away in the first hundred years. This wonderful project is still under development.

### **c) Communication with the ICMI community**

Other important developments in the recent life of ICMI are actions towards the improvement of the communication between ICMI and the community it serves. On the one hand I am pleased to report that the process of revamping the ICMI website, long overdue, is now essentially completed. It is the objective of the ICMI Executive Committee that the improved website will be a much more efficient and regularly up-dated channel of communication. A substantial section of the new site will also be devoted to the downloading of documents resulting from the ICMI activities, including the ICMI Study volumes. The website will also make accessible in a prominent place precise instructions on how to obtain the substantial discount of 60% on the ICMI Study volumes accessible to all the members of the ICMI community. As a parenthesis about the volumes appearing in the New ICMI Study Series (NISS), I am happy to report that the Executive has successfully completed during this congress the negotiation with the main education editor at Springer for the renewal of the contract for the NISS series. The new contract will allow free access via the ICMI website to all the Study volumes three years after their publication, while maintaining the 60% discount to those who prefer to obtain a physical copy of the book.

The ICMI Executive was hoping that this closing lecture would be the occasion for the official launching of the new ICMI website. However the recent decision of ICMI to move the programming environment to the web content management system Typo3 has provoked a small additional delay – this change is the result of modifications brought to the IMU server where the ICMI website is hosted. The new website will be accessible in a near future and an official announcement will be sent via the ICMI Representatives and also published in *ICMI News*.

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<sup>3</sup> A most interesting regular lecture was presented at this ICME-11 congress by the four main Italian colleagues involved in the centennial project, Ferdinando Arzarello, Livia Giacardi, Fulvia Furinghetti and Marta Menghini. This lecture covered both a report about the Rome symposium and a historical account of aspects of the life of ICMI unveiled through a most recent study of the IMU/ICMI archives hosted in Helsinki. I am pleased to report that the proceedings of the centennial symposium will be available very soon and that a very substantial discount is offered to the participants at this congress.

This leads me to another recent development with regard to communications, namely the launching merely a few months ago, in December 2007, of *ICMI News*, the electronic newsletter of ICMI. This bimonthly information letter is currently distributed to some 1000 subscribers, including 200 to a Portuguese version. Information on how to subscribe to *ICMI News* is available on the ICMI website.

Así, el ICMI tiene ahora a su disposición cuatro herramientas distintas para difundir información sobre la Comisión, su misión, sus acciones, sus programas de actividades y sus publicaciones:

- *L'Enseignement Mathématique*, el órgano oficial de ICMI,
- el *ICMI Bulletin*, cuya publicación es semestral,
- la página web, que será próximamente rediseñada,
- y el *ICMI News*, medio recientemente creado para una comunicación rápida, eficiente y breve

De manera conjunta, estos canales de comunicación contribuyen al cumplimiento de varios propósitos del ICMI, como es la necesidad formal de un registro histórico, reportes detallados sobre algunas actividades importantes, breves anuncios acerca de sus próximas actividades y la disponibilidad en línea y permanente de diversos documentos.<sup>4</sup>

Además de la naturaleza particular de los canales a través de los que se transmite la información, existe otro aspecto crucial para la eficiencia y calidad de la comunicación dentro y fuera del ICMI: el vehículo lingüístico utilizado. Nos alegra mucho observar que el lanzamiento del *ICMI News* estuvo acompañado, gracias a los esfuerzos de su editor Jaime Carvalho e Silva, de una versión en portugués, que se logró gracias a la colaboración de varios miembros de la comunidad portuguesa. Recientemente me han dicho que existen proyectos similares en otros idiomas, incluido el español. Sin duda alguna el ICMI desea que el *ICMI News* tenga mayor difusión de esta forma.<sup>5</sup>

Aun cuando los cuatro canales de comunicación mencionados funcionan casi exclusivamente en inglés, el Comité Ejecutivo del ICMI comprende perfectamente la necesidad de disminuir las barreras lingüísticas para aquellos colegas a quienes trabajar en inglés obstaculiza su plena participación en las discusiones sobre temas educativos, ya sea oralmente o por escrito. Aún así, probablemente sea muy difícil regresar al pasado multilingüe en el origen de ICMI, cuando el francés, el alemán y el inglés eran usados de manera equiparable — cuando menos a juzgar por las correspondencias y reportes del ICMI de aquel tiempo.<sup>6</sup>

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<sup>4</sup> Thus, ICMI now has at its disposal four different tools to disseminate information about the Commission, about its mission, actions, programmes of activities, and publications:

- *L'Enseignement Mathématique*, the official organ of ICMI,
- the *ICMI Bulletin*, published twice a year,
- the website, soon to be revamped,
- and *ICMI News*, the recently created means for prompt, efficient and brief communication.

Collectively these channels of communication serve a variety of purposes, from formal archival needs to detailed reports on some aspects of the life of ICMI or short announcements of activities to come, including the permanent online availability of ICMI documents of all sorts.

<sup>5</sup> Besides the precise nature of the channels through which information is conveyed, another crucial aspect of the quality and efficiency of communication about and inside ICMI concerns the linguistic vehicle thus used. It is of great interest to see that the launching of *ICMI News* was accompanied, thanks to the efforts of its editor Jaime Carvalho e Silva, by a Portuguese version, achieved through the collaboration of several members of the Portuguese community. I was recently told of similar projects in other languages, including Spanish, and ICMI would of course hope for more of such outreach to happen with *ICMI News*.

<sup>6</sup> Although the four communication channels mentioned above function almost exclusively in English, the ICMI EC is sensitive to the need of diminishing the linguistic difficulties of colleagues for whom working in English

El hecho de que el inglés sea hoy en el mundo el idioma universal, y en particular en el ICMI, no se puede negar; por el contrario deberá ser usado tan eficaz y adecuadamente como sea posible. El aspecto más importante es que nos aseguremos que la preponderancia del inglés como medio de comunicación sea una oportunidad de inclusión, y no genere un predominio o dominación de un grupo lingüístico sobre otros. En mi caso, mi lengua materna es el francés, y soy muy sensible a que el uso del inglés en el ICMI sea decisivamente adecuado e inclusivo, opinión que es compartida también por mis colegas del Comité Ejecutivo. Además, el comité también apoya iniciativas como la red geolingüística “Espace Mathématique Francophone” (EMF), que es uno de los congresos regionales promovidos por el ICMI, y esperamos que pronto se desarrolle una red similar para los países de habla portuguesa. Cuando sucede que el idioma del país anfitrión de un congreso ICME es una lengua compartida por varios países afiliados al ICMI, como lo ha sido en esta ocasión el español en el ICME-11, proponemos e intentamos darle mayor presencia a este idioma durante las actividades del programa.<sup>7</sup>

Far from me to reject the importance and usefulness of English as an international language for communication. The challenge our community is facing is to see how to do this in an inclusive way, for the benefit and progress of all.

#### ***d) A look at some ICMI activities***

This perennial issue of linguistic diversity among the ICMI community leads me to connect to a new Study that ICMI is pleased to announce. The theme of 21st ICMI Study is devoted to the teaching and learning of mathematics in multilingual contexts. The two co-chairs the Study are Maria do Carmo Domite (São Paulo, Brasil) and Mamokgethi Setati (Pretoria, South Africa), and the International Programme Committee is now under appointment. More information will be available early in 2009.

ICMI Study 20 has also recently been launched. Inspired by the success of Study 18 on the teaching of statistics, held last week here at the Instituto Tecnológico y de Estudios Superiores de Monterrey (ITESM) and organised jointly with the International Council for Statistical Education (IASE), ICMI has decided the mounting of another joint study, this time with ICIAM, the International Council for Industrial and Applied Mathematics. Its title is *Educational Interfaces between Mathematics and Industry* and it is chaired by Alain Damlamian (Université Paris XII, France) and Rudolf Sträßer (Justus-Liebig-Universität Gießen, Germany). The call for contributions for this Study should be available by the end of this year and the Study Conference is expected to take place early in 2010.

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can at times be an obstacle to a full involvement in discussions about educational issues, be it orally or in a written form. Still it is probably difficult to go back to what appears to be the multilingual days of the birth of ICMI, when French, German and English seemed to be on almost equal levels — at least judging from correspondence or reports about ICMI from that time.

<sup>7</sup> The fact that English is today’s “lingua franca”, including for ICMI, is not to be denied, and on the contrary must be used as efficiently and positively as possible. The main point is to ensure that such a position of English as a vector for communication is an opportunity for inclusiveness, not one for the preponderance or even dominance of a given linguistic group on others. Having myself French as a mother tongue, I am very sensitive to the issue of an adequate and decidedly inclusive use of English in the life of ICMI, and so are my ICMI Executive Committee colleagues. Moreover, the EC also supports language-related initiatives such as the geolingüistic network “Espace Mathématique Francophone” (EMF), one of ICMI series of regional conferences, and we hope to soon have a similar network intended for Portuguese-speaking countries be developed. When it is the case that the language of the host country of an ICME congress is at the same time an international one shared among various countries, such as Spanish for ICME-11, ICMI also aims at giving more presence to this language in the activities of the programme.

Finally, speaking of ICMI Studies, I wish to remind that the deadline for contributions to ICMI Study 19 on *Proof and Proving in Mathematics Education* has been postponed to next August 31. The conference for that study, as already announced, will be held at the National Taiwan Normal University, in Taipei, in May 2009.

I now wish to report on two special projects that ICMI has recently launched jointly with IMU.

The *Pipeline Project* is a study about issues associated with the supply and demand for mathematics students and personnel in educational institutions and the workplace. The study is coordinated by ICMI at the request of IMU. It also builds on, and is an extension of, the work of the Survey Team at this ICME congress devoted to the topic of “Recruitment, entrance and retention of students to university mathematical studies in different countries” and chaired by Derek Holton. The Pipeline Project aims at providing data for decision-making in different countries as well as promoting better understanding of the situation internationally. At the moment, the following countries are participating in the study: Australia, England/UK, Finland, France, Korea, New Zealand, Portugal, and USA. Members of the project have met and shared their initial findings at this congress, and further data collection and analysis will take place thereafter till the end of 2008. It is hoped that a report on the project will be ready by September 2009, and consideration will then be given to the possibility of extending the project to a next phase. The ICMI EC is represented in this Survey Team by member-at-large Frederick Leung.

The *Klein Project*, first discussed during the 2007 meeting of the ICMI EC as an activity that may help bind the communities of mathematicians and mathematics educators, is still at a rather early stage of conception. Lead by Bill Barton, this project is organised jointly with IMU and intends to revisit one century later the aims and spirit of the famous work of ICMI first president, Felix Klein, *Elementarmathematik vom höheren Standpunkte aus* (Elementary mathematics from an advanced standpoint). Klein’s vision was to provide prospective senior secondary teachers with a book that would lay out the connections between the curricula they would be teaching and research mathematics, and also to present mathematics as a connected and living discipline. The Klein Project pursues similar aims and will disseminate its outcome through a book, a DVD and a website. The Design Team responsible for the project is on the verge of being appointed and should launch its work in the coming months. Comments and input on this project are most welcome.

I will now say a few words about what are doubtlessly the most extensive of the activities of ICMI, the International Congresses on Mathematical Education (ICMEs).

You have just been taking part in the 11th such ICME and it is now time to reflect on it, on the way it was organised, on the ingredients of its scientific programme, or on any other aspect. A new team of collaborators has already started the preparation of the next ICME and you have just received the invitation from the chair of the ICME-12 International Programme Committee, Sung Je Cho. It would be important to provide our Korean colleagues with your observations, concerns and proposals on both the structure and the content of the ICME congresses. You are thus invited to convey your comments and suggestions to me at your earliest convenience, by letter, fax or e-mail. I also wish to stress that the International Programme Committee for ICME-12 is now under appointment. I invite in that connection comments and suggestions, which should reach me by next mid-August at the latest.

With ICME-12 well on its way, it is already time to start thinking of the following congress, ICME-13, to be held in 2016. The ICMI Executive Committee is thus launching to all its member states an official call for bids to host the thirteenth ICME. Declaration of intention of presenting a bid should reach the ICMI Secretary-General by November 2009, while formal bids should be submitted by November 2010. A written call for bids will be presented in the December 2008 issue of the ICMI Bulletin, which will also include indications about the various aspects a bid should address. Those wishing to be informed sooner of those guidelines should contact me.

Finally a brief remark about ICME-10, held four years ago in Copenhagen. The preparation of the Proceedings of that congress has been delayed due to health problems of a key member of the editorial team, but the book was finally published recently and will be sent free to all registered participants to ICME-10. A limited number of copies of the book are also available for purchase via the ICME-10 website. But more importantly the whole 1600 pages of the ICME-10 Proceedings and the accompanying DVD are freely available via the ICME-10 congress website ([www.icme10.dk](http://www.icme10.dk)).

I conclude this part of my report by recalling the four ICMI Awards that were presented during the opening session of this congress: the Felix Klein Award, given to Ubiratan D'Ambrosio (2005) and Jeremy Kilpatrick (2007), and the Hans Freudenthal Award, to Paul Cobb (2005) and Anna Sfard (2007). I am happy to inform you that up to December 31, 2008, members of the international community of mathematics educators will have open access, via SpringerLink.com, to selected works published in Springer journals by these four ICMI medallists. This material represents important milestones in the recent development of the field of mathematics education. More information on this is available on both the ICMI and the Springer websites.

#### *e) Some challenges for ICMI*

As the last component of this glimpse into ICMI, I would like to present some of the challenges that the Commission is now facing.

J'ai parlé précédemment de l'amélioration exceptionnelle, depuis une décennie, des liens qui unissent la CIEM et l'organisme dont elle dépend, l'Union mathématique internationale. Néanmoins cette relation demeure fragile à maints égards et il est essentiel que ces liens deviennent pleinement institutionnalisés, de sorte qu'ils ne reposent pas que sur la bonne volonté de quelques individus qui se trouvent à occuper certains postes de responsabilité à un moment donné. De tels liens doivent devenir partie intégrante de la vie et de la mémoire tant de la CIEM que de l'UMI.<sup>8</sup>

L'amélioration des liens entre l'Union mathématique et la Commission aidera peut-être à régler un défi important auquel fait maintenant face la CIEM en tant qu'institution, à savoir le support administratif nécessaire afin que la Commission puisse remplir sa mission. De plus

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<sup>8</sup> I spoke earlier of the exceptional improvement that we have witnessed over the last decade with regard to the links of ICMI with its mother organisation, the International Mathematical Union. Still much of this relationship remains somewhat fragile, and it is crucial that these stronger links between IMU and ICMI become fully institutionalised, so that they do not depend just simply on the good will of some individuals who happen to have official responsibilities at a given time. Such links must become part of the life and institutional memory of both bodies.

d'un point de vue, la vie de la Commission est devenue beaucoup plus complexe au cours des dernières décennies. Non seulement la CIEM a-t-elle substantiellement augmenté son champ d'activités, mais l'environnement même dans lequel celles-ci se déroulent a singulièrement changé. Il semble difficile de croire que la CIEM puisse maintenir le rythme et la croissance de ses activités et continuer à jouer son rôle sans un support administratif adéquat. Mais la CIEM n'a pas la capacité financière de mettre en place un tel cadre et continue de reposer sur le bénévolat de plusieurs, notamment des quatre officiers de son Comité exécutif. À cet égard un développement fort intéressant s'est récemment produit, alors que l'Exécutif de l'Union mathématique a offert à la CIEM d'être soutenue par un secrétariat permanent de l'UMI actuellement en voie d'être créé. Ce projet n'aboutira pas avant quelques années, mais il laisse clairement entrevoir un environnement de travail plus adéquat pour les prochains comités exécutifs de la CIEM.<sup>9</sup>

Reliée aux commentaires qui précèdent est la question du financement stable et à long terme de la CIEM. Au cours de la dernière décennie, la CIEM a connu un déficit annuel moyen non négligeable. Les réserves de la Commission lui permettent de faire face à une telle situation financière pour encore quelque temps. Mais cela mène clairement à long terme à un cul-de-sac financier, à moins que les revenus de la CIEM ne soient substantiellement augmentés. Il n'est probablement plus possible pour la CIEM de se reposer quasi entièrement sur l'UMI pour lui fournir le cadre financier nécessaire à la réalisation de son programme d'activités et de publications. Le Comité exécutif a lancé une réflexion en vue de définir une ligne d'actions afin de faire face à ce défi financier vital, et il recevra avec plaisir vos commentaires et suggestions.<sup>10</sup>

## Conclusion

This brings me to a most important and pleasant ingredient of this closing session. I now invite ICMI President Michèle Artigue to join me in order to present tangible tokens of thankfulness to four Mexican colleagues who played very special roles over the years in bringing the ICME-11 endeavour to success: first,

Esmeralda Chávez Verduzco  
administrative assistant to the Local Organising Committee,

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<sup>9</sup> The improvement of the links between IMU and ICMI can help resolve an important challenge that ICMI is now facing as an institution, namely that of the administrative support necessary to allow ICMI to fulfil its mission. In many ways the "life of ICMI" has become much more complex over recent decades. Not only is it the case that ICMI has substantially increased its span of activities, but the environment in which all this is happening has evolved dramatically. It is hard to conceive how ICMI may maintain the rhythm and the growth in its activities and continue to play its role without substantial administrative support. Still ICMI obviously does not have the financial capacity to set up such a framework of its own and continues to rely on the voluntary work of many, in particular of the four ICMI EC officers. In this regard, a very positive development occurred recently, when the IMU EC offered ICMI to be supported by the permanent secretariat that the Union is now setting in place. It will still take a few years before this project materialises, but it clearly points to a better working environment for the coming ICMI ECs.

<sup>10</sup> Not entirely independent of the preceding comments is the issue of the long-term financial stability of ICMI. Over the last decade, ICMI has experienced a non-negligible annual average deficit. While the assets of ICMI allow facing this situation for some time yet, it is clear that in the long term this leads to an impossible situation, unless the revenues of ICMI are increased substantially. It is probably no longer possible to rely almost exclusively on IMU to provide ICMI with the financial infrastructure it needs to support its programme of activities and publications. The ICMI EC has started reflecting on possible lines of action to meet this vital financial challenge, and it welcomes your comments and suggestions.

and also the “troika mexicana”:

Alejandro J. Díaz Barriga  
former President of the Sociedad Matemática Mexicana and key member of the  
Local Organising Committee,

Carlos Signoret  
also former President of the Sociedad Matemática Mexicana and Chair of the  
Local Organising Committee, and finally

Marcela Santillán  
Chair of the International Programme Committee.

Well, friends, this brings us to the conclusion of this session. The ICME-11 congress has provided us with an overwhelming richness of presentations and activities of all kinds that stimulated discussion, exchange of views, at times disagreement, or maybe even controversy. But all this is healthy and is a reflection of the development and progress of our field. We found here a most fruitful forum for contacts with colleagues, for meeting old friends and for making new ones. Inspired by remarks from Mogens Niss, my predecessor as ICMI Secretary-General, I like to conclude such an intensive week as the one we just spent at UANL by observing that during the last days, we have clearly worked and discussed a lot, hopefully learned a lot, possibly danced a lot — en particular con el grupo El Tigre — and perhaps not slept a lot. But such are the ICME congresses. ICME-11 has been yet another memorable milestone in the life of the international mathematics education community, and particularly that of Latin America and of México. And our Korean colleagues are eager to welcome us in 2012 for the continuation of our never-ending journey.

It is now my duty to declare the 11th International Congress on Mathematical Education, held in Monterrey from July 6 to 13, 2008, officially closed.

I wish all of you a pleasant journey back home and I look forward to seeing you all again in Seoul, Korea, in July 2012, for the 12th ICME.

Auf wiedersehen! Arrivederci! Good bye! ¡Hasta luego! Au revoir! Seoul e seo man nap si da!<sup>11</sup>

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<sup>11</sup> The author is indebted to Silvia Alatorre and Gert Schubring for their linguistic help with parts of this text.