

**EVALUATION (2004-2005)
OF THE INTERNATIONAL CENTRE
FOR PURE AND APPLIED MATHEMATICS
(CIMPA).**

This is a synthesis¹ of the evaluation reports, which have been written by four international experts² under the joint requirement of UNESCO and the French Ministry of Research. This procedure takes place every two years in the context of the framework agreement between these two partners. At the end of 2001, the evaluation was done by an international committee, under the supervision of P.-L. Lions. The recommendations of this committee have been a guide for the action of CIMPA since then. A lighter evaluation has been conducted by the MSTP in 2004, with the help of four experts. Let us mention that the experts of the present evaluation have been chosen jointly by the two organizations mentioned above. One of the experts has visited the offices of CIMPA and encountered its staff. The evaluation of the other ones is based on all documents on the web site of CIMPA.

The International Centre for Pure and Applied Mathematics (ICPAM/CIMPA) is a non-profit international organization. Its main purpose is to promote higher education and research in mathematics and related subjects, in particular Computer Science, through international cooperation for the benefit of developing countries.

Before entering the evaluation itself, it may be useful to mention the fact that the missions of CIMPA have been redefined in 2006 as listed below by UNESCO and the French Ministry of Research:

1. to hold international workshops relevant to the needs of the developing countries of the region concerned and in partnership with institutions with similar purposes;
2. to provide access to the existing scientific documentation in whatever form and to increase the use of new information technologies;
3. to foster regional networking with a view to increase dialogue and interaction with mathematicians in industrialized countries and the least developed countries;
4. to assist in the creation of graduate and post-graduate training courses, as well as basic training, for future researchers or teachers in mathematics and engineering in developing countries.

Activities 2 to 4, as defined above, correspond to new missions given to CIMPA, while schools and workshops have been the main activity of CIMPA from the beginning. There is an increasing demand of countries from the South in these areas. This had been emphasized by the conclusions of the evaluation in 2001, the main conclusion of which was the excellence of CIMPA action as well as the necessity to considerably increase the annual budget of CIMPA. We shall see how CIMPA has gradually developed the three new missions described above within the same budget. One cannot hope a further extension of its missions without extending its funds and/or the number of permanent employees of CIMPA.

¹ Written by Aline Bonami (directrice scientifique, MSTP).

² The four experts have been chosen jointly by the Department of Research (French Ministry of Research) and UNESCO, among mathematicians of developed countries as well as developing countries.

Although CIMPA's main subsidy comes from the French Ministry of Research, its scientific activities are conducted with a complete independence and do not represent the French scientific policy.

Schools and Workshops

CIMPA's classical activities for the past years can be regarded as very successful: the number of schools and seminars is constantly increasing and lists of organizers and participants prove that CIMPA is internationally well-known. Moreover, the scope of scientific areas has considerably increased and includes now mathematical physics as well as some aspects of computer science. A special effort has been done for applications of mathematics related to development: epidemiology and population dynamics, management of natural resources. This tendency is strongly encouraged. One expert insists on the necessity to maintain part of its activity in fundamental mathematics, especially in Africa.

CIMPA's activities are expanding in terms of countries involved and its influence is increasing across the globe. There is an increasing number of foreigners among organizers of schools. In this context, the new development of activities in Middle East is exemplary. One should also mention the collaboration with many partners (research institutes in France as IRD and INRIA and French Embassies, ICTP, IMU (International Mathematical Union, Foreign academies like UMALCA in Latin America, centers of excellence like CMM (Chile) and IMPA (Brazil), etc.). CIMPA's financial contribution for schools varies between 17 to 50%. In particular, an increasing number of CIMPA events are co-financed by the other partners.

Documentation

The website is very clear and useful for organizers and participants of schools and seminars. The improvement is considerable since the last evaluation process. The initiative for the newsletter which takes stock of CIMPA's activities is well regarded and considered as timely due to the increasing activities of CIMPA each semester (year) and is viewed as very useful.

Notes of courses given in the CIMPA schools are published by Hermann (Paris) or by SMF (French Mathematical Society). Developing countries can buy them at a special prize, which is very low. The agreement with Hermann contains other titles of their collections.

Moreover, CIMPA has concluded an first agreement with Springer for special prizes for these countries on its collection. A new one, with a much larger offer in terms of collections concerned and facilities, is under discussion.

These facts show the interest of CIMPA in documentation for developing countries. Nevertheless, one expert insists on the fact that a lot of libraries are still very poorly equipped, and wishes that CIMPA can undertake more actions in this area.

More modestly, another one suggests that the notes of courses should be all available on the web site before being published.

It should be emphasized that most actions described in this section have started during the last four years, while the budget remained the same. Considering this, the action of CIMPA has been extremely positive within the period under consideration.

Networking

We have seen how CIMPA has developed cooperation with many actors. This is also the case with local actors, which shows that CIMPA has an excellent knowledge of the local situation in most developing countries. It is the case, in particular, in Africa, where a special mention should be given to the network SARIMA, which has received a considerable support from the French Foreign Office (2005-2007). In many places, CIMPA has helped regional networks and activities. Moreover, it plays a central role to encourage centers of excellence for helping close regions that are less developed (such as CMM and IMPA, who play a central role in the development of all Latin America). In this context, its activity is exemplary, even if the needs are still considerable.

Training

It is now generally considered that research and training cannot be separated, especially in mathematics. The action of CIMPA has significantly increased in the direction of training, in partnership with some universities or institutes. One should mention the courses at the master level in Cambodia, as well as training programs in Paraguay. Graduate, post-graduate and basic trainings are significant accomplishments of CIMPA which need to be pursued.

Experts have been particularly interested by possible extensions of actions in this direction, where CIMPA could play a key role due to its expertise. They imagine how to have scholarships given to PhD students who would be selected during CIMPA schools. The students could be sent to larger centers in developing countries (basically to CMM and IMPA, or to India for the Far East), or to developed country. Locally, CIMPA could be involved in doctoral training ("Ecoles doctorales").

However it seems impossible to ask for such an increase of the actions within the present perimeter of CIMPA.

Let us mention that UNESCO is attached to any initiative taken to improve the participation of women in mathematics activities. One expert mentions also this explicitly.

Governance and scientific committee

The choice of the new president and the new structure of the scientific council, which has representatives from various countries (North and South), are extremely significant steps to give an international dimension to CIMPA.

As it was already mentioned in 2001, CIMPA is the unique structure, at the international level, which accomplishes the missions listed above. During the last years, it has acquired a European visibility that was partly missing, and now mathematicians from other developed countries are eager to participate in CIMPA actions, or to collaborate with CIMPA in joint actions targeted to developing countries. Its scientific committee plays a central role for this.

All experts are amazed that CIMPA has been able to have all these activities during the two last years with such a small staff. Most credit should be given to its director, Michel Jambu, who is present on every action and deploys an extraordinary energy on all fronts. The two secretaries and the director share a small office apartment, which is rented in the vicinity of the university of Nice.

The university of Nice intends to propose offices to CIMPA. This would be a considerable improvement. The position of the director (at this moment there are discussions with the university of Nice to clarify the situation) has also to be considered.

Conclusion

It appears clearly that the activities of CIMPA have increased in a spectacular way during the last few years, under the remarkable direction of Michel Jambu. The experts encourage strongly CIMPA in all its actions, with the recommendations that have been given all along this report.

The recommendations of the experts in direction of UNESCO and the French Ministry of Research are very strong. CIMPA is a unique institution, which deserves to be protected. It has now an international visibility, both in developed and developing countries, which is unique. It has an excellent expertise on development of mathematics in developing countries. They should be aware of the fact that, nevertheless, CIMPA remains very fragile because of its funding and its small number of permanent staff.

In 2001, the evaluation committee of CIMPA had written a certain number of recommendations, which involved a considerable extension of its activities. It had in the same time written that its budget should be multiplied by 6. The first series of recommendations have been followed by CIMPA, but the second one has not been followed by the different actors involved in its funding, even partially.

If partnership can help for new activities, it cannot replace proper funding. Moreover, there is a risk that other partners, with less expertise and less ethics but more funds, get progressively more influence, without having the same concern of the interest of developing countries.