



## **Minutes of the 20<sup>th</sup> Resources Review Board Meeting** **Held at CERN on 26<sup>th</sup> April 2006**

### **Present:**

#### *Europe*

M. Sumbera (Nuclear Physics Institute, Prague)  
J.D. Hansen (Niels Bohr Institute, Denmark)  
D-O. Riska (University of Helsinki, Helsinki, Finland)  
P. Rebougeard (CEA-Saclay, France), F. Staley  
B. Erasmus (IN2P3, Paris, France)  
J. Richter (BMBF, Bonn, Germany), D. Müller (GSI, Darmstadt)  
R. Santo (Institut für Kernphysik, Münster)  
E. Gazis (National Technical University, Athens)  
G. Vesztergombi (KFKI-RMKI, Budapest, Hungary)  
A. Bracco, P. Giubellino, E. Nappi (INFN, Italy)  
F. Linde (NIKHEF, Amsterdam, Netherlands), A. van Rijn  
B. Jacobsen (Research Council of Norway)  
J. Królikowski (Institute of Nuclear Physics, Poland), J. Bartke  
F-D. Buzatu (Nat. Inst. for Physics and Nuclear Engineering, Bucuresti, Romania)  
V. Savrin (Ministry of Education and Science, Moscow, Russia)  
A. Sissakian (JINR, Dubna, Russia), A.S. Vodopianov  
A. Sitarova (Ministry of Education of the Slovak Republic, Bratislava)  
A.C. Lagerkvist (Swedish Research Council, Stockholm, Sweden)  
G. Zinovjev (Bogolyubov Inst. for Theoretical Physics, Kiev, Ukraine)  
R. Wade (PPARC, Swindon, United Kingdom), D. Evans

#### *Asia*

C.V. Ananda Bose (DAE, Mumbai, India)  
J-H. Kim (Ministry of Science and Technology, Republic of Korea), C.Y. Choi  
D. Son (Center for HEP, Kyungpook National University, Republic of Korea)

#### *CERN*

J.J. Blaising, J. Engelen (chairman), P. Geeraert, D. Jacobs, C. Jones (secretary), A. Naudi,  
J. Salicio-Diez, E. Tsesmelis, E. van Hove

#### *ALICE*

C. Decosse, H. de Groot, C. Fabjan, H.A. Gustafsson, J. Schukraft, Y. Schutz

## 20<sup>th</sup> Meeting of the ALICE Resources Review Board RRB, 26<sup>th</sup> April 2006

### 1. Introduction

**J. Engelen, Chief Scientific Officer**

J. Engelen welcomed RRB delegates to this 20<sup>th</sup> session of the ALICE RRB.

### 2. Approval of the Minutes of the 19<sup>th</sup> Meeting (CERN-RRB-2005-064)

The minutes of the 19<sup>th</sup> meeting were **approved** without comment. J. Engelen thanked C. Jones for having taken these minutes.

### 3. Status of the Experiment

**J. Schukraft, Spokesperson**

Paper CERN-RRB-2006-036

Presentation CERN-RRB-2006-040

J. Schukraft welcomed the members to the 20<sup>th</sup> in the series of ALICE RRBs, which therefore covered 10 years. He presented the status report of the ALICE experiment.

#### 3.1 Collaboration Organization and News

A new group from Frascati, Italy had been admitted to the Collaboration, and they were interested to work on the new EMCAL project. ISS Bucharest was applying to join, with an interest to work on GRID computing. This application was still under discussion. Lisbon had decided to leave the Collaboration. They were inactive and, as Portugal had not signed the MoU, there were no formal consequences.

C. Fabjan had been re-elected as Technical Coordinator until mid 2008.

A procedure for dealing with failure to pay M&O, very much along the lines chosen by ATLAS, had been agreed by the Collaboration, and could be presented by J. de Groot.

In terms of interaction with the LHCC, they had submitted the second volume of the Physics Performance Report, the first having been submitted in 2003. The Computing TDR was approved by the Research Board in March 2006. In April 2006 they had submitted a technical proposal to the LHCC concerning a new detector, the EMCAL, which they wished to install in ALICE. Finally, the 6<sup>th</sup> Comprehensive Review had taken place in March 2006.

#### 3.2 Funding Issues

Discussions between ALICE and US colleagues, who are heavily involved in RHIC, about joining the experiment have been ongoing since many years. During last December, a very important DoE Review (CD0) was held with a very positive outcome. The US Institutes wish to contribute with an electromagnetic calorimeter which would cover the whole length of the detector and about 1/3 in  $\Phi$ . It would use the electronics and readout from PHOS. The overall scope was of the order of \$10M, with 30 to 50 PhDs and around 10 new institutes. It was however clear that some European participation was necessary and discussions were underway with groups in Italy and France.

The funding for the EMCAL was coming very late and the aggressive time schedule was driven by the physics. They hoped to have it completed for the third heavy ion run in 2010. Construction of time critical items had already started in the US. They hoped to finalize the financial support, in US and Europe, between end-2006 and early-2007. In parallel a technical proposal would be submitted to the LHCC.

In terms of other countries, after a long discussion, the Ministry of Education in China had signed the MoU and this would provide around 1.7 MCHF for the PHOS and for the installation. Discussions were continuing with other Funding Agencies in China. In Germany there was an ongoing discussion how to complete the funding of their Transition Radiation Detector (~5M€), and

the outcome looked positive. In Japan there were several new proposals submitted to participate in the TRD and PHOS and decisions were anticipated by mid 2006 (total scope up to ~\$10M).

### 3.3 Planning

J. Schukraft summarized the current planning. In terms of physics, the initial running would be proton-proton and so they would look at global event properties. This could continue in 2007 and 2008 with detailed studies of QCD at 14 TeV. The first long heavy ion run would be at the end of 2008.

In terms of the work-plan until mid 2007, the ALICE schedule assumed the experiment would be closed by 1 May 2007. With the current LHC schedule, this left 2 months for final commissioning, some small fraction of which could also be considered as “contingency”. This would be revisited in the case that LHC schedule was modified. By the expected start-up configuration in mid-2007 the majority of the detectors would be complete: ITS, TPC, HMPID, muon arm, PMD, trigger detectors (V0, T0, ZDC, Accorde) etc. Some of the modular detectors would be only partially complete: PHOS (1/5), TOF (9/18), TRD (3/9 funded). They expected installation activities would continue beyond mid-2007, notably for parts of the modular detectors (TOF, TRD, PHOS) and also for the EMCAL.

### 3.4 ALICE Detector

J. Schukraft then reported in detail on the status of the ALICE detector, including a number of the latest photographs. This interesting and important information can be found in both the paper and the presentation referenced above and is not further summarized in these minutes.

### 3.4 Summary

J. Schukraft summarized his talk in two points. As major milestones achieved:

- there was a positive review at DOE on US participation in ALICE
- the large structures were now completed
- the ITS assembly was now fully under way
- they had started the TPC commissioning

As major problems remaining or new there were:

- there remained a very tight schedule for the ITS
- SSD & SDD micro-cable production, module & ladder assembly
- SPD accidents
- delay in Muon electronics
- PHOS financing(Japan/Russia)
- Large missing Computing resources (no definite news since last RRB)

### Discussion

J. Engelen thanked the spokesperson for this very clear overview, reporting on very considerable progress. He invited comments both in this presentation and equally points raised in the paper on LHCC Deliberations below.

There being no questions J. Schukraft commented that ALICE did not so much need money at this stage but they needed people to pull cables.

### 4. LHCC Deliberations (paper only)

Paper CERN-RRB-2006-044

LHCC Scientific Secretary, E. Tsemelis

Delegates had no further comments to make and the RRB **took note** of the report of E. Tsemelis

**5. Financial matters**

Paper CERN-RRB-2006-022

**Head, CERN Finance Dept., P. Geeraert**

Presentation CERN-RRB-2006-048

P. Geeraert presented a financial update on the situation as reported in his paper referenced above.

**5.1 Status of Common Fund and C&I accounts**

In the Common Fund they had received additional income of 391 kCHF and made new payments of 1.0 MCHF, which left a balance for the Common Fund account of 4.00 MCHF with 1.6 MCHF of outstanding commitments.

There were outstanding membership fees totaling 162.5 kCHF, although money had now been received from Greece which would reduce this number. The countries owing membership fees were Poland, Armenia, Croatia, Mexico, JINR (Dubna), South Africa, Ukraine, and USA.

Slide 5 showed the money due according to the MoUs, in membership fees and cash contributions. The outstanding amounts until the end of completion of the project amounted to 278 kCHF for the Member States and to 1.57 MCHF for the non Member States. The remaining part would have to be settled before the end of the Project.

**5.2 Status of M&O accounts**

Recent income and expenditure for M&O A amounted to 575 kCHF and 173 kCHF respectively, leaving a positive balance of 958 kCHF MCHF and outstanding commitments of 100 kCHF. Additional M&O contributions had been received from Armenia, Denmark, Finland, France-IN2P3, Germany, Mexico, JINR-Russia, South Africa, Sweden and Ukraine.

Total outstanding contributions at this point of the year amounted to 2.27 MCHF. Taking only contributions prior to 2006, the total outstanding amounted to 410 kCHF. Contributions were owed by Greece (being settled), Poland and the United Kingdom as member states amounting to 169.4 kCHF. For non member states this total was 240.4 kCHF. Contributions were owed by Russia, JINR, and Ukraine.

J. Engelen thanked P. Geeraert for this presentation of the financial facts. There were no questions. The RRB **took note** of the Financial Update.

**6. Construction Budgets**

Paper CERN-RRB-2006-037

**Resources Co-ordinator, J. De Groot**

Presentation CERN-RRB-2006-041

**6.1 Report on 2005 CORE Expenses**

J. De Groot presented the 2005 budget that was agreed at the RRB in October 2004 which amounted to 25.8 MCHF. The actual expenditure in 2005 was a little more than 20 MCHF. He noted that a sum of 122 kCHF spent by Romania had not been included in his paper, and that an amount spent by IN2P3 for the silicon strip detectors needed to be added as well after the meeting.

In terms of cumulative payments made 1997 to 2005, the total amounts to almost 85 MCHF. He showed the same information presented by Funding Agencies and detector systems. He showed this information projected out to 2007, with the cumulative spending approaching 120 MCHF.

**6.2 Update on 2006 CORE Expenses**

He showed the 2006 Budget as agreed by the RRB in October 2005, amounting to 15 MCHF. He felt it probable that some of the actual spending would spill over into 2007.

### 6.3 Status of the Common Fund

J. De Groot showed the status of the Common Fund, C&I Contributions 1997-2005 by Funding Agency, and for 1997 - 2006 up to end of April 2006, including in both cases the interest gained from their positive balance. At the current point there was a bottom line of 2.7 MCHF which still was to be received. They had been in discussion with the Funding Agencies concerned and there was a good understanding in most cases as to when the money would be paid.

He showed the Expenditure against the Common Fund for 1997 until 2005. There had been significant expenditure in 2005. Looking at this information under the different headings it was clear that in some cases essentially all money was spent, whilst little had been spent or committed as yet for the DAQ and Offline.

The Common Fund Balance was a key question and J. De Groot showed the projection of this information, the result of a thorough analysis. The conclusion was that at end-2006 the positive balance would fall from its previous value of around 4 MCHF to essentially zero. The balance at the end of 2007 and 2008 was predicted to be negative by around 440 kCHF. This did not take into account any new members of the Collaboration who would have to contribute.

### 6.4 Preliminary 2007 CORE Construction Budget

J. De Groot presented the preliminary 2007 CORE Construction Budget, which amounted to 9.72 MCHF, by Funding Agency and detector system. This was for information only at this stage.

### 6.5 MoU Addenda

In China three institutes had signed the MoU:

- Huazhong (Central China) Normal University(CCNU), Wuhan
- Huazhong University of Science & Technology(HUST), Wuhan
- China Institute of Atomic Energy(CIAE), Beijing

The Funding Agencies concerned were:

- The China Ministry of Education
- The National Science Foundation of China
- Huazhong Normal University
- China Institute of Atomic Energy

The status was that the document had been signed by the Ministry of Education and three institutes (CERN-RRB-2006-001). He showed the table of contributions concerned.

In the Republic of Korea three institutes were discussing with ALICE:

- Kangnung National University
- Pohang Accelerator Laboratory
- Sejong University

The Funding Agency concerned was the Ministry of Science and Technology of the Republic of Korea. The status was that this was under discussion with ALICE.

### Discussion

J. Engelen thanked J. De Groot for his clear presentation and asked the RRB is there were any questions. J. Engelen noted that for 2005 the budget was larger than the spending. J. De Groot replied that, as usual, some of the spending planned for 2005 was spilling over into 2006. J. Engelen noted that the overall situation seemed to be in hand yet there were some contributions missing. J. De Groot replied that for the Common Fund they had discussed with the Funding Agencies when they were going to pay and had folded this into the foreseen spending profile.

J. Engelen asked whether this meant that there were no institutes left that would not pay their commitments. J. Schukraft replied that there were one maybe two major commitments which currently might not be sure to be fulfilled because they concerned in-kind contributions which seemed difficult to accommodate at this stage. These would leave the Common Fund balance negative by about 1 MCHF. They had 0.5 MCHF in interest and the other half was the 0.4 MCHF which J. De Groot had presented as the foreseen negative situation. They were not spending more than foreseen but they were receiving less. A. Naudi commented that in the end it was probable that everyone would have to contribute to balance the books.

## **7. M&O Budgets**

Paper CERN-RRB-2006-038

## **J. De Groot**

Presentation CERN-RRB-2006-042

### **7.1 Report on 2005 M&O Expenses**

J. De Groot presented a table of the M&O Cat. A invoices/income 2002-2005, correct to the current date, showing the income as a percentage of the invoices by Funding Agency. For the period 2002-2005, 94.4 % had been received. For 2005 this percentage was 83.6 % and for the global period 2002 to date it was 90.0 %.

In terms of 2005 M&O Cat. A expenditure they had spent 91.3 % of the budget. The M&O A Summary 2002-2005 showed, year by year, the income and expenditure. Globally they had spent 86.3 % of the budget. The resultant cash balance at the end of 2005 was 304 kCHF. This matched rather closely the outstanding commitments so the end result was close to zero.

### **7.2 Status of 2006 M&O Budget**

J. De Groot showed the breakdown on the approved M&O budget as shared by the Funding Agencies. Currently they had received contributions for 23 % of the 2.8 MCHF. He reminded Funding Agencies that invoices should be paid within 30 days and asked for their cooperation.

### **7.3 Preliminary Estimates for 2007 M&O Budget**

J. De Groot showed the predicted evolution of the M&O budget 2006-2010, with and without the power bill paid by non Member State contributors. He showed the 2007 Preliminary Budget by Funding Agency for information. The M&O Cat. B table that he showed was somewhat preliminary and they would try to obtain better information within the Collaboration before the October RRB.

### **7.4 M&O MoU signatures**

J. de Groot showed the list of signatures on the MoU for M&O. Amongst the member states Greece had not yet signed. Dubna, Mexico and Russia had also not yet signed.

Finally J. De Groot pointed to his paper on the procedure for dealing with late payment of M&O. J. Engelen felt that the details were a matter for the Collaboration and the RRB was satisfied that such a procedure existed.

## **Discussion**

E. Gazis wished to confirm that the Greek money arrived last month at CERN, and that 96 kCHF had been allocated for ALICE. The M&O fees up to 2005 would be paid, as would most of the Common Fund obligations. Greece expected to make a further payment in June.

There were no further comments or questions.

## 8. Summary, Future Activities & A. O. B. J. Engelen

J. Engelen thanked ALICE for the very clear presentations on the status of the detector and of the financial situation. The overall picture of progress was very good, but the way ahead was still long and the critical period in terms of installation was approaching. They should know much more on the occasion of the next RRB in October.

D-O. Riska wished to ask the spokesperson what plans the ALICE management had for solving the expected deficiency in computing resources. J. Schukraft agreed that this was one of the major worries. This shortfall was about 50% in all resources. He had briefly alluded to this in his presentation pointing out that there was no single magic solution. They were working along three lines. One was to find new resources. Three new sources that were under very serious discussion were US, Korea and Spain. If all went well, this could add 10-15% to their resources. A second line was to try to discuss, with all parties in the LCG, whether a re-balance of resources was possible. ALICE had very cpu-intensive physics. Most Funding Agencies allocated resources on the basis of the number of physicists, or by investment in money. ALICE had a rather low request for beam time but a very high cpu time per event, since the events were so complex. He hoped this could be recognized and could lead to a re-balance. If this could result in a 20% increase, then they would have a shortfall of around 20%. This they would have to try to accommodate either in terms of improved efficiency or by doing less.

J. Engelen noted that the overall picture was such that there was no over-capacity, and so the problem was real. Therefore, near the point of start-up, they would have to evaluate what this shortfall actually meant for the physics potential of ALICE. That was a little difficult to say at the present moment, but if it would become clear that the return on investment would be in jeopardy because of lacking computing resources, then he felt a focussed effort should be discussed at the RRB. He thanked D-O. Riska and J. Schukraft for bringing this to the attention of the RRB.

<p>The next RRB meetings in 2006 will take place at CERN on <b>Monday 23<sup>rd</sup>, Tuesday 24<sup>th</sup> and Wednesday 25<sup>th</sup> October 2006</b></p>
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There being no questions and no further business, the Chairman thanked the participants and closed the meeting.

C. Jones  
June 2006