REPORT ON THE 2001 NSERC SUBATOMIC PHYSICS GRANT COMPETITION

Richard Keeler (Chair)

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1 Introduction

The activities of the NSERC Subatomic Physics (SAP) Grant Selection Committee (GSC-19)for the year 2001 are reported in this document. The chair of each GSC is required to provide a report of the competition to the NSERC Committee on Research Grants (CORG). Since 1997, the SAP GSC also makes its report available to the whole community. The reports will also be used in the next Reallocation Exercise to document the use of funds allocated for specific purposes by the last Reallocation Committee.

The members of this year's committee are:

- Geneviève Bélanger, LAPTH Annecy,
- Sampa Bhadra, York University,
- Pierre Binetruy, Université de Paris XI,
- Peter Blunden, University of Manitoba,
- John Carr, Centre de Physique des Particules Marseilles,
- Rick Casten, Yale University,
- Don Geesaman, Argonne National Laboratory,
- Rolf Heuer, DESY/University of Hamburg,

- Peter Jackson, TRIUMF,
- Richard Keeler, University of Victoria, (Chair)
- Ken Ragan, McGill University,
- Jim Waddington, McMaster University.

The NSERC Team Leader for SAP is Kate Wilson and the Program Officer is Madeleine Bastien. There were three new members of the GSC this year: Geneviève Bélanger, John Carr and Peter Jackson. Four members are completing their term: Rick Casten, Rolf Heuer, Richard Keeler and Ken Ragan.

The report will outline the activities of the committee in chronological order. The budget for the competition week will be discussed including the implications of the debt repayment. The procedures and policies of the competition will be outlined followed by a summary of the results. The remainder of the report will deal with the implications of the competition for the SAP future budget. Finally there will be a discussion of policy and procedures for the Five Year Plan, oversight of large projects, new applicants and observations to NSERC about the process of organizing and executing a grant competition.

2 Review of the 2001 Competition

The GSC activities normally start with a policy meeting in October, followed by site visits, a chairs meeting, liaison meeting and the competition week. This year the chair of the GSC was also involved in the activities of the Five Year Plan Committee (FYPC). A brief description of the FYPC meetings will also be included in this report.

2.1 Policy Meeting and Site Visits

The GSC met in Vancouver between October 15-18. The first day was the annual policy meeting where new committee members were introduced to the scientific programme of subatomic physics in Canada and to the NSERC procedures for grant competitions. Kate Wilson and Madeleine Bastien from NSERC brought the committee up-to-date on new developments at NSERC and on the likely budget situation for 2001-2002. The financial implications

of the GSC-19 envelope and debt repayment schedule were explained. The goals of the Five Year Planning and Reallocation process were discussed.

The GSC broke into two subcommittees on the second day for site visits to the Universities of British Columbia and Victoria. Dr. K. Ragan chaired the University of British Columbia visit. A telephone conference was held with the University of Northern British Columbia. The whole committee reconvened and spent the third day visiting TRIUMF where they also met with faculty from Simon Fraser University.

The site visits are intended to give the GSC and NSERC a chance to meet with the applicants and present the latest news on NSERC programs and policy. The applicants have an opportunity to ask questions and make suggestions. The site visits are useful to the GSC because the committee meets the applicants at their home institute or laboratory and sees first-hand the research environment and hears directly from the applicants what their research interests and goals are.

The format for the visits always includes an introductory talk by the GSC chair or acting chair and a brief talk from an NSERC officer. The GSC also meets with the Department Chair and representatives of the university administration, usually the Dean of Science and the Vice-President of Research. In the case of TRIUMF, the GSC meets with the Director, Science Director and the other Division Leaders. It is important that the GSC also meet with graduate students, postdoctoral fellows and research associates. The agenda for the remainder of the day is largely at the discretion of the visited institute.

It is essential to remember that the site visits are not held to evaluate specific research proposals. Researchers are reminded to focus on the research environment and their general goals. They are invited to pass on any concerns or questions to NSERC. The GSC is also able to bring the concerns of the researchers to the attention of their senior administration and tries to act as an advocate for subatomic physics.

Site visits to universities are very important for GSC-19. Half of the members of GSC-19 are from abroad. It is crucial that the nonCanadian members of the GSC understand the operating conditions and research facilities of Canadian institutes in order for them to fully appreciate the grant requests.

Issues raised by researchers this year included: problems with the online forms at NSERC, pay levels for graduate students and post doctoral fellows, eligibilty of College researchers and the eligibility rules for parental leave. In

particular it was reported that the NSERC computer system would drop one's connection in the middle of filling out a form. As a result all of the work would be lost and the applicant would have to start over. Students and research associates pointed out the very high cost of living in Vancouver and asked why there was a "one pay fits all" system. Researchers from eligible colleges can participate, as co-applicants, in NSERC research programs. However, in the case of Subatomic Physics project grants, eligible college faculty can participate as collaborators only. NSERC staff were asked to look into this situation.

The GSC submits to NSERC a short report for each site visit. The full set of reports is made available to the GSC before competition week.

2.2 Project Reviews

There are standing committees that meet and review ATLAS and SNO each year. The ATLAS committee met at TRIUMF immediately following the site visits on October 19-20. The SNO ARC meeting that includes representatives from DOE in the USA and PPARC in the UK met on December 14, 2000 in Sudbury. A snow storm interfered with the travel plans of some of the participants and as a result, next year's meeting may be at a different time of year or possibly a different location.

The GSC chair attends both meetings as an ex-officio member of the committees. Each committee submits a report to NSERC which is made available to the GSC as well as the applicants.

This year one ad hoc project review committee was convened to meet with the KOPIO collaboration and to report on their proposal for a Major Installation Grant. The committee met at TRIUMF on January 11-12 and produced a report before the competition week. The GSC chair attended the review as an ex-officio member of the committee.

2.3 Large Projects Day

The GSC met on Saturday, February 10, 2001 before the competition week to have a one-day review of projects selected by the GSC. These experiments typically are requesting more than a total of $250,000. The projects that were reviewed were: PICASSO (L. Lessard), TWIST (N. Rodning), G0 (W. van Oers), KOPIO (D. Bryman), HERMES (A. Miller), DRAGON (J. D'Auria) and CDF (W. Trischuk).

Each project received a set of questions from the GSC before the Large Projects Day (LPD). The presenters were asked to address these specific questions plus some general ones in a short talk and then they were asked further questions by the GSC after their presentations. The full GSC attended with some late arrivals due to inclement winter weather. The LPD works well and in particular allows important updates of information that may well have changed in the five to six months since the grant requests were written.

There were two in-camera meetings with Jean-Michel Poutissou of TRIUMF. One at the beginning and the other at the end of the LPD. In the morning Jean-Michel spoke to the committee about the infrastructure support and beam time that TRIUMF would provide to satisfy the requests of the applicants. A formal procedure was put in place in 1998 between TRIUMF and NSERC to deal with TRIUMF infrastructure support. Following that procedure, the TRIUMF management was consulted by the GSC before the competition and given a list of requests for TRIUMF resources extracted from the application before the GSC. The committee had an opportunity to ask Jean-Michel questions after his presentation and again later in the day after all the other presentations had been heard. This consultation is critical to the GSCs deliberations. The process works well and should be continued.

2.4 Five Year Plan Committee

The FYPC asked the SAP community to prepare submissions organized through the Institute of Particle Physics (IPP), the Division of Nuclear Physics (DNP) and through an ad hoc Theory Committee. The IPP held a one-day town hall meeting on June 3, 2000, the Saturday before the CAP conference. Fourteen projects gave presentations. The DNP held their town hall meeting at TRIUMF on July 21-22, 2000. The meetings were attended by the GSC chair and other members of the GSC.

There was a full community town hall meeting in Toronto on November 18-19, 2000 that was held to solicit community feedback on the draft written submissions by the IPP, DNP and Theory Committee. The meeting was well attended.

The FYPC committee met from January 5-10, 2001 to prepare a report. A draft of the recommendations only was released to the community and the GSC on February 5, 2001. The GSC considered the recommendations of the FYPC very carefully in its deliberations during competition week. However,

the GSC has more detailed information than the FYPC and did not feel constrained to follow exactly the Five Year Plan.

2.5 Liaison Committee

There was a meeting of the Physics-NSERC Liaison Committee on December 4, 2000 that the GSC chair attended. It was a very positive meeting where many issues were discussed. There were two items especially relevant to SAP. It is now possible to hire a foreign post doctoral fellow for two years plus a third. The third year may be offered to a candidate at the outset. Before appointing the PDF for a third year, a letter requesting permission should be sent to the NSERC Program Officer or Team Leader for SAP. This new rule is to make it easier to attract qualified PDFs. There was also a discussion of how to better compensate foreign GSC members for expenses they incur while serving as the GSC. NSERC is looking into the options available for doing this.

The minutes of the Liason Committee meetings should be made available on a public website.

2.6 Chairs Meeting

The chairs of all the GSCs met on November 19, 2000 to arrange consultations and determine the best GSC to review an application. The decision as to which GSC reviews a grant request is made by NSERC in consultation with the GSC chairs. The main criteria is which committee has the most appropriate expertise. Requests that overlap the expertise of more than one committee may be reviewed by multiple committees or reviewed by one committee with consultation reports supplied by the other committee.

2.7 Applications for Funding

There were 58 applications to review this year. The type of grant requested, the number of requests and the amount of requested funds in thousands of dollars are shown in Table 1.

Type of Grant	Number of Requests	Funds Requested
Project/Group	14 / 2	3,612 / 172
Individual (Expt/Theory)	7 / 20	391 / 932
Major Facility Access	2	170
Equipment/Computing	4 / 6	373.5 / 220
Major Equipment	2	417.5
Major Installation	1	230
Totals	58	6,518

Table 1: The number of grants and the requested funds rounded to the nearest thousand dollars.

2.8 Financial Overview

This year is the final year of the five-year financial plan that started in 1997. NSERC Council approved a loan of approximately 3 million dollars to GSC-19 on the agreement that it be paid back in 2001. The original plan has had many modifications. These have been outlined in the chairs' reports of 1997-2000 [1, 2, 3, 4] in great detail (see Tables 2 and 3). Mostly the news has been good. GSC-19 did reasonably well in the last reallocation exercise and it has benefitted from increases to the NSERC budget in 1998 and 1999. Table 3 shows the situation at the end of the 2000 competition.

Each year there is the possibility that "one time only" money will be added to the competition which complicates the calculation of the budget, the envelope and the debt. There are many reasons for budget adjustments. There are people who leave the field and thereby relinquish their grants, there are successful appeals and there are adjustments for Major Facility Access Grants (MFA) and Equipment Grants. The SAP GSC-19 envelope has funds for MFA and equipment grants built into the envelope based on the original situation when the envelope was started. However, the other GSCs do not control the funds for these grants. They pass ranked recommendations to CORG and the recommendations for grants are made at the CORG level. Extra funds or an improved success rate in the general NSERC competition is passed on to GSC-19 as extra-to-the-envelope money for that year.

2.8.1 The Envelope

Table 2 shows the financial situation at the end of the 2000 competition. The table starts in 1997 with the original envelope. Lines 2 and 3 show the

#	Year	'97-'98	'98-'99	'99-'00	'00-'01	'01-'02
1	Original Envelope	17307	17307	17307	17307	17307
2	1998 Updated Envelope	17307	18798	18760	18967	19174
3	1999 Updated Envelope	17307	18798	19554	20041	20528
4	Amount Borrowed	3115	21	353	-651	-2838
Year 2000 Financial Adjustments						
6	Termination Grants					24
7	Additional Funds 1999					25
8	from GSC 17 + 29					31
9	Extra funds - Equip.					157
10	Extra Funds - new					275
11	Previously Committed					-13,608
12	Competition Budget					4,594
13	Allocated					4,602
14	Corrections					-77
15	Balance					-85

Table 2: Envelope for the period between 1997 and 2002 in thousands of dollars

increases in the envelope in 1998 and 1999 due to general funding increases at NSERC and some success in the 1998 Reallocation Exercise. Line 4 gives a simplified description of the funds borrowed and then paid back.

2.8.2 The year 2001-2002 finances

The section of Tables 2 and 3 between lines 6 and 10 show the one time adjustments for this grant year. The entry in line 6 is from people who stopped receiving their grants for various reasons. Line 7 is an administrative correction from last year. Line 8 refers to funds transferred with an applicant who was in the Mathematics GSC and funds from the Space and Astronomy GSC as their contribution to Astroparticle Physics. Additional money, lines 9 and 10, was allocated for equipment and for applicants who were new or who had nil grants from previous competitions.

The money for new applicants was extremely useful. This year there were six completely new people applying to GSC-19, four theoretical physicists and two experimentalists. The money for new applicants had to be used for these people or people who had a nil grant the year previously. Multiyear grants

#	Year	'01-'02	'02-'03	'03-'04
1	Original Envelope	17307		
2	1998 Updated Envelope	19174	19311	
3	1999 Updated Envelope	20528	20665	
4	Amount Borrowed	-2838	0	
Year 2000 Financial Adjustments				
6	Termination Grants	24		
7	Additional Funds 1999	25		
8	from GSC 17 + 29	31		
9	Extra funds - Equip.	157		
10	Extra Funds - new	275		
11	Previously Committed	-13,608		
12	Competition Budget	4,594		
13	Allocated	4,602	7352	4609
14	Corrections	-77	-85	
15	Adjustments		275	
16	Budget Target		13,503	

Table 3: Envelope for the years 2001 to 2004 in thousands of dollars

of course imply future commitments. NSERC indicated they would make every effort to increase the competition budget in future years to cover the commitments made to the new candidates in this year.

2.8.3 Competition Budget and Corrections

The competition started with a debt (line 4) of 2.8M$ that had to be paid back. Continuing awards from previous years already had committed 13.6M$ (line 11). Therefore the target for the amount of awards to be recommended by the GSC was 4.594M$ (line 12). The GSC allocated 4.602M$ (line 13) leaving the budget 8.0k$ overspent.

After the competition was over, it was realized that the amount of extra equipment funds allocated was too large. Line 14 (Corrections) of Table 2 and 3 shows the amount of funds given to GSC-19 in error. NSERC agreed that the GSC should not try to redo the equipment allocation. Rather, the 77k$ correction and the 8.0k$ over expenditure will be paid back in next years competition. This is indicated in line 14 (Corrections) of Table 3 under the 2002-2003 year heading. NSERC has agreed that the debt owed by

GSC-19 prior to this year's competition has been paid in full. The new over expenditure is unrelated to our five year debt management plan.

2.9 Review Procedure

This year the competition was held from Saturday February 10, 2001 until the following Friday. The GSC held the Large Project Day on the Saturday before the competition week. A policy meeting was held on Sunday to review the NSERC procedures, rules and policies. The budget for this year was discussed, see line 12 of Table 3. The funds targetted for new applicants, and the reallocation funds for new initiatives were discussed. It was very useful for the committee to have a further discussion of this material and to review the agenda for the rest of the week before starting the actual grant evaluations. Sunday finished with a joint subcommittee meeting with GSC-17, Space and Astronomy, chaired by the Group Chair for Physics, Dr. Ian Mitchell. It was agreed that the subcommittee would meet again on Wednesday afternoon after both GSCs had finished at least a first round of discussions.

Monday began with a presentation from Dr. T. Brzustowski, President of NSERC, who spoke to us about the importance of new applicants getting a good start. The committee thanked Dr. Brzustowski for the extra money earmarked for new applicants. Dr. R. Carnegie, Director of the Institute of Particle Physics, gave us a short presentation about the IPP program.

The competition took place in three rounds. NSERC conflict of interest guidelines were followed at all times. Committee members left the room for all discussions relating to applications for which they were in conflict. Dr. K. Ragan and Dr. D. Geesaman served as acting chairs when R. Keeler was in conflict.

Each member of the GSC is expected to read all of the applications. Two committee members (sometimes three) were assigned in the Autumn to be reviewers for each application. The reviewers independently presented each application to the committee in the first round. The whole committee discussed each application. Each committee member was given the opportunity to comment on the application under review followed by a chance to address any issues brought up in the first pass of discussion. Applications, where any member of the committee felt there was an outstanding concern or unresolved issue, were flagged for further discussion in Round 2. The discussion was followed by a series of anonymous votes through a computerized system

operated by the NSERC Program Officer. Each committee member entered a rating for each NSERC category. The ratings were from 1 to 5 where 1 was excellent, 2 was very good, 3 was good, 4 was fair and 5 was poor. The categories were the quality and impact of the research, the quality of the investigator(s), the necessity and urgency of the requested budget and the contribution made to training highly qualified personnel (HQP). A rating for each category was recorded by the computer as the median and as the average of the committee votes. This statistical information was made available to the committee for use in the later rounds.

The funding recommendations were also made using the electronic recording system. A consensus was reached on a recommendation for the duration of the award. Each member of the committee anonymously entered their funding recommendation for each year of the award into the computer system. The median was calculated and recorded as the consensus value for the recommendation. The recommendation at this stage was based on the NSERC criteria mentioned above. Naturally committee members were aware of the funding constraints but were asked to put this information aside as much as possible for the first round. The committee divided into a subcommittee to evaluate theory requests and a subcommittee to consider applications for MFA and computer equipment grants. The subcommittees reported back to the committee as a whole at the end of their deliberations. Round 1 finished with a joint meeting of the Subatomic Physics GSC with the Space and Astronomy GSC chaired by the Group Chair for Physics. Each GSC presented their conclusions for the three particle astrophysics grants that were jointly reviewed. The Group Chair arrived at a funding split after a thorough discussion with the GSCs.

During Round 1 the second reviewers began writing drafts of the comments that would be sent to the applicants. The aim was to have draft comments ready for the Round 3 discussions.

At the end of round 1 the committee actually had some funds left to allocate. This made it important in the following rounds to make sure applications had not been treated too parsimoniously.

All grants were reviewed in Round 2. The discussion started with applications that had been flagged in Round 1 for further discussion. Next all remaining grant requests were reviewed starting with the applications that received the lowest ratings. Particular attention was paid to making sure the money for new applicants was used effectively, that the extra equipment funds were fully allocated and that the five year plan and Reallocation Ex-

ercise implications were taken into account and were well understood. Funding recommendations were increased for the highest priority grants until the budget was balanced to better than 10k$. The committee members finished drafting comments to the applicants to complete Round 2.

Round 3 started on Friday morning. The draft comment for every application was discussed by the committee. This process worked well. Having a draft written statement to the applicant summarizing the committee discussion and recommendation concentrated the GSC discussion on whether an application had been handled fairly and appropriately. The discussion of the comments led to the clarification of many statements and led to several reviews of applications.

No financial recommendations were changed in Round 3 However, an ordered list of applications was prepared with recommendations for increased funding in case NSERC received more money from the federal government.

	1999-2000	2000-2001	2001-2002
Nuclear Physics	914.6	818.1	815.9
Intermediate Energy Physics + SAL	800.7	731.8	891.0
TRIUMF nonISAC	813.5	682.5	646.0
ISAC	1,373.5	1,246.0	1,001.0
SNO	3,636.7	3,586.0	3,641.0
ATLAS	4,531.0	4,990.0	3,278.0
B Physics	691.5	650.0	650.0
Rare K Decay	583.0	544.0	926.0
CDF	220.0	220.0	250.0
OPAL	1,474.0	1,375.0	700.0
ZEUS	867.0	750.0	750.0
HERMES	480.3	454.6	385.0
Future Collider R&D	0.0	15.0	149.0
Particle Astrophysics	38.5	191.9	273.5
Infrastructure	1,484.0	1,490.7	1,516.9
Computing	19.0	0.0	178.5
Theory	1,972.5	1,920.5	2,158.3
Total	19,914.7	19,641.2	18,210.1

Table 4: GSC-19 awards broken down by category. The amounts are in k$.

2.10 Summary of Results

The quality of proposals was, in general, very high. The success rate was 51 out of 58 applicants which is higher than the historic value. There were fewer than usual applications this year. One can only speculate that the widely known reduction in the overall budget due to the requirement that the debt be paid back discouraged researchers from applying. Moreover, the extra funds made available for equipment and new applicants, definitely had an enormous and welcome positive impact.

Nevertheless, the GSC had to make very difficult choices and was not able to fund all the applications at the requested level. There is no doubt, whatsoever, that had more funds been available, that the funds could have been well spent.

Table 4 shows the expenditures by GSC-19 for the last three years. The funds are broken down into the categories used by NSERC. These categories are largely historical and are only used as a rough guide to make sure there is appropriate expertise among the members of the committee. The financial breakdowns are not used during competition week.

The most obvious feature of the table is that the total for 2001-2002 is of the order of 1.5M$ less than the totals for the previous two years. The original five year plan expected to handle this shortfall through a reduction in the capital costs for ATLAS and ISAC. The capital expenditures were supposed to peak in 1999-2000 but in fact peaked in 2000-2001. Looking at the ATLAS and ISAC allocations, one sees a reduction of almost 2.0M$.

It is worth noting that OPAL and HERMES are both being ramped down this year. New projects are coming forward to replace projects that are finishing. KOPIO has started as an important R&D effort into kaon physics and CP violation. PICASSO is involved in a major development of detectors to observe dark matter and a new initiative was funded to develop detectors for a future international high-energy linear electron-positron collider.

The original five year planning period is now completed. The debt is paid back. The three high priority areas are doing well: SNO is well into data taking, ISAC is just starting to deliver unique rare radioactive beams to brand-new frontline experiments and the ATLAS construction is proceeding well.

2.10.1 ATLAS, ISAC and SNO

The ATLAS and SNO collaborations were given two year grants in the 2000-2001 competition and so were not considered in this years competition. The ISAC facility achieved a major milestone at the end of 2000 when beam was accelerated through the drift-tube linac onto a test station. Recently beam has been delivered to the TUDA spectrometer. The ISAC experiments have finished a phase of major capital expenditures for construction and are now entering a phase of commissioning the apparatus and starting data taking with accelerated radioactive beams. In support of the ISAC program a significant equipment grant was awarded for a new 4π Positron Detector.

2.10.2 Theory

A decision was made to implement the Five Year Plan recommendation that theory grants should be increased on average. Table 4 shows that the amount allocated to theory has risen by approximately ten percent. The funds were not awarded across the board but rather were used to increase the range of grants awarded.

The GSC recommends that the increases continue over the next three years so that all theorists with four year individual grants can benefit from this decision.

2.10.3 Accounting for Reallocation

Reallocation funds were awarded to support the existing program and for new initiatives and research and development projects. There was 7.9M$ awarded to support ISAC, ATLAS and SNO for this year.

Two new initiatives were started this year: the 4π Positron Detector and KOPIO. The KOPIO experiment is in an intensive R&D phase that will last for at least two years. The PICASSO experiment was awarded significantly more funds for R&D work on a novel design for dark matter detectors. A new R&D effort was started into the readout of Time Projection Chambers for a future international Linear Collider facility. A total of 815.5k$ were awarded for these projects.

3 Envelope Management and the Five Year Spending Plan

The rolling five year financial plan of the GSC is presented here. The situation is considerably better than before. The debt has been paid off and the envelope is substantially larger than five years ago.

The NSERC Program Officer for GSC-19 has carefully reconstructed the history of the GSC-19 finances and now keeps a running ledger using a spreadsheet that documents the exact financial status of GSC-19. The spreadsheet is vetted by the NSERC Finance Section. As well, it is an easy and useful tool to use to follow the budget during the competition.

Referring to Table 3, one sees that the envelope is known for next year (line 3). The amount of funds already committed in 2002-2003 is given in line 13. The 85k$ correction because of the over spent budget in 2001-2002 is shown in line 14. NSERC has indicated that there may be funds available again in 2002-2203 for new applicants (line 15). Thus the nominal budget for 2002-2003 is 13,503M$. It should be noted that there most likely will be corrections due to one time only funds, appeals etc..

There are also a number of unknowns that make the planning less than completely clear. The envelope (line 3) is not known with certainty after next year. This is due to Reallocation. It would not be wise to assume any particular outcome for the Reallocation Exercise at this time. However, it is possible to layout the best and worst case scenarios.

The Reallocation Exercise allows a GSC budget to increase or decrease by ten percent over the next four year period. As mentioned earlier, the GSC-19 envelope includes funds (equipment, MFA) that are not normally administered by other GSCs. Therefore only the funds that are of a similar type to those held by the other GSCs are considered for GSC-19. In the end, this means that the GSC-19 budget can change by $\pm 6.8\%$ or 1.7% per year. This is equivalent to an uncertainty of 351.3k$ in 2003-2004, twice that amount in the next year and so on until the fourth year.

As part of the competition week the GSC looked at the future spending implications of its decisions. The actually committed funds are indicated in line 13 of Table 3. These amounts are quite modest but do not include SNO and ATLAS. Two approaches were used to estimate next years budget. In one approach grants were assumed to be renewed at their existing levels. This led to almost 3M$ being available for new expenditures in 2002-2003. A more

reasonable approach was to increase grants for ongoing projects according to the Five Year Plan recommendations. Not surprisingly, this approach left just over 1M$ available next year for new expenditures, as was noted in the Five Year Plan recommendations.

The Five Year Plan recommends that the funds be earmarked for future projects that have been before the GSC and approved. NSERC has agreed that it can "save" money for the GSC. In order to make this a fair process some suggestions are made in the section "Planning and Oversight of Projects" about how to manage the process.

4 Policy

A number of policy issues came to the fore during the year and during competition week. Many good proposals were made and discussed. Some have been implemented and others need further discussion.

4.1 NSERC Management of GSC-19

It is a well worn phrase around NSERC and in our community that GSC-19 is different. The NSERC team for GSC-19 has made excellent progress dealing with those differences and often confronting the myth versus the facts. The accomplishments this year have been:

- A schedule of events for the GSC and the chair has been created to help the chair find thir way through all the meetings and deadlines.
- A spreadsheet has been developed that clearly shows the financial history and is an excellent tool to follow the grant requests through all of the steps needed to get to an award.
- A very important step has been taken to reintegrate the NSERC departments that deal with travel, meetings and finance into the GSC-19 programme. Previously, the GSC-19 NSERC team was doing all of the organization themselves. Now the NSERC resource people that are available to help manage the competition are being asked to become involved again. I believe this may be, in a sense, extra work to start with but ultimately it will pay off. It is not healthy for GSC-19 to be always referred to and considered as different.

- Standard letters for referees, etc. for each phase of the competition are now available.

4.2 Planning and Management of Projects

The subatomic physics community in Canada is starting several new R&D projects, constructing large facilities, operating large experiments and analyzing data from mature experiments. It is a complicated mix of responsibilities all with long and different timescales. It is crucial that projects are adequately reviewed and monitored but it is also necessary to keep in mind that the committee does not have the resources to review more than a few projects each year.

The GSC observes that large new project proposals clearly need to be reviewed. A project should be reviewed when the R&D phase is over and the construction phase is about to start. During construction of projects over roughly 2M$ there should be yearly monitoring of the progress made by the experimenters. The purpose should be to help the project, not add additional hurdles. Projects in a stable running mode or in the final data analysis stage normally do not need to have special reviews.

The ATLAS and SNO reviews should continue. TWIST should be finished construction this year and should be reviewed in the Autumn of 2001. The KOPIO, PICASSO and Linear Collider R&D projects should be reviewed when the R&D stages of these projects are finished.

The next few years will see a number of new proposals coming forward and at the same time there will be less financial constraint assuming all goes well with the Reallocation Exercise. It is critical that we do not run a first come first served system. The Five Year Plan has already warned us of many of the projects coming down the pipeline.

I would like to propose that the FORM 180 that is used to indicate that a grant will be requested from NSERC be increased in scope to also serve as a Letter of Intent (LOI) to NSERC. Groups who have aspirations of proposing new projects and hence asking for grants in the next three years should be allowed to submit an LOI to the GSC. It should be voluntary and brief but it should allow proponents of a project to alert the GSC and NSERC that a new project or large equipment request is being developed and will be submitted some time in the next few years.

NSERC has agreed that the budget for any given year need not be all spent or may be exceeded by the order of a couple of percent. This will not

count against GSC-19 and is routine practice in the other GSCs. This will work well for projects that have applied for a grant and have been reviewed but are requesting large sums of money for the future. Money could be saved in some years to be returned by NSERC in the years where it is needed. NSERC cannot legitimately give out funds in a given year for expenses that will be incurred in future years.

Projects that have not formally submitted a request will be much harder to accommodate. In order to realistically save money for future projects, the GSC will have to have received an LOI and a review will have to have been done by the GSC in order to determine if the proposed future expenditures are as important as the requests actually facing the GSC in that year. This may be a tall order but it could be done and probably should be.

4.3 Honoraria

It is a regrettable but a fact that NSERC per diems do not cover the cost of meals for the GSC members during the competition week. It can be argued that Canadians have a strong vested interest in making the process work and therefore, this is a very minor sacrifice. However, the same aguement is difficult to make for our foreign colleagues. The membership of GSC-19 is one half international. There should be an honoraria put in place for foreign members of the GSC to at least defray their actual expenses.

5 Acknowledgments

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