



News from Science Board, January 2008

Science Board met for two days on Wednesday and Thursday 23rd and 24th January. The first part of the meeting focussed on detailed reports from the PPAN and PALS programmatic reviews, whilst much of the remainder of the meeting was spent in discussion of how procedures should be improved in the future.

1. Programmatic Reviews

The SB was impressed by the huge amount of work which had been carried out to review the PPAN and PALS programmes. Every project from an extremely broad programme had been reviewed on a level playing field using relevant and transparent criteria.

The PPAN chair, Walter Gear provided the resulting prioritised list of the PPAN projects and discussed in detail those that were thought to be in danger of cancellation or closure. (The exact funding envelope is not yet known sufficiently well to define exactly where the line will fall in the priority table.) PPAN had also been asked to consider the option of making deeper cuts in the programme in order to alleviate the pain of the 25% cut in the Astronomy grants. Their advice was, after receiving a report from the AGP chair, that the gain to the responsive grants would not justify the further damage to the programme of grants awarded for projects.

The thorough programmatic review by PALS was based on financial information provided by STFC plus supplementary information concerning user groups and publications provided by each facility. Following an analysis of costs versus published outputs, the PALS chair Tim Wess went through a number of cost-saving and prioritisation options for each facility and SB discussed these at length. The large cuts potentially under consideration for the RAL and Daresbury sites were noted, and their substantial impact on STFC personnel numbers.

SB also noted information provided by STFC Executive on the impact of the planned cuts to the grants line. SB noted that the number of Astronomy PDRAs had been rising since 2005, as part of an intended expansion. The 25% cut in PRDA numbers by the end of the CSR period is with respect to this rising profile, and amounts to a 10% reduction in PDRA numbers in 2010 relative to those in post in 2005. This reduction in PDRAs, whilst deeply regrettable, will not cause the decimation of physics departments as has been speculated in media reports

After much discussion, SB concluded that the current financial constraints had led to a large amount of pain in the PPAN science area although there were also new science projects in the list which had displaced older projects. The Board regarded it as essential that the same level of scrutiny be applied to the facilities and estates and noted that similarly painful cuts were anticipated in these areas. Although greater transparency had been achieved in understanding the funding of the facilities, the Board felt that there was still more to be done. SB will recommend to Council that independent oversight bodies be set up for ISIS and CLF in analogy with the governing

council of Diamond Board or JCMT.

SB recommends that the STFC Executive, Council, SB and other stakeholders work together to create a clearer structure tethering financial line items to measurable programmatic (both KE and science) goals for STFC establishments (RAL, Daresbury, etc)..

SB also agreed that, in future, significant “discretionary” spending and investment in facilities (e.g., R&D projects or design studies) should be administered through a proposal and peer review process. The peer review body could either be the PPRP augmented with appropriate experts, or the PALS committee. SB will recommend to Council that such a scheme be put in place.

SB agreed with the recommendations of PPAN and PALS, and will advise Council that, assuming the necessary improvements in transparency in the facilities and estates funding, these recommendations should be implemented as well as can be achieved given the practicalities of dis-engagement for each project.

SB discussed the concerns within the community regarding the cuts and the process by which an affordable programme was being developed by STFC. The Board expressed confidence in the peer review process and structure that has been set up, and was satisfied that the programmatic review had been conducted by PPAN and PALS in a most conscientious and comprehensive manner.

2. Knowledge Exchange

SB discussed the issue of Knowledge Exchange. It was felt that this was an increasingly important area for the future viability of the STFC programme, and needed to be given an appropriate level of attention. KE-related funding should be subjected to the same level of scrutiny which other parts of the programme receive. SB agreed to recommend to Council both the establishment of a funding line for KE and also an advisory body to peer review KE elements of applications. It was recognised that some projects might be rated as lower priority on the basis of science, whilst having a more highly ranked KE aspect. Separating out the two aspects of projects for separate peer-review would provide a more transparent process by which tensioning between strategic and scientific balance can be carried out.

3. Light Sources Review

SB considered the final report of the Light Sources Review, having previously discussed a near-final draft and received a presentation by the review chairman at its December 2007 meeting. The Board endorsed the main recommendations of the report and noted that, in accordance with its previous advice, a project had been put in place by STFC, and a project manager appointed, to lead the effort to construct a science case for the NLS (next generation light source). This project will be overseen by PALS. SB requested more information about the overlap between the newly formed Photon Department, the Photon Institute, and the NLS project.

4. Communication between STFC Committees and the community

SB agreed that the disquiet within the community following the announcement of the CSR had been increased by the way in which the news had been broken, and by the accompanying perception of a lack of consultation. SB spent some time in discussion as to the best way forward in communicating with the community, so that similar problems could be avoided in the future. SB agreed that publication of timely digests of news from Committee, Board and Council meetings should be resumed as soon as

practicable. A range of additional communication possibilities was also discussed, and will be investigated further. SB would welcome suggestions from the community on this issue.

5. Statement from PPAN

PPAN is the STFC committee that advises on priorities within the STFC science programme in the Particle Physics, Astronomy and Nuclear Physics areas. It is also tasked with approving the results of grant assessments by the Astronomy Grants Panel (AGP), Particle Physics Grants Panel (PPGP) and the new Nuclear Physics Grants Panel (NPG) as well as the assessment of project grant proposals by the Project Peer Review Panel (PPRP). PPAN reports to the STFC Science Board (SB), as does the parallel body called the Physical and Life Sciences Science Committee (PALS) which deals with the science from the STFC light and neutron source facilities. The terms of reference and membership of PPAN may be found here <http://www.scitech.ac.uk/About/Strat/Council/AdCom/PPAN.aspx>.

STFC is currently undertaking a Programmatic Review (PR), where it assesses and prioritises its whole programme, and PPAN has been participating in this process. PPAN held meetings in December (4th/5th) and January (17th/18th) and the chair and deputy chair presented the outcome of those meetings to the SB on January 23rd/24th.

The PPAN programme is very broad and consists of both standard and rolling grants, and project grants (all to Universities) but also programmes within the STFC establishments at the UK Astronomy Technology Centre (UKATC) in Edinburgh, the Daresbury Laboratory in Cheshire, and the Rutherford Appleton Laboratory in Oxfordshire, and operation of telescopes in Hawaii, Chile and the Canary Islands. All of these activities were reviewed, and an alphabetical list is provided here <http://www.scitech.ac.uk/resources/pdf/progrevlist.pdf> Also in the PPAN area are the international subscriptions to CERN, the European Space Agency (ESA), and the European Southern Observatory (ESO) . These international subscriptions are tied in with international treaties and were not considered as part of this process.

The process followed by PPAN was as follows:

- 1) Paperwork summarising the aims and objectives, current and future plans, and outputs from each item in the list was provided to PPAN from a combination of the leaders of projects and/or programme managers within STFC. All members of PPAN were asked to read all paperwork for all projects.
- 2) The projects were then divided up into a number of groupings by Science area, for example 'Optical/infrared telescopes' or 'accelerator-based particle physics' and a lead and second rapporteur was identified amongst PPAN members to lead discussion.
- 3) Potential conflicts of member of PPAN within any of the items to be considered were identified and discussed. Where there was a clear conflict of a member of the committee it was agreed that the relevant individual would not be present for any discussion of that item, and would not be involved in its ranking.
- 4) The rapporteurs presented a summary of each area to the whole PPAN committee and each individual item within each area was discussed.
- 5) PPAN members each then individually marked each item on a [scale](#) of 0,1,2,3 with 3 being the highest mark, against the following criteria
 - Strategic Priority
 - Impact
 - UK involvement

- Size of community
 - Science output
 - Public outreach
 - Training
 - Involvement with industry
- 6) The committee then went through looking at the median and variance of the marks against each criterion for each item and agreed a consensus mark.
 - 7) An initial ranking based solely on the marks for strategic priority, impact and science output was then created.
 - 8) Where items had identical marks, a secondary order within that group was then obtained by using the other criteria marks. Where items still had identical marks the panel discussed them individually and agreed a finer division of grades to separate these items into a final complete rank-ordered list.
 - 9) Having obtained the rank-ordered list, the panel also looked within individual areas of the programme to check if there remained a balanced programme within that area, and was satisfied that there was.

Having undertaken a ranking order based purely on the criteria above, this took no account of financial reality, so the final task undertaken was to examine the list in the context of the cost of each item, and the likely financial situation as currently estimated by STFC. In order to protect some areas likely to be in danger PPAN then recommended some reductions in the level of support for some items in the middle ranked region, but not to items at the very top of the ranking.

At this point PPAN also discussed, given the damage caused by the 25% cut to the grants lines, whether it would recommend putting money back into grants, at the expense of items which were near the likely funding level in its rank-ordered list, and decided that the overall damage to the programme caused by doing so was even greater than that caused by the current cuts to grants.

PPAN made a very strong statement to the Science Board which was reported *verbatim* at Council. This statement expressed their profound regret and disquiet that existing peer-reviewed and awarded grants to universities for excellent science would need to be withdrawn in view of the financial situation.

Recognising, however, that it was necessary to create a balanced prioritised programme within the financial constraints, PPAN did so in what it unanimously considers to be a fair and open way.

6. Statement from PALS

The STFC PALS science committee

(<http://www.scitech.ac.uk/About/Strat/Council/AdCom/PALS.aspx>) is the peer review committee that advises Science Board on the scientific merit of large scale research facilities and future developments of these. Unlike its sister science committee PPAN, there was previously no equivalent committee in either CCLRC or PPARC, the predecessors of STFC. PALS has met three times: September & December 2007, and January 2008. The latter two meetings have been devoted to carrying out the 2007 STFC Programmatic Review, the first time the major Facilities with which PALS is concerned have been peer-reviewed in this way.

As part of this Programmatic Review, a major component of the scrutiny undertaken by PALS has been the evaluation of a prioritisation programme for the complement of

current and future large scale facilities to ensure the delivery of optimal scientific development in the light of the current funding situation. Both PALS and PPAN were required by the Science Board to create a ranked list of priorities for relevant programmes within the STFC Facilities provision that are not subject to pre-signed international treaty.

Although the Facilities that are undergoing assessment differ markedly in nature from the programmes assessed through the parallel PPAN Prioritisation, PALS has worked to create such a robust, ranked list of priorities. This involves operation and development of all UK-based facilities including the major user facilities CLF, Diamond and ISIS, the proposed development programmes on next generation light sources, including ERLP and X-FEL, and the major overseas facilities in the PALS remit, ILL and ESRF.

Terms of reference for the committee were defined in September 2007, and the evaluation of a programmatic review was undertaken in December 2007. This was based on the evidence presented by the facilities themselves in response to the proforma Programmatic Review questionnaire generated by the STFC Office; the committee were also in receipt of the executive summary of the international Light Source Review, to aid these deliberations. Initial findings on the international quality and competitiveness of the Facilities under review were reported to Science Board in December 2007, with a broad classification of each Facility on a traffic light system. The initial prioritisation exercise found a generally very high degree of quality in the programmes of the major Facilities operated or supported by STFC; in most cases these are world-leading or world-class, as appropriate for the STFC mission for Facility provision to the UK scientific community. This finding underlies the subsequent prioritisation of future plans and potential developments of these Facilities.

PALS then met in January 2008 to complete a more detailed prioritisation exercise of current and proposed facility operations and development as outlined above, and as requested by Science Board. This second phase peer review process was aided by bibliometric data gathering using the curation resources available from Facility websites and reports. Where possible, the volume, range and quality of publication outputs from 2001-2007 were evaluated by PALS and comparison made to the annual running costs. Together with the previously provided Facility input to the Programmatic review, these output metrics and quality measures were used by PALS to inform their judgment and produce a ranked priority list of current and future facility activities. The final priority list was thus reached on the basis of the programmatic review input from the facility directors, freely available output indicators such as websites and annual reports (the sources of the publication statistics), the Light Source Review recommendations, some additional information papers from STFC, and the judgement of PALS members, and was approved unanimously by the committee.

The PALS Chair and Deputy presented the agreed ranked priority list of activities to Science Board in January 2008.