

RAE 2001, UoA 20 + 21

Sectoral Feedback for Earth & Environmental Sciences

Although covering two units of assessment, the Panel operated as a unity and both subjects were considered equally and using exactly the same assessment criteria. This is exactly the same way as the Panel worked in RAE 1996.

The results in 1996 showed large differences in quality between the two units of assessment, and this was again the case in 2001, with submissions to UoA 20 performing on average significantly better than those to UoA 21. Possible reasons for these differences are discussed later, after the results for RAE '96 and '01 have been compared for both UoAs.

For the 2001 exercise UoA 20 received 25 submissions (containing 561.9 fte), the equivalent figures in 1996 being 33 submissions (631.7 fte). For UoA 21 there were 34 submissions in '01 (541.4 fte), compared with 38 submissions (484.1 fte) in '96. It is probably more useful to amalgamate the figures for the 2 units of assessment since there was some arbitrariness as to which UoA particular departments were submitted (which should be taken as an advantage of the combined panel). Thus, total submissions to the Panel were 59 in '01 compared with 71 in '96. This drop in submissions was not reflected in the fte staff numbers, which were essentially constant at 1103.3 in '01 and 1115.8 in '96. As these figures imply, mean submission size increased from 19.1 to 22.5 between '96 and '01 for UoA 20 and from 12.7 to 15.9 for UoA 21, which increases we consider to be a healthy development, particularly in the case of the environmental sciences.

In order to examine quality, the grades awarded have been converted into a seven step scale by regarding grades 3a and 3b and 5 and 5* as separate rating points. Using this scale both UoAs have improved their performance since '96. In the case of UoA 20 from 4.93 to 5.56 (an increase of 12.8%) and for UoA 21 from 3.88 to 4.24 (+9.3%).

For UoA 20 the improvement has been achieved in part by a decrease in the number of submissions receiving the lowest grades (1 and 2), but more importantly by a significant shift across the grade 4/5 boundary, with 4 being the most populated grade in '96 (33% of ftes), whereas now it is 5 (55%). Viewed another way, the percentage of ftes in 5 and 5* submissions has increased from 38% in '96 to 70% now, a truly remarkable performance.

For UoA 21 only a very small part of the general improvement is due to a decrease in lowest grades (1 and 2). A more significant cause is due to a change at the 3a/4 boundary; 4 now being the most populated grade, and with only two small submissions gaining 3a. This leads to a pronounced bi-modal distribution with 53% of ftes being in submissions graded 4 or better and 44% of ftes in departments graded 3b or lower. The percentage of ftes in submissions graded 5 and 5* has hardly changed (23% in '96, 24% in '01).

The analysis presented above clearly shows a large discrepancy between the results of the RAE (in both 1996 and now) between UoAs 20 and 21, which invites some further comment. We do not believe that the differences reflect any intrinsic difference in the nature and attainable quality of science in the two areas. It is the Panel's opinion that they are largely the product of changes in development and growth of the combined UoA 20 + 21 sector in the last 15 years. The main causes we suggest for the present differences between the two units of assessment are:

The Earth Sciences Review carried out in 1988 resulted in a reduction in the weaker departments in the traditional (geology and geophysics) areas of Earth Science. This weeding out of weaker units (at both the individual person and whole department level) was further advanced in the wake of the 1996 RAE. This is confirmed by the decrease in the number of departmental submissions and total ftes to UoA 20 between the 1996 and 2001 exercises, as mentioned earlier. Thus, the presently remaining long-standing 20 + 21 sector departments (largely submitting to the Earth Sciences UoA) are the result of an on-going process of concentration and refinement, helped by some targeted investment, over the last 15 years.

The conversion of polytechnics to universities in the early 1990s added a substantial number of new departments to the UoA 20 + 21 sector, whose strengths lay in teaching rather than research and whose research infrastructure was accordingly weak. Many of these departments opted for the Environmental Science(s) rather than the Earth Science(s) name. Partly this was because Environmental Sciences offered a broader umbrella for grouping sometimes small units (e.g. with meteorology and biological studies, as well as environmental geochemistry, geology and geophysics); in addition it was because of the growing emphasis on environmental resources and problems in the 1990s. As a consequence many of the Environmental Science departments submitting to UoA 21 are relatively new and have commenced with a weak research tradition and infrastructure. There are, of course, a small number of well established departments in this sector which consistently obtain the

highest grades. This, combined with the larger number of relatively weak units, leads to the bi-modal distribution of UoA 21 grades referred to earlier.

Two further points arise from the above discussion of the differences between grades in UoAs 20 and 21:

Many of the departments in the substantial group of Environmental Sciences units in the lower grades are carrying out useful research in the U.K. context, as well as performing an important teaching role in the HEI sector.

The significant difference in grade distribution between UoAs 20 and 21 argues strongly for the retention of the combined panel for any future RAE. Creation of two sub-optimally sized panels for UoA 20 and 21 is clearly logistically undesirable. More fundamentally linking two academically similar subject areas (there is considerable cross-over between the 20 and 21 submissions), but which are different in terms of development and quality, provides an appropriate way to ensure both that standards are maintained and that interdisciplinary subject areas are not disadvantaged.

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