

**University College Cork
National University of Ireland, Cork**

Quality Improvement/Quality Assurance

Peer Review Group Report

Department of Geology

Academic Year 2005/06

1st February 2006

Members of the Peer Review Group:

Professor Kevin Cashman, Department of Food & Nutritional Sciences, UCC (Chair)

Professor Des MacHale, School of Mathematics, Applied Mathematics & Statistics,
UCC

Dr. John Graham, Department of Geology, School of Natural Sciences, Trinity
College Dublin

Professor Marjorie Wilson, School of Earth & Environment, University of Leeds, UK

Timetable of the site visit

The timetable for the site visit is attached as Appendix A.

The PRG found the timetable to be suitable and adequate for the purposes of the review. The timetable included meetings with students, staff of the department, Officers of the University and external stakeholders. In addition, the PRG were facilitated in their request for a meeting with some staff of the Department of Civil & Environmental Engineering during the visit.

PEER REVIEW**Methodology**

The PRG acted as a single group and all members participated in all meetings with staff, students, external stakeholders and Officers of the University.

Site Visit

The PRG were facilitated in a tour of the facilities used by the Department. The PRG noted that the facilities of the Department are spread over six different locations, some of which are at least fifteen minutes walk from each other. The PRG have commented further on this aspect of the site visit later in this report. All additional material requested by the reviewers was provided during the site visit.

Peer Review Group Report

The PRG were unanimous in their views and opinion of the high quality of the Department and its activities, and in the recommendations for improvement made. The PRG compiled a first draft of the report during the afternoon and evening of the second day. The report was finalised in the couple of weeks immediately following the review via email communications. All members of the PRG agreed to the final report and the recommendations for improvement included here.

OVERALL ANALYSIS

Despite being small, the Department of Geology at UCC is highly regarded by its peers, and also within the University, as delivering high quality graduate and postgraduate education. There is a good working atmosphere and collegial spirit among both staff and students. The external stakeholders, both within the local region and at a national level, recognise and acknowledge the commitment of the staff of the department to the quality of education of their graduates.

Self-Assessment Report

The PRG commended the Department on a comprehensive Self-Assessment Report (SAR), which was well-presented, very well-compiled, and which contained most of the required statistics and information required by the PRG to evaluate the Department's activities. Any additional information required by the PRG was provided during the site visit.

SWOT Analysis

The departmental staff fully engaged in their SWOT analysis of the Department's activities and identified numerous areas which form the basis of their recommendations contained in the SAR. The PRG concurred with the strengths and weaknesses identified in the SAR, and applauded the Department for the very comprehensive list of recommendations for improvement that arose from the self-reflective analysis. These are considered later in this report.

Benchmarking

The Department conducted a detailed benchmarking exercise against the Division of Earth Sciences at Glasgow University. This included a two-day site visit to the University of Glasgow by a number of staff members which gave them a very useful insight into a cognate department against which they were able to benchmark their activities. The PRG commended the benchmarking exercise as very well carried out and felt the choice of the University of Glasgow as an excellent and appropriate one for the Department of Geology. It was evident to the PRG that the outcomes of the benchmarking exercise informed some of the recommendations for improvement in the SAR, particularly in the research area.

FINDINGS OF THE PEER REVIEW GROUP

Department Details

The PRG noted that the Department of Geology is a relatively small academic unit, which is accommodated across six locations within the campus. The PRG considered this to be unacceptable and was of the opinion that, among other things, this rendered communication very difficult for all members of the Department. It is clear that the present situation is damaging to the morale of both postgraduates and all staff, academic, technical and administrative. In addition, the PRG were of the view that as a matter of urgency a clearly identifiable and central base for Earth Science students is required to enhance the undergraduate experience of these students in UCC.

The PRG noted that the academic age profile of both the academic staff and the support staff is high, with the majority of staff reaching normal retiring age within the next ten years. The PRG suggested very strongly that this be taken into account by the University in future planning for the Department. The PRG also noted the gender imbalance among the academic staff of the Department.

Department Organisation & Planning

The PRG considered that there is a need to align the Department in the University restructuring process and discussed at some length with whom the Department should align. The Department urgently needs to engage in discussions with potential partners

with a view to forming a School that will progress the Department to its best advantage. This should be facilitated by setting up a departmental working group.

The PRG noted that the Department has some committee structures and does hold regular meetings with a view towards management planning. There are generally good internal working relationships, but there is not a formal committee structure. The latter is not necessarily surprising in such a small department. More specifically, there does not seem to be a specific allocation of department management tasks, such as examinations, postgraduate co-ordinator, schools liaison, etc. These tasks appear to be carried out on an *ad hoc* basis, placing a not inconsiderable burden on the Head of Department. The PRG considered that a more formal committee structure would facilitate improvement in the efficiency and effectiveness of the department's management. The PRG strongly endorsed the recommendation made by the Department concerning the establishment of a departmental committee that involves all academic staff, a representative of technical staff, a representative of administrative staff and representatives of undergraduate and postgraduate students. Minuted decisions made by such a committee must be followed through and action reported back to subsequent meetings. Responsibility for specific areas such as international students, postgraduate students, examinations, library, etc. should be devolved to individual members of staff.

The PRG noted that, while the Department has displayed some evidence of planning for the future, it needs to develop both a medium and a long-term strategic plan, taking into account issues such as the likely outcomes of the restructuring process and the demography of the department. This plan should include reference to the current and projected accommodation requirements of the department and opportunities for increasing student numbers.

The PRG considered that the internal communication of information within the Department needs to be enhanced for better management. Decisions reached should be followed through, as noted above, with accountability and a follow-up on whether decisions were implemented. In addition, there is room for improvement in communication between individual postgraduate students and their supervisors.

The PRG admired the current Geological Museum but feels that for greater impact on students, school pupils, teachers, and visiting members of the public, some consideration could be given to its enlargement. This clearly needs to be done in the context of a strategic plan to accommodate the Department into a single building and the most appropriate use of staff resources.

Teaching & Learning

The PRG recognise the strong commitment of the Department to providing high quality education at undergraduate level. The PRG also noted the considerable contribution of the Department to outreach programmes which involve a significant number of staff in evening teaching.

The PRG commended the department on maintaining a strong component of fieldwork in their undergraduate courses, despite budget constraints.

In reviewing the curriculum the PRG agreed with the Department that active consideration should be given to the delivery of three modules of Geology in the First Year Programme. The PRG recommended that this be considered together with the possibility of movement of another module into a subsequent year.

The lack of analytical research facilities was noted by the PRG, specifically those which might be expected to be found in leading Departments of Geology in other countries. This is a national problem, not just one specific to Cork. The PRG felt that the situation with regard to provision of some basic in-house services supporting research was unsatisfactory.

The PRG commended the Department for embracing new technologies in their undergraduate teaching. Whilst acknowledging the commitment of the academic staff to excellence in teaching, and despite recent reductions in teaching workloads, the PRG considered the teaching loads of individual staff members to be too high by international norms, and, thus, detrimental to the department's research activities. Teaching loads above the international norm are an inevitable consequence of the small size of the Department.

The PRG was acutely aware of the major challenges faced by the Department in getting sufficiently high numbers of students into their dedicated degree streams, and also the time and effort devoted by staff to various outreach programmes. The PRG noted the relatively high failure rate at First Year level in non-geological modules in recent years, which is clearly influencing the number of students progressing into the Second and subsequent years.

The PRG recognised that teaching workloads are unacceptably high if staff are to remain active in research and supported the departmental recommendation that teaching workloads be reduced and more fairly balanced. The Department should develop an action plan to reduce teaching workloads by prioritisation of teaching commitments, with a view to freeing up more time for staff to engage in research activity.

The PRG was particularly impressed with the breadth of the Department's outreach activities (see below). However, whilst the outreach programme is both highly successful and prestigious, the Department should seriously re-examine the level of commitment of its' permanent teaching staff to these activities and consider alternative methods of staffing these. The PRG endorsed the outreach programme and encouraged the University to recognise the very strong contribution that the Department has made in this field and to reward the Department for their efforts.

Research & Scholarly Activity

Despite limited resources and heavy teaching loads the Department should be commended for maintaining a significant level of research activity with evidence of international quality in a number of areas. The PRG noted that members of the Department publish in a range of national and international peer-reviewed journals, and contribute many conference presentations. Some research income has been generated in the past five years.

The PRG noted that there has been a significant number of PhD degrees conferred in the past five years, and noted, in particular, the positive ratio of PhD to MSc research postgraduate students. The Department has plans to increase the number of research postgraduates. The PRG noted the relatively long completion times for PhDs in the

Department and that the Department has acknowledged this and has plans to address this issue.

The lack of analytical research facilities was noted by the PRG, specifically those which might be expected to be found in leading Departments of Geology in other countries. This is a national problem, not just one specific to Cork. The PRG felt that the situation with regard to provision of some basic in-house services supporting research was unsatisfactory.

The PRG welcomed the Department's ambitions and plans to take a more focused research strategy building on existing strengths.

Staff Development

The PRG noted the Department's wish that more attention be paid to staff development. Staff development, particularly in relation to promotion and career development, did not appear to be present to any significant degree.

The PRG endorsed the recommendation in the SAR on the establishment of a Staff Development Policy to deal with a range of issues identified in the SWOT analysis, such as: individual career development, technical training, continued professional development, facilitation of sabbatical study leave and annual appraisal of each staff member's workload and performance. The PRG considered that, in particular, the Department should look to facilitate sabbatical and other types of study leave in order to stimulate research activity.

External Relations

The PRG congratulated the Department for its extremely good outreach activities which were widely praised by the relevant stakeholders. The PRG noted that the Department has put considerable thought into its' external relations with external stakeholders, through adult outreach programmes and school liaison activities.

Support Services

Whilst acknowledging that UCC Library resources have been curtailed in recent years, the PRG felt that the Department has not taken full advantage of available

options, for example, in relation to bidding for special funds to purchase new undergraduate text books. The Department needs to make fuller use of the available training courses in library services for both staff and students.

The PRG feels that the Department has perhaps not taken full advantage of the range of facilities available in other departments which might be suitable for undergraduate teaching and research support.

Departmental Co-ordinating Committee & Methodology employed in the preparation of the Self-Assessment Report

The PRG commended the staff for their frank analysis of the Department's strengths and weaknesses and their collaboration in the preparation of the SAR. The PRG noted that all staff had engaged in these activities prior to the review, including the SWOT analysis. It was very apparent that all members of the Department had played a role in preparing the documentation. The PRG noted that the Department had fulfilled all the requirements laid down by the Governing Body for the preparation for the review.

RECOMMENDATIONS FOR IMPROVEMENT

The Department made a significant number of considered and well-thought-out recommendations for improvement in its SAR. The PRG endorsed the majority of these, some with amendments. These are all included in the recommendations for improvement made by the PRG and detailed below.

Academic Developments and Restructuring

The PRG recommends that:

1. The name of the Department of Geology be changed to the "Department of Earth Science".

2. The Department align itself in a central position in a future 'School of Earth and Environmental Sciences' in the new College of Science, Engineering & Food Science, with a view to playing a pivotal role in its development.
3. The First Year programme be reformed so that in future years there will be a minimum of three modules of Earth Science in the first year CK404 programme.
4. The existing undergraduate degree programmes be restructured, to offer a single BSc degree programme in Earth Science, but with the potential for specialisation from the Third Year into three distinct degree options.
5. New course curricula to reflect recent trends in the Earth Sciences, the external career market and the Bologna agreement be developed. The PRG also recommends that a cost-benefit analysis be carried out prior to the introduction of any new programme
6. A professional, fee-paying, MSc Postgraduate programme in the Environmental Earth Science area that is focused on, and underpinned by, environmental and applied research be developed. The PRG also recommends that a cost-benefit analysis be carried out prior to the introduction of any new programme.

Teaching and Learning

The PRG recommends that:

7. An audit of essential knowledge, concepts and skills for each degree programme be carried out.
8. Learning outcomes for each programme and each individual module be specified.
9. Courses and assessment appropriate to the learning outcomes be designed.

10. Undergraduate teaching resources be improved. (See recommendations 17 – 21 under the resources section).
11. The technical support be increased by one member of staff, with a focus on IT support and other appropriate skills, to support the Departmental core activities (see Recommendation No. 19, under resources).
12. Teaching workloads be reduced and balanced. Whilst it is clearly a matter for the Department to decide how to do this, the PRG urges them to consider if it is in the best interests of the full-time academic staff to spend as much time as they do on evening teaching and other outreach activities to the community. Some consideration might be given to hiring part-time staff to do this.
13. The Department should make available course handbooks to all students.
14. The Departmental web site be developed

Research

The PRG recommends that:

15. The Department needs to develop a coherent research strategy and plan as a matter of urgency. This encompasses many of the individual recommendations made by the Department:
 - a. Increase research output in terms of publications and target high impact journals. Increase numbers of postgraduate students and postdoctoral researchers.
 - b. Be more active in applying for research funding at both national and international levels through greater quality, innovation and collaboration.
 - c. Develop and strengthen involvement in the new Environmental Research Institute.
 - d. Form collaborative and strategic research groups within the Department.

- e. Seek greater participation and collaboration with large national and international research teams.
- f. Develop stronger research links with industry

16. The Department should continue to develop and strengthen its research focus on marine and environmental geology, as indicated in the SAR.

Resource Issues

The PRG recommends that:

- 17. The Department be consolidated into one building.
- 18. One additional academic staff member be appointed, in an area of research relating to the Department's renewed impetus in environmental and marine geology.
- 19. One additional technical staff member be appointed, with a focus on IT support and support for the core teaching activities of the Department.
- 20. The Department should explore access to equipment that is already owned by UCC, particularly within the College of Science, Engineering & Food Science, with a view to acquiring access for the staff and students of the Department of Geology.
- 21. The Department should seek ways of acquiring new equipment to support future developments in teaching and research.

Management and Staff Development

The PRG recommends that:

- 22. A Departmental Committee structure be introduced to deal more effectively with the implementation of decisions taken at staff meetings in areas such as academic, budgetary, policy and safety matters.

23. Communication lines between staff, and between staff and students, and between the Department and College and University must be improved.
24. A Staff Development Policy to deal with a range of issues identified in the SWOT analysis be established.
25. The work of the technical and administrative staff be reviewed to ensure their greater involvement and effectiveness in the work and activities of the Department.

Community Outreach

The PRG recommends that:

26. The Department continues to build on its strong track record in the field of Adult and Continuing Education.
27. The Department engages in more active promotion of the Earth Sciences at secondary school level to increase awareness of the discipline.
28. The Department seeks to provide, through a number of regional and national initiatives, a programme of in-service Geology training for Geography teachers.

OTHER SUGGESTIONS

While the PRG did not feel that the following points necessitated their inclusion as recommendations *per se*, on the basis of feedback from some stakeholders, the PRG felt that it might be worthwhile for the Department to give some consideration to:

- The possibility and feasibility of an option of undergraduate work experience in Geology-related industry as a part alternative to, or in addition to, a fourth year mapping project.

- The possibility that the First Year Mathematics and Chemistry courses would be much more attractive to students (and encourage progression to Second Year Geology) if they were made more relevant to the needs of the Geology students. This may not be easy to accommodate as these courses serve a broad spectrum of students. However, some dialogue between the providers of these courses and the Department of Geology about inclusion of some relevant material may be of benefit.

CONCLUSIONS

The PRG wishes to thank all members of the Department for their engagement with the review process, and their honesty and forthrightness in discussing issues concerning the future development of the Department. The PRG commends the Department for their extremely well-written and well-presented documentation and found the whole review to be both worthwhile and productive. The PRG hopes that this review and the recommendations made will be of benefit and assistance to the Department and the University in planning the way forward.

**Timetable for conduct of Peer Review Visit
Department of Geology**

Sunday 11th December 2005

- 17.30 Meeting of members of the Peer Review Group
Briefing by Director of Quality Promotion Unit, Dr. N. Ryan.
Group agrees final work schedule and assignment of tasks for the following 2 days.
Views are exchanged and areas to be clarified or explored are identified.
- 19.30 Dinner for members of the Peer Review Group and Head of Department and Departmental
Co-ordinating Committee.

Monday 12th December 2005

- 08.30 Convening of Peer Review Group in Jackson Library, Department of Geology,
Geography/Geology Building
- Consideration of Self-Assessment Report
- 09.00 Professor John Gamble, Professor of Geology
- 09.30 Meeting with all members of the Department
- 10.30 Tea/Coffee
- 10.45 Time allowed for private meetings of members of the Peer Review Group with members
of staff.
- 10.45 Dr. John Reavy
11.00 Dr. Bettie Higgs
11.15 Ms. Mary Lehane
11.30 Dr. Ivor MacCarthy
11.45 Ms. Pat Hegarty
12.00 Dr. Pat Meere
12.15 Mr. Mick O'Callaghan
12.30 Dr. Alistair Allen
12.45 Dr. Andy Wheeler
- 13.00 Working private lunch for members of Peer Review Group
- 14.00 Tour of local facilities of Department. PRG escorted by Professor J. Gamble and
Professor K Higgs
- 14.30 Professor Peter Kennedy, Vice-President for Research Policy & Support
- 15.00 Representatives of 1st and 2nd Year Students
- Lauren McDonagh, 1st Year

Niamh Mc Sweeny, 1st Year
Kiril Petriv, 1st Year
Sarah Hickey, 2nd Year
William MacCarthy, 2nd Year
Stephanie Wray, 2nd Year
Stephen O'Callaghan, 2nd Year

15.30 Representatives of 3rd and 4th Year Students

Elaine Hayde, 3rd Year
Laura Nolan, 3rd Year
Rachel Murtagh, 3rd Year
Ashley Murray, 3rd Year
Stephen O'Shea, 4th Year
Jean Hanlon, 4th Year
Chloe Parker, 4th Year
Tom Tindall, 4th Year

16.00 Representatives of MSc and PhD Postgraduate Students

Jenny Brittain, MSc year 1
John Savage, MSc year 2
Meg Ennis, PhD year 2
Mairi Gardner, PhD year 2
Katrien Van Landeghem, PhD year 2

16.30 Professor Ken Higgs, Chair of Department Review Co-ordinating committee

17.00 Representatives of recent graduates, employers and other stakeholders

Dr. Tara Davis, Environmental Office Cork County Council
Mr. Eddie Dempsey, UCC Geology graduate
Ms Jane Healy, UCC Geology graduate
Mr. Noel Leonard, Geotech Ltd.
Dr. Alain Murphy, Petroleum Affairs Division, Irish Government Office
Mr. Michael O'Brien, Cork City Council (Environmental Office)
Mr. Finbarr O'Neill, O'Neill Quarries, Cork
Dr. Marcus Pracht, Geological Survey Ireland, Irish Government Office
Mr. Tim McGillicuddy, UCC Geology graduate
Ms Ciara Meehan UCC Geology graduate
Dr. Kieran Mulchrone, UCC School of Mathematics and research collaborator
Mr. Donal O' Halloran, Cork Geological Association
Mrs Peggy O' Halloran, Diploma in Geology graduate
Mr. Michael O' hUigin, Diploma in Geology graduate
Professor Philip O'Kane, Professor of Civil Engineering, UCC
Dr. Jim Smith, Siemens and former Post Doc
Dr. Richard Unitt, former PhD graduate

19.00 Meeting of Peer Review Group to identify remaining aspects to be clarified and to finalise tasks for the following day followed by a working private dinner for members for the Peer Review Group.

Tuesday 13th December 2005

08.30 Convening of Peer Review Group in Jackson Library, Department of Geology

- 09.00 Tour of facilities of Department. PRG escorted by Professor J. Gamble and Professor K Higgs
- 10.00 Visit to Boole Library, meeting with Ms. Margot Conrick, Head of Information Services and Mr. Richard Bradfield, Science Librarian
- 10.45 Tea/coffee
- 11.15 Ms. Carmel Cotter, Finance Office
- 11.30 Professor Patrick Fitzpatrick, Acting Head, College of Science, Engineering & Food Science / Dean of Faculty of Science
- 12.00 Dr. Michael Creed, Department of Civil & Environmental Engineering, UCC
- 12.15 Consideration of issues by PRG, and drafting of final report, including a working private lunch for members of the Peer Review Group
- 14.30 Professor Paul Giller, Registrar & Vice-President for Academic Affairs
- 15.00 Professor John Gamble, Head of Department
- 16.00 Continuation of preparation of first draft of final report
- 17.00 Exit presentation made to all staff of the Unit by the Chair of the Peer Review Group, summarising the principal findings of the Peer Review Group.
- 19.00 Working private dinner for members of the Peer Review Group to complete drafting of report and finalisation of arrangements for speedy completion and submission of final report.

Wednesday 14th December 2005

Externs departed