

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

Quality Improvement/Quality Assurance

Peer Review Group Report

Department of Civil & Environmental Engineering

CPPU

HMRC

Academic Year 2004/05

3rd October 2005

MEMBERS OF THE PEER REVIEW GROUP:

Professor J. Kevin Collins, Departments of Medicine & Microbiology, UCC (Chair)

Dr. Barry O'Connor, Department of Process & Chemical Engineering, UCC

(Rapporteur)

Professor Padraic O'Donoghue, Department of Civil Engineering, NUI Galway,

Ireland (External)

Professor Dr. Aarne Jutila, Department of Civil and Environmental Engineering,

Helsinki University of Technology, Finland (External)

TIMETABLE OF THE SITE VISIT

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

The Peer Review Group (PRG) felt that the timetable was suitable and appropriate. The timetable allowed for all meetings to take place and sufficient time for discussion with the stakeholders that the PRG met. The reviewers would like to have met with a representative of the technical support staff. The reviewers would also recommend to the Quality Promotion Unit that meetings with staff of a department should be constructed so as to ensure that the Head of Department is not present for these meetings.

PEER REVIEW

Methodology:

All members of the review group met with all groups as indicated in the timetable.

Site Visit

The facilities at the Department of Civil & Environmental Engineering and the Hydraulic Maritime Research Centre in Togher were visited by the members of the PRG. The PRG met with staff and students of the department and also spoke with officers of the University. The PRG were unable to meet with the Secretary & Bursar, as he was not on campus during the review visit. In the interests of time the PRG did

not visit the UCC Library but met with the Subject Librarian and the Head of Information Systems.

Peer Review Group Report

The report was drafted on site on the final afternoon of the site visit and was finalised by email correspondence subsequent to the site visit. The report was agreed to by all the members of the review team and sent to the Director of Quality Promotion.

OVERALL ANALYSIS

Self-Assessment Report

The Department of Civil & Environmental Engineering prepared a self-assessment report, which was submitted to the reviewers in advance of the site visit. The two research units, HMRC and CPPU, also prepared individual self-assessment reports, which were also sent to the reviewers in advance. The PRG commended all the reports and found them to be honest, comprehensive and well prepared. The PRG thanked the department for the reports and agreed they adequately reflected the situation of the department at this point in time. However it was clear that not all staff had read the full departmental self-assessment report in advance of the review visit. The PRG noted that a benchmarking exercise was not completed in the self-assessment process because some staff of the department felt they were not in a position to do benchmarking. The external reviewers did not agree with that view.

The undergraduate Civil Engineering degree programme is highly recognised nationally and has the highest entry standards of any engineering degree programme in Ireland. It is evident that outstanding graduates are produced as testified to by employers, and by the external members of the PRG and the professional body, The Institution of Engineers of Ireland. Students interviewed during the site visit expressed their satisfaction with the delivery of the programme but did suggest they would like to see a formalised summer 3rd Year work placement module introduced into the programme.

The department is clearly competitive research active as evidenced to by the number of research grants awarded to staff of the department, the high level of research

income, and the publication records. The research programmes are conducted as independent activities of staff and the PRG felt that greater synergy could be achieved with a higher level of interaction between the research groups. The PRG saw no evidence of interaction between the groups and were of the view that a greater level of interaction would be beneficial to all concerned.

It is also evident that there is a concern at the age profile in the department. There are both recent and imminent retirements which, if not replaced, effectively reduces the number of staff from ten full-time academic staff to eight. The establishment of the Department is twelve, achieved in the 1970s. These retirements threaten the core disciplines within the department and the survival of the discipline of the Department of Civil & Environmental Engineering at UCC. This is a major concern voiced particularly by the external members of the PRG and one, which the PRG are agreed, requires urgent attention by the university.

It became clear during the discussions with staff and Officers of the University that the proposed development of the provision of a Degree in Architecture is planned to be a joint venture between UCC and CIT. It was the view of the PRG that while this is a welcome development, it is important that the department be fully engaged in the process. It is clear that additional resources will be required and the PRG felt that these should not be supplied at the expense of core disciplines in Civil & Environmental Engineering at UCC. The PRG were of the opinion that UCC should put in place a negotiating team to guide the university in all negotiations regarding planned programmes in architecture and comprising, among others, members of the Department of Civil & Environmental Engineering. It is important that the department is fully engaged in this process and that any developments in the creation of a Degree in Architecture /Department of Architecture should only serve to enhance UCC's Civil Engineering Degree programme.

The PRG were surprised at the level of resources of the department, viewing the department as relatively poorly resourced in terms of quality and quantity of space, facilities, equipment and staff. In the opinion of the PRG and the external stakeholders, there is both sufficient student demand for the programmes and sufficient employment opportunities to allow expansion of student numbers. The

academic staff are under serious pressure to meet the demands of the curriculum and the administrative demands placed on them by the university.

SWOT Analysis

The department conducted a swot analysis of the activities. The PRG commended and endorsed the analysis produced by the department. It was reflective and commented on issues such as communication within the department and between the department and the university; space issues and resourcing issues, the quality of the students and graduates and proposed future developments. Such issues were confirmed during interviews with all stakeholders.

Benchmarking

The PRG noted that benchmarking was not completed in the self-assessment process. Some staff of the department felt that the benchmarking exercise should not be carried out because, in their view, there was no comparable department or unit either in Ireland or elsewhere with such limited resources. The PRG were of the view that this would have been an opportunity to quantitatively demonstrate the paucity of resources on a comparative basis, particularly in terms of numbers of academic staff.

FINDINGS OF THE PEER REVIEW GROUP

Department Details

The PRG noted that the department is housed in an old building in poor quality space with insufficient accommodation for the student numbers. The location of the HMRC in Togher, located at a distance from the core of the Department, poses difficulties for the staff and students. The PRG noted that other members of staff have had to source and to locate laboratory facilities off-campus with subsequent logistical and support problems. It was noted that the fire certificate on the Design Office is for a maximum of sixty students and this, together with the loss of academic staff, is the major constraint on the current annual student quota of sixty-five (58+5+2).

The PRG noted that there is a concern at the age profile in the department. There are recent and imminent retirements, which, if not replaced, effectively reduces the number of staff from twelve full-time academics to eight. In the view of the members

of the PRG these retirements threaten the core disciplines within the department and the survival of the disciplines of Civil & Environmental Engineering at UCC. This is a major concern voiced particularly by the external members of the PRG and requires urgent attention by the University.

The PRG noted that the deficit of €484,000, which had accumulated in the renewal programme for the department, has been absorbed by the University. The Committee was also informed by the VP for Planning, Communications and Development that the 50% of the donor money which was described as overhead in the Self-Assessment Report remains in place in the University ring-fenced for space and start-up costs for the new Professorship. In addition €50,000 has been transferred into a fund for start-up costs for the new Chair. This was welcomed by the PRG.

Department Organisation & Planning

The PRG noted that there are significant issues concerning communications within the department and between the Department and the University. It is not clear to the reviewers that there is a structured format for department meetings and dissemination of information within the department. The University and the department must work together to ensure there is adequate bi-directional communications. The committee noted that this lack of fluid communication has been a problem at both University and Department level.

To enhance communication within the department in terms of organisational planning the PRG recommends that the department form a representative committee to develop a collective responsibility for the management and future of the department. Such a committee would play a valuable role in supporting the Head of Department and the department as a whole, particularly in matters of administration/interaction with the University and its strategic development within the proposed new College structure. It also would play a vital role in supporting the Head of Department and the department in its interaction with industry and other institutions and professional bodies (e.g. CIT, IEI, Inst. Arch., etc.) and funding agencies. This committee would form the interface between the department and the college/university administration and would share the burden of ensuring the future strategic development of the

department. This committee should concern itself with the pressing strategic issues, including:

- maintaining and enhancing the core disciplines within the department
- staffing levels – both in terms of numbers and their specialisations and core competencies
- the development of Architecture at UCC/CIT
- the ‘umbrella’ concept for the built environment as presented to the PRG by the Head of Department
- in negotiating the departmental presence in any new structures within UCC.

Teaching & Learning

The PRG commends the department on the teaching provision and the commitment to teaching of the staff. The PRG recognises the positive experiences of the students at all stages in the programmes offered. The stakeholders’ perception was of excellently trained graduates with skills suited to the long-term professional development and success of civil and environmental engineering in Ireland. The curriculum development organised by the department was considered highly appropriate by the PRG. The PRG recommends that the Department consider putting in place a module at the end of 3rd year based on appropriate summer work placement for the undergraduates.

The view of the PRG, following discussions with external stakeholders in particular, is that it is critical that each of the core disciplines in Civil & Environmental Engineering are appropriately maintained and supported.

The group of graduates, which consisted of key employers in the consulting and contracting areas, felt that a broad-based undergraduate Civil Engineering degree is best. They felt that the streaming that occurs in the latter two years may be too specialised. The PRG recommends that the present system of streaming be re-considered immediately.

Research & Scholarly Activity

There is significant research activity undertaken in the department as a whole. This was reflected in the enthusiasm of the staff for their ongoing projects. The research

activity is highly regarded nationally and internationally and wins very significant research funding. It is also evidenced by the scholarly output in terms of peer reviewed research publications in learned journals, in books, monographs and in peer reviewed conference proceedings. There is also a considerable contribution to the community through professional consultancy services provided by staff of the department. This adds to the significant workload of the teaching and research staff. There is clearly need for additional administrative support which could be funded from research overheads. There is an impressive collection of postgraduate students, both national and international, and this provides testament to the high standing of the department.

The PRG notes the vital contribution made by postdoctoral fellows/researchers to the success of the research activities and urges that issues of continuity and career prospects are university-wide and considered by national bodies.

HMRC

The PRG acknowledged that the HMRC is recognised as a major national resource and a recognised centre of excellence and recommended that the HMRC must be given better support from the university for the continuity of this specialised activity.

CPPU

The other unit in the department is the CPPU this is a self-funding unit within the Department of Civil & Environmental Engineering and the UCC Environmental Research Institute and adds to the department in terms of diversity. It gives a novel perspective on social ethical and emerging policy issues within the environmental sphere in Civil & Environmental Engineering.

Staff Development

The scarcity of resources and the heavy teaching workload of the academic staff makes it a potential problem for all staff but in particular the more recently appointed members of staff. The present high workload makes it very difficult for staff to compete in the Promotion & Establishment scheme for academic staff.

External Relations

The department has excellent external relations with the profession and with local authorities and other government agencies and are viewed by such bodies as an excellent resource. The department has a strong international profile as evidenced by collaboration in EU research programmes, exchange programmes and the strong complement of international students and researchers in the department.

The PRG strongly recommends that the department should initiate formation of an Industry Advisory Board preferably chaired by a distinguished external person. Such a group could play a critical role in the future development and professional profile of the department. The advice from the external stakeholders was to initiate formation of this panel immediately. The representatives from industry who met with the PRG during the site visit complimented the department on the consistently high quality and skills of the graduates

Support Services

There is under utilisation and under engagement with the Library. The PRG were informed that the department has not spent the monies allocated to it and would strongly recommend that the department seek to enhance its library holdings immediately.

The PRG were informed that recent events had resulted in the re-allocation of space and laboratory and teaching facilities, which were used by the department to other areas in UCC without consultation or communication with the relevant staff in the department.

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

The PRG complimented the departmental quality committee for the professional materials and information supplied. The PRG also noted that the Degree in Civil Engineering was also submitted for re-accreditation during the same period. The PRG regretted, as already noted, that a benchmarking exercise was not carried out by the department. The PRG felt that the benchmarking exercise is an important part of the self-evaluation exercise.

RECOMMENDATIONS FOR IMPROVEMENT

1. Staffing:

The PRG recommends

- That Dr. D. Ó Cinnéide and Professor J. Campbell should each be replaced by two college lectureships. Those four posts will bring the department up to the staffing level it was in 1980's. One of the lectureships should be in the speciality of transport and traffic engineering and at least one other in the core area of structural engineering. These appointments should be filled as a matter of urgency in time for the forthcoming academic year. Failure to do so will threaten the survival of the Department of Civil & Environmental Engineering in UCC.
- That the endowed chair in IT in Architecture, Engineering or Construction should be advertised as a career long post rather than a contract post based on future retirements.
- That an increase in the student quota should be actively considered. This increase, if implemented, would facilitate the appointment of an additional staff member in line with the 2000-2005 departmental plan and would contribute to the critical mass of the department.

2. Curriculum

The PRG recommends that

- Consideration be given to putting in place a Work Placement module at the end of 3rd Year.
- Streaming in final year of the undergraduate programme should be discontinued.
- Site visits should form an integral part of the undergraduate curriculum.
- Consideration should be given to increasing the proportion of the final grade as assessed by continuous assessment.

3. External relations

The PRG recommends that the department should immediately initiate the formation of an Industry Advisory Board preferably chaired by a distinguished external person.

4. Communications

The PRG recommends that the department and university must work together to ensure there is adequate bi-directional communications. Many in the department felt that the university did not do enough for the department and the university must be more active to restore this trust. Clarification of certain funding issues, as highlighted earlier in this report, is a step in the right direction.

5. Space

The PRG recommends that the loss of space in recent years, which has lead, inter alia, to serious overcrowding in laboratories in particular, is addressed by the University.

6. Library

The PRG recommends that both staff and students should avail more of the enhanced services available from the Library e.g. training, customer services, journal access (*note: the PRG were informed that €16,000 is available to the Department in the Library from Harry Walsh fund*).

7. Academic Structures

The PRG recommends that the identity of the Engineering Faculty must be maintained in any new academic structure put in place by the university. It is the opinion of the reviewers that it is essential that this identity should not be diluted.

8. External Relations

The PRG endorses the proposal for a degree in Architecture between UCC/CIT.

The PRG recommends that Civil & Environmental Engineering as a department is fully engaged in this process and that any developments in the creation of a Department of Architecture should only serve to enhance UCC's Civil Engineering degree programme.

9. Research

The PRG recommends that

- In recognition of its importance and unique contributions, the HMRC must be given better support from the university for the continuity of this specialised activity.
- Issues of continuity and career prospects for university research staff be considered by the university wide and at a national level.

Timetable for conduct of Peer Review Visit

Department of Civil & Environmental Engineering

Wednesday 1st June 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.

Thursday 2nd June 2005

- 08.30 Convening of Peer Review Group in G9, Civil Engineering Building
- Consideration of Self-Assessment Report
- 09.00 Professor Philip O’Kane, Head of Department
- 09.30 Meeting with all members of the department
- 10.30 Tea/Coffee for PRG + Staff of Department
- 10.45 Time allowed for private meetings of members of the Peer Review Group with members of staff.
- 10.45am Dr. Tony Lewis
11.10am Ms. Aveen Henry
11.30am Professor Ger Kiely
11.45am Dr. Donncha Ó Cinnéide
12.00pm Dr. Eamonn McKeogh
12.15pm Dr. Denis Kelliher
12.30pm Dr. Michael Creed
- 13.00 Working private lunch for members of Peer Review Group
- Meetings with representative selections of students
- 15.00 Representatives of 1st and 2nd Year Students
- 1st Years:
- William Anthony Kavanagh
 - Deirdre Neff
 - Anne Marie Quirke
 - Abdula Hayret
 - Seamus O’Cathail
- 2nd Years:
- Laura Allen

- Tim Coffey
- Catriona De Paor
- Susan Kehoe
- Finbarr Murphy
- Sean Murphy
- Ger O'Donovan

15.30 Representatives of 3rd and 4th Year Students

3rd Years:

- Gerard Crowley
- Cian Desmond
- Ronan Keane
- Dana Kelleher
- Com McCarthy
- Eoghan McCarthy
- Robert Philpott
- Robert Ryan

4th Years:

- Finbarr Burns
- Niamh Kelly
- Maria Lynch
- Thomas Murphy

16.00 Representatives of postgraduate students

- Sean Barrett, MEng Sc
- Kateryna Korniyeva M.Eng.Sc. 1
- John McCarthy M.Eng.Sc. 1
- Jim McGrath Ph.D. 3
- Matteo Sottocornola Ph.D. 2
- Emanuel Steinmann M.Eng.Sc. 1

16.30 Representatives of Researchers

- Kenneth Byrne
- Niall Dunphy
- Brian Holmes
- Paul Leahy
- Renee Marin
- Jillian Murphy
- Brian O'Gallachoir
- Adrian Birkby

17.00 Meetings with representative selections of recent graduates, employers and other stakeholders as appropriate

- Mr. Kevin Fitzgibbon, *D J Fitzgibbon & Co. Ltd.*
- Mr. Frank Maguire, *RPS Group*
- Mr. Sean Clarke, *Arup Consulting Engineers*
- Mr. Fergus Collins, *Bowen Construction Ltd.*
- Ms. Gillian Mulcahy, *E.G. Petitt & Co.*
- Ms. Alice Riordan, *Fehily Timoney & Co.*
- Mr. Tim O'Shea, *Fehily Timoney & Co.*
- Mr. Michael Keohane, *Project Management Limited*

- Mr. Tony Moloney, *Retired MD of Malachy Walsh & Partners*
- Dr. Tony Barry, *Retired Chief Executive of Cement Roadstone Holdings*

Venue: Staff Common Room

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.

Friday 3rd June 2005

08.15 Convening of Peer Review Group in G9, Civil Engineering Building

08.30 Professor Paul Giller, Registrar & Vice-President for Academic Affairs

09.00 Mr. Michael O'Sullivan, Vice-President for Planning, Communications & Development

09.30 Professor Robert Yacamini, Professor of Electrical & Electronic Engineering and former Dean of Engineering

09.45 Ms Margot Conrick, Head of Information Services, UCC Library, and Mr. Richard Bradfield, Subject Librarian

10.00 Visit to core facilities of Department – escorted by Professor O'Kane

10.45 Mr. Liam Hodnett, Dean of Engineering, CIT and Dr. Joe Harrington, Head of School of Building & Civil Engineering CIT

11.15 Ms. Carmel Cotter, Finance Office

11.30 Professor Peter Kennedy, Vice-President for Research Policy & Support (and former Dean of Engineering)

12.00 Visit to HMRC laboratories in Togher, PRG escorted by Professor Tony Lewis

13.00 Working private lunch for members of the Peer Review Group

14.00 Professor Philip O'Kane, Head of Department

14.30 Preparation of first draft of final report

17.00 Exit presentation, made to all staff of the Department by the Chair of the Peer Review Group summarising the principal findings of the Peer Review Group.

The presentation is not for discussion at this time.

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.

Saturday 4th June 2005

Externs depart