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1 Executive Summary

1.1 CollR, announced by the HEFCE in Circular 4/97, is an initiative to replace DevR and provide non-formula funding for the former PCFC sector to support the further realisation of research potential by encouraging the selective use of funds, and also by supporting "collaboration as a way of developing research potential" where appropriate. Originally CollR funding totalling approximately £16 million a year was agreed for four academic years from 1997-8 in the expectation that the next RAE would take place in 2000, but as the next RAE will occur in 2001 CollR will be now be funded up to July 2002.

1.2 An assessment of the extent to which the initiative is being effective in meeting its own objectives is complex, and needs to be made against the four key expectations identified in Circular 4/97:

a) That institutions receiving CollR grants would use them selectively to achieve higher quality ratings in future RAE exercises. Most institutions receiving CollR support appear to be allocating funds in a manner which is broadly consistent with selectivity. This ranges from a highly centralised approach using a competitive bidding system, to a highly devolved process which relies on budget centres applying their own definitions of selectivity. For almost all institutions the RAE 2001 is a very powerful driver towards increasing selectivity, and final judgements about the value of CollR must wait until then.

b) That CollR funds should promote the sharing of the physical research infrastructure, including equipment and libraries. We have been unable to find many cases where the use of CollR funds has involved significant gains in the shared use of infrastructure. In practice this is not surprising, and arises from a number of factors including a lack of incentives for universities to share facilities, and the generally small CollR allocations at departmental level which has encouraged expenditure on direct costs. For the remainder of CollR until 2002, it is unlikely that many institutions will wish to place emphasis on sharing physical infrastructure costs, except in a small number of areas that represent specific priorities. However, for non-research intensive universities and colleges with low QR income this represents a considerable problem, in that resources are generally not available to develop a research infrastructure. Such an issue cannot realistically be tackled by using small amounts of CollR funding, but needs rather to be considered more broadly as part of the HEFCE Fundamental Review of research.

c) That collaboration in various forms was to be encouraged (hence the name of the initiative), but was not compulsory. Although CollR has stimulated some new collaboration (particularly in a small number of institutions which have emphasised its strategic importance) overall most collaboration appears to be based on existing relationships. Significant barriers to collaboration remain, including - but not limited to - the lack of incentives for research intensive universities to participate. The report presents a typology of motivation for collaboration which future policy should take into account.

d) That institutions were encouraged to build on the strength of the former PCFC institutions in "user related research", particularly in serving their local communities. Both the CollR plans as accepted by HEFCE and existing research strategies identify

developing user related research as a priority for many institutions, and a review of HEROBiC bids confirms such intentions. However, there is no necessary link between the imperative for user related research and other CollR objectives such as increasing RAE ratings. We would therefore expect institutional priorities to differ in these areas.

Conclusions

1.3 In summary, in its first two years of operation CollR has provided valuable support for that part of the higher education sector previously funded through DevR, and this has been warmly welcomed by most institutions. However, with the exception of a more selective allocation system concentrating on 2 and 3b rated UoAs, it is difficult for most institutions to see a significant difference between the types of activities supported by DevR and those by CollR. This suggests that with the exception of selectivity, the specific aims of CollR do not address the immediate priorities of most institutions, a point confirmed by an analysis of recent patterns of expenditure. This view is also supported to the extent that many institutions still appear to regard the initiative as DevR and some even continue to describe it as such.

1.4 For the remainder of the initiative until 2002 we would expect CollR to provide valuable financial support to underpin the selective development of research in eligible institutions. However, there is less indication that it will enhance research collaboration much beyond that which would in any case have taken place in order to meet institutional strategic plans. It also seems unlikely to lead to any significant sharing of infrastructural and associated costs.

2 Introduction, Terms of Reference and Methodology

2.1 CollR is an initiative, announced by the HEFCE in Circular 4/97, to provide non-formula funding for the former PCFC sector to support the further realisation of research potential in institutions that previously received only limited research funding from the Council. Through CollR this was to be achieved by encouraging institutions to use funds in a selective manner, and also by supporting "collaboration as a way of developing research potential" where this was appropriate. Originally CollR funding totalling approximately £16 million a year was approved for four academic years from 1997-8 in the expectation that the next Research Assessment Exercise (RAE) would take place in 2000, but the Council has recently announced that as the next RAE will occur in 2001 CollR will be funded up to July 2002. Appendix A lists those institutions in receipt of CollR funds, and the amounts awarded in the first year of operation.

2.2 This evaluation of the CollR initiative to date was undertaken by a partnership of the Higher Education Consultancy Group (HECG) and the Commonwealth Higher Education Management Service (CHEMS). The consultancy team consisted of: Allan Schofield as project director (HECG); John Fielden and Svava Bjarnason (CHEMS); and Dr Sandy Thomas, Director of the Nuffield Council for Bioethics and a senior fellow at the University of Sussex Science Policy Research Unit.

2.3 The terms of reference for the evaluation of the initiative, as defined in the invitation to tender produced by HEFCE, were to:

- Ensure accountability and value for money in the use of public funds.
- Assess the extent to which the aims of the initiative are being met.
- Identify the key lessons to be learned and how they might influence future research funding policy.
- Identify 'good practice' taking place within institutions which should be more widely known within the sector.

Separately from this report, the consultants have also provided feedback to HEFCE on the effectiveness of the Council's management of the initiative.

2.4 More specifically, in order to meet the aims of the evaluation, the Council expected the successful tenderer to address the following issues:

- Effectiveness: including the main achievements of the initiative, and the extent to which it has met its main aims.
- Institutional strategies in using CollR funds: including an analysis of institutional approaches to using CollR funds, and the main barriers to maximising the potential contribution of CollR funds to enhancing institutional research.

- Collaboration: encouraging appropriate collaboration to enhance institutional research is an important part of the initiative, and issues to explore include: the extent to which CollR funds have encouraged collaboration; whether the scale of funds available has been appropriate to stimulate additional collaboration within the context of existing institutional priorities; and the identification of forms of 'good practice' in collaboration that CollR funding has stimulated.

- Institutional outcomes: although the 2001 RAE will provide an indication of the effectiveness of using CollR funds in enhancing research quality, this evaluation was required to collect information on institutional outcomes to date, and the monitoring, support, and evaluative approaches used by institutions to encourage successful outcomes.

- The management of the initiative, including an analysis of the lessons that can be learnt by the Council in managing future initiatives.

- The implications for research policy: in the context of the Fundamental Review of research currently being conducted by HEFCE, relevant issues include: the extent to which the experience of institutions in using CollR provides evidence for research funding after 2002; whether there have been any adverse effects of CollR funding; and other issues concerning the link between CollR and aspects of broader research funding.

2.5 The evaluation was conducted in the winter of 1999-2000 with this report being produced in order to allow its findings to be available to the Fundamental Review. The evaluation also served the purpose of second year monitoring of the use of CollR funds, thus avoiding duplication and reducing the burden of reporting on institutions.

2.6 Numerous activities were undertaken as part of a comprehensive methodology of activities for the evaluation, including:

- An extensive documentary analysis including all CollR proposals and relevant HEFCE papers.

- Under the auspices of HEFCE, a questionnaire was sent to all institutions in receipt of CollR funds. A response rate of approximately 92% was achieved with only five institutions not replying. This questionnaire sought both monitoring data about CollR activities undertaken, and also a range of evaluative information on progress to date. A copy of the questionnaire is attached as Appendix B.

- Visits to eight institutions in receipt of CollR funds plus discussion of issues concerning CollR in other relevant institutional visits undertaken as part of a parallel study for the Fundamental Review of the interaction between research and teaching.

- A comparative analysis of collaborative research initiatives in other countries, especially in Australia, Canada, New Zealand, and the USA.

We were, however, careful not to duplicate broader issues concerning research collaboration which are being investigated as part of another study for the Fundamental Review.

3 The Operation of CollR

3.1 As announced in Circular 4/97, CollR replaced a previous Council initiative - DevR - which had been created in 1992 to encourage research potential in institutions in the old PCFC sector that had become newly eligible for research funding. The generally low research base of such institutions was reflected in a funding methodology for DevR which was calculated on the number of research active staff entered for the 1992 RAE who achieved a rating of 2 or above, and considerable institutional freedom existed on how DevR funds could be used. In reviewing DevR, data collected by the Council suggests that, in general, the performance of units of assessment (UoA) in DevR supported institutions rose by more than that in non-supported institutions. Moreover receiving institutions generally confirmed the value of DevR in assisting the development of research, although any precise causality between DevR funding and RAE outcomes was difficult to determine.

3.2 Nonetheless, Council Paper 98/122 notes that "it is disappointing that about 40% of institutions showed no improvement in their grade [RAE] despite their perceptions...that the funding nevertheless brought improvements in research volume and other, less measurable benefits". The paper concluded that "With hindsight, the Council should perhaps have been more selective in allocating DevR, especially to very small units".

3.3 This concern about greater selectivity is a central theme of CollR, which was announced to institutions (in Circular Letter 4/97 dated 10 March 1997) as having the following purposes:

- The expectation that institutions receiving CollR grants would use them selectively to achieve higher quality ratings in future RAE exercises.
- That CollR funds should promote the sharing of the physical research infrastructure, including equipment and libraries.
- Collaboration in various forms was to be encouraged (hence the name of the initiative), for example between higher education institutions, and between HEIs and the private and public sectors. However, collaboration was not compulsory.
- Institutions were encouraged to build on the strength of the former PCFC institutions in "user related research", particularly in serving their local communities.

3.4 The methodology adopted to allocate CollR funds differed slightly from that previously used in DevR, particularly in that resources were to be allocated on the basis of the number of staff entered into the 1996 RAE for UoA with a 2 or 3b rating, as institutions with higher rated UoAs would be receiving QR support. For 2 rated UoAs a base level of £3000 per member of staff was paid for Band C (library based provision); £3,900 for Band B (part-laboratory provision); and £5,100 for Band A (laboratory provision). UoAs rated 3b qualified for basic QR funding but had a 20% premium added. For the sector as a whole the total annual expenditure on CollR was similar to that for DevR, although 71 institutions were eligible for funding in 1996 as opposed to 55 under DevR. For many universities this meant a decline in allocations although the effect of these changes varied considerable between institutions.

Individual allocations vary very widely depending upon the pattern of research activity, the largest allocation (1997 figures) being £1.1 million (the biggest by some way), the lowest £4,675, and the average allocation for post-1992 universities is in the region of £300,000.

3.5 In order to receive CollR funds, eligible institutions had to submit proposals for support by 18 April 1997 against criteria which:

- Demonstrated that the institution had (or shortly would have) in place a considered strategy for the use of CollR funds.
- Built on existing strengths and potential and were appropriately selective.
- Were based on a realistic timescale where identifiable results capable of evaluation were likely to be achieved.
- Identified whether the institution had in place, or was about to establish, mechanisms to monitor the use of funds annually, and to review the quality of work undertaken.

3.6 Institutional proposals were reviewed by an assessment panel with external referees, and following further clarification of the proposals from five institutions all plans were accepted. Six institutions received less than £20,000 and were therefore excused from submitting a plan.

3.7 In submitting proposals institutions were not required to provide detailed plans on how they intended to spend their CollR allocation. Rather they were required to satisfy the assessment panel on how they intended to meet the criteria set out in paragraph 3.5 above. It follows that in considering the effectiveness of CollR to date, this cannot be done in any straightforward way in relation to the original proposals provided to the Council.

3.8 Institutional proposals varied considerably in terms of their approach to using CollR funds selectively, and most identified an intention to allocate resources only to 2 or 3b UoAs, thus incorporating HEFCE formula into their own institutional plans. However, a minority (38%) noted that, whilst CollR would be allocated selectively, this would not be exclusively to 2 and 3b UoAs. Most institutions stated that they would not be funding any UoAs rated 1 in the 1996 RAE, but a small number noted that such groups would not be ruled out when pump priming new areas of activity. In the event, all institutions plans were approved, irrespective of whether there was an automatic link by HEIs between the formula for the calculation of CollR funds (based on 2 and 3b UoAs) and the resources actually allocated within institutions. We pursue this point further in both chapters 4 and 6.

4 Institutional Strategies in Using CollR and Outcomes

4.1 In this chapter we review how institutions have decided to use their CollR funding and the way they have linked this to their strategies for research. We look in particular at some of the approaches taken to allocating the funds to departments or schools. We then illustrate this with some examples of how departments have spent their allocation and identify some possible models of good practice. The chapter concludes with a commentary on research outcomes and we give examples of both success stories and problems which have arisen. An overall judgement on the effectiveness of CollR as a programme is left to chapter 8.

Strategies and Allocation Methods

4.2 In the light of the imperatives of HEFCE for funds to be used selectively, a key question for the evaluation to answer is whether institutions have been selective; the issue of whether higher ratings have been achieved must, of course, wait until 2001.

4.3 All institutions receiving CollR support appear to have an objective of realising and developing their research potential, but only one-third report identifying the objectives of CollR funding as part of their overall research strategy. From the information available through survey returns and institutional visits, there seem to be various models of research strategy that apply to the selective use of CollR funds:

- Some institutions appear to take the view that wherever possible all academic staff should be encouraged to undertake research that can be entered into the RAE (thus hopefully leading to QR funding), in order to meet the strategic mission for the university including enhancing the quality of teaching. For example, in one university CollR funding was seen as a way of helping to get everyone research active and help to meet the strategy of providing “research-led learning”. This widening of the scope was reflected in the internal bidding process which allowed those who had been inactive in 1996 to bid for CollR funds.

- Other institutions appear to encourage all staff to undertake research, but take the view that that it may be funded from a wide variety of sources many of which may not be relevant to RAE submission but apply directly to a range of applied activities.

- A third group of institutions are adopting a highly selective strategy whereby only special areas of research excellence should be developed and supported by either external funds (CollR and QR where available) and/or internal central research funds (usually top sliced from other budgets).

4.4 Examples of all three of these strategies were found in the institutions funded by CollR, and a policy of selectivity is compatible with each of them although it is likely to take different forms. However, the great majority of institutions have adopted a strategy of selectivity, with some central direction and the identification of specific staff and UoAs to receive support. It is, however, too soon in the initiative to be able to identify the extent to which these three strategies are more or less effective in their use of CollR funds.

Table 4.1: Internal Institutional CollR Allocations

Item	*Actual Responses*	*Responses as % of total*
❑ CollR funds have **only** been used to support research in UoAs rated 2 or 3b	33	61%
❑ **Most** CollR funds have been used to support UoAs rated 2 or 3b	21	39%
❑ **Some** CollR funds have been used to support UoAs rated 2 or 3b	0	0%
❑ **No** CollR funds have been used to support UoAs rated 2 or 3b	0	0%

4.5 In Table 4.1 the patterns of internal CollR allocations is noted (question 2.2 of the questionnaire in Appendix B), and it is evident that most institutions were selective in the way that they allocated their CollR funds by limiting support either wholly or mostly to those who had gained 3b and 2 scores in the 1996 RAE. Impressionistically, however, we believe that the institutional returns set out in Table 4.1 slightly overestimate support given only to 2 and 3b UoAs, and we came across a number of examples where some CollR allocations had been spent in other areas.

4.6 In many institutions CollR allocations are relatively small, and therefore in practice at the departmental level in most cases CollR funds were aggregated with other sources of research support (usually QR funds) to form a common research pool. However, as we note in chapter 6 all institutions were able to account separately for CollR expenditure. The methods of institutional allocation vary considerably, and include:

- To allocate to departments at grade 3b or below by a formula (a common approach).
- To provide only some funds by a formula and to place the remaining funds in a central pool against which departments are asked to bid.
- To place all the funds in a pool against which all departments with 3b and 2 scores can submit bids (another widely used approach).
- To allocate funds on a different basis to 3b and 2 departments, for example one institution supports all grade 2 departments on the same basis, while grade 3 units receive a sum less a 30% top slice for a central pool of funds.
- To fund only those 3b departments which can develop credible strategic plans for achieving a grade 4 in the next RAE; while grade 2 departments receive nothing unless they collaborate or amalgamate with higher graded units of assessment (UoAs).

- To use most or all CollR money in one year for a certain type of expenditure (teaching relief or staff development).

4.6 Phasing the allocation of funds was the rule in one institution, where after a baseline allocation has been made, a formal “corporate review” of progress is carried out by the Research Office and “faculties are given the opportunity to identify how additional CollR funds would allow them to substantially improve their targets which they are addressing under the next RAE exercise”. UoAs which pass this hurdle receive a supplementary allocation of funds.

4.7 Where a central research fund was created, the criteria used to select and assess bids against it are important. In most cases these included a fit with the institution's research strategy and the development of a plan for the next RAE submission. In one institution the selection process used panels of external assessors who visited the departments in question and reported to the Vice Chancellor on the viability of the bid.

4.8 Whether or not proposals would encourage collaboration was an evaluation criterion for the bids in some institutions, but not in all cases. A small number reported that they only gave funds to bids which met specific collaborative aims. One institution was developing the concept of multi-disciplinary research centres (targeted at meeting the needs of commercial clients) and tied the allocation of funds to projects which fitted within this system.

4.9 Overall it appears that many institutions are willing to be very selective in the way that they allocated funds. One university with £250,000 to allocate gave one grant of £53,000, three of circa £20,000 and 13 of less than £10,000, and it was reported that the community agreed with this degree of focus. It was widely felt that even the small grants appear to have had a morale-boosting effect, particularly in humanities departments with little other research funding.

4.10 The comments of some universities imply a toughening attitude to UoAs that obtained grade 1 in the 1996 RAE or did not enter. “University strategy broadly accepts the map drawn by RAE grades as indicative of research achievement and potentiality” wrote one institution. Another supported only those UoAs which aimed to get grade 4. On the basis of the data from our survey returns, it appears that the principle of selectivity is seen as the only realistic way to build up research capacity.

4.11 The position on charging of overheads to departments on CollR funds varies considerably. Many institutions report allocating all HEFCE funds without any overhead charge, but others remove a 'top slice' for central research support and a central research fund before following one of the allocation methods described above. In one case a 30% top slice from a grade 3b department was used to fund two post doctoral fellows in higher graded research groups.

The Use of CollR Funds

4.12 In this section we examine how CollR funds have been used, what categories of expenditure institutions have engaged in, and the issues arising.

4.13 Table 4.2 notes overall average expenditure using data derived from the monitoring form completed by institutions, and apportioned between seven different expenditure headings. As is clearly evident, most expenditure (61%) has been on staff related items, and relatively little on infrastructure. Perhaps the most interesting item is that 20% of CollR (approximately £3.8 million) appears to have been spent on teaching only staff (usually sessional or part time) in order to release time for existing staff to undertake or complete research. However, at the moment it is unclear whether this represents a short term institutional strategy to release a backlog of research in various stages of completion, or is part of a longer term trend to try and offset high teaching workloads in post-1992 institutions.

Table 4.2: Institutional CollR Expenditure by Category (1998-99)

Expenditure Category	***%***
Spent on physical infrastructure, IT equipment, books	11%
Spent on postgraduate students	19%
Spent on research active staff, FT and P/T	29%
Spent on teaching only staff to release time for research	20%
Spent on staff development	12%
Spent on research administration	4%
Spent on other items	5%
Total	100%

4.14 Notwithstanding such average expenditure, institutional allocations varied significantly, for example one university spent 95% of its allocation on research staff, another used 100% on staff development, while five decided to use over 30% of the funds on physical infrastructure. However, institutional variations are so large in this area (for example, the size of CollR; ratios to QR; adequacy of existing infrastructure; inherited staffing patterns, etc) that is impossible on the basis of current data to draw any conclusions about the link between institutional expenditure and longer term enhancement in research effectiveness. Clearly the outcomes of RAE 2001 will provide a valuable measure.

4.15 Although CollR funds are used for a wide range of research activities, three particular areas of interesting practice which are considered in more detail below: providing funds to support departments without an existing research culture; institutional activities for providing support and encouragement in the development of research; and supporting collaboration.

4.16 In some disciplines there has either not been a tradition of research, or else existing professional practice has not been seen to be relevant to the RAE, and some institutions report that CollR funding has proved very useful in helping to get this started. Success in this area led one institution to suggest that there might be an argument for HEFCE allocating funds equivalent to DevR only to those disciplines without a well established research base. As an illustration the following two examples - selected from a number available - provide an indication of where significant progress is being made:

Example 1: Nursing

The reorganisation of nursing education has led to many newly established departments in UK universities, and there has not been a tradition of research in nursing, and there has been a good deal of catching up to do. At one University a new Nursing Centre (established in 1996) has used CoIIR funds to help introduce a culture of research. A successful bid for £30,000 to the University's competitive allocation system was used in four ways:

- To encourage staff to produce research publications.
- To enable staff to attend seminars and conferences.
- To release teaching staff for research.
- To develop stronger links with the NHS.

In the first year, workshops were organised to train staff in the management and publication of research. Several are now publishing research papers, and of the 100 academic staff about 20 will be put forward for the next RAE. The Centre's total research income has expanded considerably over the past four years, allowing more teaching staff to be brought into research. For example, the stronger links with the NHS has resulted in a £250,000 grant from the Department of Health. CoIIR funding, previously comprising 40-50% of the overall research income, now only constitutes 10%. One of the most important aspects of CoIIR support in the Nursing Centre has been the availability of funds to act as 'a lifeline' and play a crucial role in encouraging staff to develop research skills.

Example 2: A Research Centre for the Performing Arts

The School of Art, Design and Performing Arts in one University has a complex structure which includes fine art, choreography, knitwear design and jewellery. It has used CoIIR funding in a variety of innovative ways to bring staff from the different subject areas together. There have been two main elements in the School's strategy for capacity building in research:

- The use of relatively small amounts of funds widely across the School to facilitate a wide range of activities.
- The creation of a new research centre for the performing arts.

In the first year, CoIIR funding was used to bring outside part time staff to seminars, to create music recordings, to rent space, to fund teaching relief, and to top up existing research projects nearing completion. The largest amount was spent on a temporary half time senior post.

The new research centre for performing arts is intended to be an innovative development with significant national standing. The timing of CoIIR funding has been crucial in getting the centre established in an area which has almost no tradition of research, and which is only just beginning to attract postgraduate students. The centre has its own physical space, and there are six part time research associates. This initiative, which has successfully brought together diverse disciplinary groups, is now seeking a substantial extension of CollR funds from the University concerned.

4.17 In addition, to supporting emerging research areas, there are numerous examples of 'good practice' of using CollR funds to assist in the general development of research which have emerged from the responses of institutions to our questionnaire. For example:

- One university has a stated objective in its research strategy “to urge departmental collaboration with 5* and 5 RAE 1996 rated departments elsewhere”, and uses external assessors from such UoAs to assist in the selection of CollR proposals.

- A 'Research Day' is held at one university in which all faculties present their research activities to colleagues across the university in order that cross-faculty collaboration can develop.

- One school in a university visited embarked on a very selective programme of mentoring between targeted younger staff and experienced research staff in other departments, with funds used to reward the mentors.

- At another university funds have been used to help inexperienced researchers develop proposals and feasibility studies for competitively funded external projects.

4.18 In short, many schools and departments have been imaginative in the way they have used their CollR allocations. However, a major question remains to be addressed: has such activity taken place because of the special nature of the earmarked CollR initiative, or simply because CollR provides an additional research funding stream?

4.19 In chapter 5 we comment on the extent to which CollR has increased the amount of collaboration, however, it is clear from our visits that collaboration with other departments or institutions was not always a feature of CollR activities. This may be partly due to confusion about the purposes of the funding (see chapter 3), or because of the dominance of the developmental motive in institutional approaches to funding.

Institutional Outcomes

4.21 In Table 4.3 we set out institutional assessments on the extent to which their objectives in CollR funding have been met. Not surprisingly, there is general satisfaction with outcomes to date, recognising that support has only been available for two years. We have already noted (in chapter 3), that institutions were not required to write detailed plans in their original CollR proposals, and this self-declaration is the only evidence available on progress to date. However, on the basis of our visits and other discussions with the institutions concerned we would generally confirm the assessment that significant progress is being made, with the 2001 RAE as a very significant driver.

Table 4.3: Institutional Assessments on Their CollR Achievements to Date

Item	*Actual Responses*	*Responses as %*
To what extent have your institution's objectives for using CollR been met for the first two years of funding?:		
❑ In full	17	27%
❑ Mostly	40	65%
❑ Partly	5	8%
❑ Note at all	0	0%
To what extent would the achievement of these objectives have been possible without CollR support?		
❑ In Full	0	0%
❑ Mostly	2	3%
❑ Partly	40	65%
❑ Not at all	20	32%

4.22 The ultimate measures of success within institutions will depend on the criteria they themselves set in allocating CollR funds and, as we have seen, this was usually related to an improvement in RAE grades in 2001. Many of the centrally-based research managers we interviewed expressed considerable confidence that the research capacity of the departments receiving CollR funds had been strengthened. However this optimism is to be expected and cannot be confirmed objectively. Some were however able to point to examples of DevR funding leading to greatly improved grades in the 1996 RAE.

4.23 There are many other intermediate outcomes from the use of CollR funding which can be identified within institutions:

- A contribution to the development of a research culture in some departments which lacked it before, including imparting greater confidence (and some free time) to research novices.

- In some institutions assisting in the development of a cadre of new researchers through the use of research bursaries (one university has funded 50 of these in each year).

- The acquisition of skills such as research project management, bidding for projects, and the development of collaborative arrangements which have resulted from the expenditure on staff development (at an average of £23,400) per institution.

- In a small number of cases improved equipment in laboratories allowing researchers to claim that they are now “well founded". However, such an outcome may not be compatible with one of the overall aims of CollR to encourage greater sharing of infrastructure.

- The creation of new collaborative links and the strengthening of old ones. While the responses to the questionnaire confirm that the bulk of collaborative activity has been merely building on old links, there are examples of new collaborations being created. Chapter 5 below looks at this in more detail.

- The use of mentoring and links between lower-rated and higher-rated research departments to form interdisciplinary partnerships, sometimes through new research centres.

4.24 The question of income generation is being taken seriously by some institutions, and there are examples where investment in CollR research is starting to attract additional funding from other sources. In relation to research generally one university reported that "there is now an overall gearing of RAE funding to other external research funding in excess of 3.2 whereas this was barely 1.0 three years ago". A key variable here is the planning intention of institutions in this area, and the extent to which there is a clear expectation of income generation within budget centres. Indeed, we discovered one university which expects all departments receiving CollR funding to generate £6 for every £1 received.

4.25 Although two years is a very short period for significant income generation to have taken place, some success stories are evident:

- One university allocated 25% of its total CollR fund to one unit based on a department which had only earned a grade 1 in the 1996 RAE. This grant has allowed the creation of a specialist centre which is already earning large sums through research collaboration.

- Overall the ratio of CollR to total research income appears to be falling, from 21.9% in 19978-98 to 19.8% in 1998-99.

- A post-1992 university claims that "the most useful spin off has been the successful application for research grants jointly in collaboration with higher rated universities".

- Several universities describes a range of external partnerships that have been supported, which include not only UK based activities, but links across Europe and North America, with leading industrial companies and with research intensive pre-1992 universities.

Institutional Evaluation and Monitoring

4.26 All institutions receiving CollR are required to have appropriate evaluation and monitoring arrangements in place, and three questions were asked about these measures in our monitoring questionnaire to institutions. Replies indicate that all but one institution have used CollR funds as originally set out in their proposal to HEFCE, and that all claim to have appropriate evaluation mechanisms in place.

4.27 While a number of different evaluation mechanisms are used they typically involve annual reports to a central evaluation committee (which may also be the institutional research committee), although practice varies on whether this process reviews all external research

funding or just CollR. Usually the head of research will be a member or chair of such a committee, and in some cases a parallel faculty structure exists whereby CollR progress in departments will be reviewed by faculties before reports are sent to the centre. Typically, monitoring and quality assurance arrangements of this kind are widely understood in post-1992 institutions, with a high degree of compliance.

4.28 Institutions report few negative outcomes as part of their own evaluation of CollR funded activities, and report that - in general - the problem is not underachievement in the efficient and effective use of CollR resources, but rather a lack of funds to meet demand.

Potential Problems

4.29 Three main problems have been reported by institutions: practical difficulties in collaboration (see chapter 5); the length of time to develop a research culture; and the size of CollR financial allocations.

4.30 A common point raised by institutions was the length of time that it takes to develop a research culture and therefore the need for a stable funding base for enhancing research. Eight years (including the DevR period), it is suggested, is not enough to grow and develop a core of quality staff in a department, an argument generally made by those institutions with a very small research active base or with ambitions to have universally research active staff. However, some of those universities which have decided to limit their research support to a selected number of departments have reached a state where a research culture is now more firmly embedded.

4.31 Another point made by some institutions was that the sums of money from CollR were too small to make much difference to research development overall, and also made internal allocations difficult.. However, evidence from many institutions has shown that they have been able to use the funds creatively and selectively in order to provide genuine incentives. Others have argued that even tiny sums do in fact make a difference if they buy a small amount of teaching relief.

Conclusions

4.32 It can be concluded that institutions have all adopted approaches to developing research which provide a framework for CollR funding. In most cases these approaches accept that the role of the centre is to select some UoAs which have the potential to become leading centres for research. Mechanisms have been developed to allocate central pools of funds according to criteria related to the institutional strategy, while often leaving small ladders of opportunity for new areas of research with potential. Similarly, evaluation systems are generally in place to ensure that CollR activities are monitored regularly.

4.33 Another finding is that institutions have often been imaginative in the way they have allocated and then used CollR funds. For every one institution that simply used HEFCE's allocation for internal purposes there are many more that developed more flexible mechanisms to fit their own strategies.

4.34 Many of the results of all this effort have yet to emerge, but one tangible by-product has been the emergence of internal selectivity and the acknowledgement by many institutions that universal aspirations to undertake quality research are no longer tenable. This has been linked with the development of selective mechanisms for allocating research funds which appear to have been broadly accepted within institutions and which provide incentives for those who merit them. Allied to this has been the development of central research support offices with the skills and competencies to manage the selective growth of research in the institution.

5 Key Outcomes Concerning Collaboration

5.1 In reporting on the extent to which CollR has encouraged collaboration, this report deliberately concentrates on those issues of direct relevance to the initiative and excludes consideration of the wider issues concerning research collaboration which are being addressed in the Fundamental Review study. We have noted some of the initial and interim conclusions of that study, and in the context of CollR confirm three of its main conclusions:

- That some forms of collaboration are the rule in many aspects of research, although these are often loose arrangements based on personal contacts rather than formal institutional arrangements.

- Formal collaboration between less research-intensive institutions and more research-intensive institutions may be difficult, and although some examples exist (see below) there are a number of barriers to be overcome.

- Geographical proximity does not appear to be a central determinant of research collaboration, except where local studies are undertaken.

5.2 The measurement and identification of collaboration itself presents a number of difficulties. Because CollR is only two years old there are no externally valid indicators (such as collaborative journal citations) which can be used to measure the growth of collaboration. Moreover, additional research income triggered by CollR as a measure is also inappropriate (even if the data could be obtained) because of the existence of a wide range of disciplines in CollR supported institutions where research does not attract significant external funding, nor require additional infrastructural resources. It follows that an institutional assessment of the extent to which CollR has increased collaboration is the only measure available. However, the definition of what counts as collaboration is also problematic, and may range from participation in very loose and informal collegial research networks through to formal inter-institutional agreements. Hence it is difficult to attribute causality to CollR funding in increasing research collaboration as there are numerous pressures encouraging collaboration which would remain without CollR funding. In many institutions data on research collaboration at individual or departmental levels is often weak, and any institutional estimate of both the extent and growth of research collaboration is likely to underestimate what is actually taking place at 'grass root' levels.

5.3 In undertaking our evaluative survey of institutions receiving CollR funds, we tried to determine the extent to which funds had been used to support collaboration with partners outside the institution concerned (question 3.1 see Appendix B), and also the extent to which funds had been used to develop new collaborative arrangements (question 3.2). The results are set out in Table 5.1, and suggest considerable institutional differences in the extent to which new and external collaborative arrangements have been established. Overall, a significant majority of institutions have funded some new collaborations with external partners, but the pattern of expenditure has been such that only 40% used all or most of their CollR funds on external collaborative activities. External collaboration is reported with a range of partners: other UK universities; higher education institutions overseas; and private

sector companies. There is no way of determining the proportions of collaboration with in each sector, but institutions report significant differences of emphasis: some concentrating on building links with other universities whilst others have used CollR to underpin the development of applied research for industry.

Table 5.1: Collaborative Arrangements in CollR Supported Institutions

Item	*Actual Responses*	*Responses as %*
The extent of external collaboration:		
❑ CollR funds have **only** been used to support collaborative research with external partners	2	3%
❑ **Most** CollR funds have been used to support collaborative research with external partners	23	37%
❑ **Some** CollR funds have been used to support collaborative research with external partners	36	58%
❑ **No** CollR funds have been used to support collaborative research with external partners	1	2%
Supporting new or existing collaborations:		
❑ A **very large** number of new collaborations have been funded by CollR	2	3%
❑ A **large** number of new collaborations have been funded by CollR	16	26%
❑ **Some** new collaborations have been funded by CollR	43	69%
❑ **No** new collaborations have been funded by CollR	1	2%

5.4 The qualitative responses from institutions to our survey suggest a wide range of perceptions about the importance of collaboration, thereby influencing the extent to which it has been achieved. Some institutions have adopted highly targeted and competitive allocation systems for the distribution of CollR funds which have emphasised the importance of external collaborative proposals (sometimes using external assessors from grade 5 UoAs), while the majority have allocated funds to be used more generally to enhance research or to be used at the discretion of the UoA or department concerned. Thus one institution in the former category was able to report that "the greatest number of collaborations are those with highly RAE rated research groups from UK universities".

5.5 However, for the majority of institutions emphasis appears to have been placed on internal needs, for example one institution noted that "CollR has been used extensively to develop internal collaboration", while another wrote that "the development of internal collaboration has been one of the resounding successes of the use of CollR funds". This use of CollR for encouraging internal collaboration is a striking feature of institutional responses to this evaluation. In particular, a number of institutions emphasising internal collaboration appear to have been using CollR funds to support the development of research centres, and associated dissemination activities.

5.6 One significant difference in institutional strategy in relation to collaboration appears to be the extent to which the university or college takes a strong corporate approach in bringing about collaborative activities. Although most - not all - institutions surveyed report having a research strategy (although not necessarily separate from their overall strategic plan), as noted by a number of respondents, research initiatives - whether collaborative or not - have traditionally been an individual activity of academic staff. Notwithstanding the work of institutional research committees, in most institutions much research still appears to be primarily a 'bottom up' activity; for example one university response noted that "the underlying message of successful collaboration is to ensure time for their natural evolution, ideally from the initiative of the researchers involved rather than through any 'managed' process. Senior staff can facilitate such collaboration and can encourage it, but they can rarely ensure that it really works".

5.7 This view can be contrasted with that expressed by a respondent from a university with a more managed set of processes: "an interesting development has been the extensive targeting of research groups overseas whose work is in areas of mutual interest to our own....The careful targeting of collaboration within the UK has attracted quality research staff to the University to assist in taking these collaborations forward. This, in turn, has resulted in a much greater research culture being evident in the University". Both the institutional responses and our visits suggest that relatively few institutions have approached collaboration in such vigorous terms, and that - in general - those that have done so have made more progress in stimulating external collaboration.

The Motives For Collaboration

5.8 The variations in the extent to which external collaboration has occurred reflects not only institutional strategy and the priorities of senior management, but also the wide variety of reasons for such collaboration, and the associated benefits and drawbacks that are perceived. Amongst all members of the research community interviewed, both for this study and others, there is a belief that successful collaboration has to be based on a position where all partners benefit. Table 5.2 notes a number of the most common reasons for collaboration, and in the text below we review the implications for CollR in each case.

Table 5.2: Common Reasons for Research Collaboration

	Common Reasons for Research Collaboration
a	Enhancing research outcomes and increasing professional synergy with others
b	Supporting existing departmental links
c	Increasing the chances of successful publication or obtaining research funding
d	Shared equipment use
e	Meeting client requirements in relation to applied research or technology transfer
f	Formal inter-institutional agreements
g	Encouraging international activity (including responding to EU and similar funding)
h	Staff development for research staff
i	Upgrading research in weaker departments by working with stronger partners

5.9 It is immediately clear that any attempts by institutions receiving CollR funds at collaboration need to be consistent with the motives of researchers for undertaking collaborative activity. Thus items (a) to (c) in Table 5.2 are widely recognised activities used by researchers in order to enhance and stimulate their own practice. Participation in the associated research networks depends largely on the personal credibility and position of the individual concerned, and breaking into established networks is a difficult issue which faces all new researchers irrespective of sources of funding. Where existing departmental links exist a collaborative pattern of working may develop whereby a range of research activities are undertaken jointly, and a small number of institutions report the existence of such links with research-intensive universities which are facilitating CollR activities. Because of competing institutional priorities in research management it is unlikely that a major outcome of the initiative will be the creation of many new such links, but there is some evidence within institutional returns that a modest amount of CollR funding has been used to support a number of such links within a relatively small number of institutions. In these circumstances, it is likely that such links will be primarily supported by other funding streams.

5.10 There is extensive evidence from the institutional returns that high levels of collaboration in research networks already exist within those more research active CollR funded institutions, and some use of CollR funds was reported in providing travel and conference grants to enable participation in such activities. Even in many institutions which have the reputation of being non-research active there are cases of individual staff or small groups collaborating in professional networks, and thus for relatively small expenditure CollR funds can have a significant potential gearing effect in making the professional contacts which are necessary for developing a research base.

5.11 Although one specific aim of CollR is to encourage greater sharing of equipment (item d in Table 5.2), very little of this is evident in the data made available to us and where it exists funding is typically not from CollR sources. The reasons for this are almost self-evident: CollR resources are, in general, modest and not enough to fund significant levels of infrastructural support; initiative based funding does not provide a stable enough basis for building long term infrastructure needs; and access to existing equipment in other institutions may still be costly in terms of paying for rental, technician support, overheads and other institutional costs.

5.12 Moreover, in practice most sharing of equipment is undertaken by established researchers or research teams, and a number of CollR institutions noted the lack of incentives for established providers to permit sharing even when possible. Indeed, one even noted that it was easier to share equipment with European universities than with English ones, both because of the charges that established universities may levy on equipment use, and also because of a perceived unwillingness by some research intensive universities to collaborate with new universities. This point was made by several universities. Nonetheless, this obstacle has been partly overcome elsewhere where CollR support has been used to strengthen the weaker institution's contribution to the partnership. In one university, for example, CollR funds were used to purchase research equipment matching that of the partner institution so that research could be undertaken in parallel and staff could exchange easily.

5.13 A very different purpose for collaboration is to support client driven activities, whereby a diverse set of skills have to be brought together in order to undertake specific activities in applied research or technology transfer. Amongst many institutions receiving CollR support, this kind of activity is well developed and, for example, extensive collaborative activities are documented within HEROBiC bids. However, the majority of such activity is liable to be self-financing, and outputs may not necessarily be appropriate for entry into the RAE. It follows, therefore, that whilst such activities will contribute substantially to the development of an applied research base, if additional public funding is required it may be more appropriate for it to be provided from HEROBiC rather than CollR. Moreover, several institutions noted that the strong commercial imperatives meant that such collaboration would happen anyway, and additional CollR funding provided only very limited value for money in this area.

5.14 Items (f) and (g) in Table 5.2 relate to a specific motive in research collaboration to create inter-institutional agreements, which may be either UK based or increasingly one aspect of international activity. It is widely acknowledged that developments in technology have created a research environment that is increasingly international, at all levels: the individual researcher, in departmental collaboration, and in inter-institutional activity. However by its nature, unless carefully targeted for developmental purposes, such activity may be difficult for non-research active institutions to enter, and will inevitably tend to be based on established research networks.

5.15 Nonetheless, in a small number of cases CollR funds are reported as having contributed significantly to formal inter-institutional agreements being signed to support activity. Such agreements appear to be primarily with universities outside the UK, in particular in Eastern Europe and assisted by funding from other agencies. For example, in one case one university reports that "having identified research areas of joint interest with Moscow and St Petersberg universities, some of their best students have registered at .... for their PhD and are jointly supervised by our own staff and Russian colleagues....Government agencies are very enthusiastic about the outcomes of this collaboration as a model for other schemes". Within the UK such agreements appear rare in relation to research, although the HEFCE initiative on supporting collaboration for restructuring clearly encourages other forms of inter-institutional collaboration to support major projects.

5.16 In a sense all the reasons for research collaboration so far identified reflect the self-interest of the research community, and this should also be true of purpose (h) in Table 5.2 (to provide staff development for research staff). However, although collaboration clearly provides informal opportunities for staff development in numerous ways, there is little evidence of this being formalised to assist research careers, for example through secondments and so on. In practice the opportunities to do so may be limited by the short term funding for much UK research, and generally poor human resource management practice within much of UK higher education - a point made not only in the Bett Report, but also a consistent outcome of the new researchers seminars organised as part of HEFCE's Fundamental Review. Although a number of institutions used CollR funds for internal staff development activities to support research, there was little indication of this happening between institutions, and indeed it is difficult to see how this could be the case, as by definition 2 rated UoAs would not be in a position to provide reciprocal staff development for researchers in more highly rated areas. It follows that even where logistically possible, such

staff development is most likely to create the 'win-win' outcomes required for all collaborating parties when undertaken between research intensive institutions.

5.17 Of all the reasons for collaboration the last identified in Table 5.2 (to enhance research in weaker departments through collaboration with stronger ones) is the most problematic. Although in national policy terms such collaboration appears attractive, there is little indication from the first two years of CollR that much is being achieved in this area. Indeed a number of institutions echo the comments of one university that "there is relatively little incentive (beyond personal relations and professionalism) for research intensive institutions to collaborate with less research-rich institutions, so that the potential for CollR funds to provide a 'leg-up' has been restricted". However, a small number of institutions have identified regional aspects of research collaboration not restricted to CollR funds.

Conclusions

5.18 Of course, difficulties in achieving successful collaboration are not unique to CollR. Nonetheless additional - and distinctive - difficulties have been reported by numerous institutions in relation to CollR based collaboration, of which the most consistent are:

- For most institutions (not all) the scale of CollR funding does not permit enough resources to be made available to support more than a very limited number of collaborative activities.

- Collaboration with external partners often requires a realistic overhead which further strains limited CollR resources.

- The consequences of ever increasing selectivity in research funding means that not only are there no incentives for research intensive institutions to support 2 and 3b UoAs in CollR institutions, in fact there are positive disincentives to doing so.

- A danger in all collaborative projects is that when a research partner moves from one institution the project is also liable to move. This is particularly true in the humanities where research is not based on teams and is not equipment related. However, where collaboration is undertaken between 'stronger' and 'weaker' partners, there may be a tendency for staff to move towards more research-intensive universities, and one university we visited had suffered the collapse of one of its most important CollR collaborations in this way.

5.19 Faced with these pressures, although CollR has brought about some new collaborations it is inevitable that the growth of research collaboration involving CollR funds will be slow, and that the aims of the Council in this regard will not be easily achieved. In the circumstances, building on existing external links rather than creating new relationships is an understandable institutional strategy, and has been a common use of CollR resources. Nonetheless the strongly corporate approaches by a few institutions to the selective use of CollR funds for developing inter-institutional collaboration show what can be done, although most of this is outside the UK.

6 Financial Issues and Value for Money

6.1 In this chapter we look at financial issues including the way the funds allocated to CollR have been spent and then review the issue of value for money, as required in our terms of reference. We start with an analysis of the overall allocations.

6.2 On 8th July 1997 institutions were told by HEFCE of their indicative allocation of CollR funding for the four years starting on 1st August 1997. The total sum had two elements as follows:

Funds for 2 rated departments	£12,503,492
Funds for 3b-rated departments	£3,393,353
Total	£15,896,845

The largest institutional allocation was £1,165,508, only three others received sums in excess of £500,000, and 71 institutions were funded overall with six receiving less than £20,000. The allocations were largely formulaic with a base sum of £3,000 awarded for each research active staff member in a 2-rated department in a subject with a cost weighting of 1.0. Other weights of 1.3 and 1.7 were used according to the cost band of the UOA. and led to allocations per capita of £3,900 and £5,100 respectively for the four year period.

6.3 As an indication of the importance of this funding to institutions we asked them to tell us what proportion their CollR funds represented of their present total research income. The average response for 1997-98 was 21.9% and 19.8%, a small fall, for 1998-99. If this percentage continues to fall, it is an indication that institutions are becoming more adept at raising funding from other sources. This would be some evidence that CollR had achieved one of its objectives. Since QR funding is held constant in these two years, the increased research funding must be from other sources such as research councils, charities, commerce or industry.

6.4 An analysis of the 61 responses for 1998-99 in Table 6.1 shows the following spread of CollR as a proportion of total research income.

Table 6.1: Spread of CollR Income as a Proportion of Total Research Income

Proportion	***Number of HEIs***
CollR is less than 5% of total income from research	7 institutions
CollR is 5-10% of total income from research	11 institutions
CollR is 11-15% of total income from research	13 institutions
CollR is 15-20% of total income from research	7 institutions
CollR is 20-25% of total income from research	8 institutions
CollR is 25-30% of total income from research	7 institutions
CollR is over 30% of total income from research	8 institutions

This means that CollR money is less than 15% of total research income for half the institutions. It might well be argued that they have "found their feet" in terms of generating research income. Equally, for those 15 institutions where CollR represents 25% or more of their total research income, there might be a case for further support, if it is believed that all institutions should have a mixed portfolio of income from teaching and research.

6.5 We also looked at the relationship between the QR allocations which institutions received and their CollR allocation. There were two extreme cases: those with little research income other than CollR where it represented more than 100% of QR; and those where CollR was a small sum in relation to a much bigger QR. In six cases the CollR allocation was less than 10% of the institution's QR funds. Were HEFCE to move to a more selective basis for allocating CollR, it is possible that these institutions could find the relatively small sums of CollR funding internally through top slicing.

Value for Money

6.6 In this section we assess whether we can reach any conclusions on the value for money of the CollR funding after two years. In essence it is seeking to do two things which can be measured tangibly:

- The upgrading of the research capacity of those UoAs receiving funds. Thus, if all the departments receiving funds achieved a higher rating in 2001 for a larger number of research active staff, we would be able to say that CollR had been effective. However, the degree of upgrading should ideally be related to the investment of funds, since there would undoubtedly be some institutions where the funds had not achieved as great a betterment as others. Pursuing this line, one could then compare the cost-benefit of CollR funds with that of QR funds, since an equivalent betterment or improvement in RAE scores as a result of QR funding could be measured and compared.

- To create more collaborative networks within and between institutions. This covers regional, national and international collaboration. This can be substantiated by the number of collaborations resulting from the funding.

6.7 CollR funding achieves extra income for the UoAs of two kinds: QR funding as their research capacity is upgraded, and income from other sources such as research councils. It should in due course be possible to compare the total of these two figures with the CollR funding received.

6.8 If we could measure the number of new collaborations which were brought about by CollR (and it has already been noted that there are problems of assuming causality), it might be possible to make some elementary judgements, eg: £100,000 in one institution led to four major new collaborations, whereas £200,000 in another led to none. However, as we saw in chapter 5, collaborative activities are very difficult to define and vary greatly in depth and impact. In addition Table 5.1 showed that most institutions (69%) admitted that only *some* collaborations were new and that most of those receiving CollR support had existed before the funding.

6.9 The data in Table 5.1 allow one conclusion to be drawn which is that CollR funding has led to more collaborative activities. Evidence from responses to questions and our interviews helps us to conclude that much of the new collaboration would not have happened in the same timescale without CollR funding. A typical message was “it would probably have happened in due course but CollR enabled us to do it now”.

6.10 Our conclusion on the value for money of CollR is that we cannot yet provide an answer as the RAE rankings are the ultimate measure. However, it would be possible to get unusually close to a quantified response when these are available in due course. Meanwhile our preliminary data from interviews and surveys show that there have already been benefits in terms of strengthening research capacity in many institutions. The benefits in terms of increased collaboration cannot yet be substantiated and look to be less tangible.

7 International Comparisons

7.1 A comprehensive review of collaborative research funding mechanisms in Australia, New Zealand, and Canada was undertaken for comparative purposes. Although no programmes match CollR in its breath (combining collaborative incentives with transitional funding), there are many programmes which are similar enough to be useful for analysis and comparison. This review provides a quick snapshot of current research policy in each of the three countries as it relates to collaboration, together with an overview of government mechanisms for transitional research funding and the promotion of research collaboration.

Overview of Collaborative Research: National Perspectives

Australia

7.2 Research collaboration is increasingly being emphasised in Australia. A 1999 government discussion paper signalled this shift with a recommendation that the government ought to "help form and maintain effective linkages between the research sector and the business community, government organisations and the international community".[i] It called upon the Australian Research Council (ARC) to develop a more strategic advisory role, and increase its industry-linked funding.[ii] The Government announced dramatic structural changes to the research funding framework in December 1999 with its *Knowledge and Innovation* report. These included increased funding for the ARC and the extension of a performance-based grants system, with transitional funding provided for weaker institutions.[iii] The ARC funding increase is combined with the introduction of a national competitive grants programme, which has 'discovery' and 'linkage' elements. The 'linkage' element of the funding[iv] will support "national and international collaboration necessary for Australian research to contribute to a strong and vibrant knowledge economy".[v]

Canada

7.3 Between 1980-95, inter-sectoral university research collaboration in Canada grew from 15% to 21% of all university research. Thirty % of all Canadian university scientific production is undertaken with foreign partners. Canadian universities' frequency of international collaboration is twice the world average, which can be attributed in part to the country's relatively small population. Canadian collaborative research is experiencing a decline in dependence on US partners (50% in 1980 to 38% in 1995) and UK partners, while collaboration with Asian countries and small industrialised countries like the Netherlands has increased.[vi] Studies have shown that the most productive Canadian researchers are those who collaborate with other sectors.[vii]

7.4 The federal government has put increased emphasis on research with its promise to improve Canada's "knowledge infrastructure". Announcements in the past year have included increased funding for international research collaboration and the establishment of the Canada Research Chairs Programme.[viii] The chair funding program will establish and sustain 2,000 Canada Research Chairs by 2004-2005.[ix] Two tiers of chairs will be established, with funding of C$200,000 p.a. for "star researchers" and C$100,000 p.a. for "up-and-coming researchers".

New Zealand

7.5 The New Zealand research community is currently in the midst of a transformation. The national government, which is responsible for approximately 39% of all research expenditures in the country, has recently begun the process to restructure its funding mechanisms.[x] In May 1999, as a result of foresight deliberations, the Government issued *Blueprint for Change: Government's policies and procedures for its research, science and technology investments*, which outlined concrete goals for the government's contributions to research. The *Blueprint* argues that government should shift away from viewing its role in the science system as linear, and instead shift towards embracing the concept of "the networked nature of innovation."[xi]

7.6 In August 1999, the New Zealand government published *Bright Future: 5 Steps Ahead: Making Ideas Work for New Zealand* which emphasised the importance of inter-sectoral collaboration.[xii] This shift has yet to translate into substantial practical changes. However, a Higher Learning Sector Task Force, with representatives from higher education and industry, is expected to report to the Government this year, with "a shared strategic vision for the shape and structure of the tertiary sector".[xiii] Research collaboration, even with the current funding structures, remains an important factor in the government's research support. For example, a project criterion for the Public Good Science Fund, the government's main funding mechanism which provides NZ$296 million into research p.a., is to: "maintain and strengthen international scientific and technological networking and collaboration, to ensure an adequate knowledge of, and access to, external research knowledge and skills." [xiv]

Centre-based Collaborative Mechanisms

7.7 In Australia and Canada, governments have opted to support collaborative research through the funding of research networks, alternatively called Centres of Excellence, Co-operative Centres and Key Centres. These long-term funding contracts bring together researchers from both public and private sectors, with a focus on particular areas of research. The Australian Key Centres for Teaching and Research (KCTR) programme, established in 1985, was designed to "promote concentration and selectivity in higher education institutions". Funding is initially provided for a three-year period, which can be extended a further three years.[xv] Afterwards, the KCTR is responsible for the establishment of its own external and sustainable funding base.[xvi] A 1992 review of the KCTR programme found that in some cases, centres had generated industry support that was seven times higher than the initial government grant. The report generally concluded that many contract and co-operative ventures between industry and universities would not have occurred without the KCTR programme.[xvii]

7.8 A more substantial research centre funding mechanism in Australia is the Co-operative Research Centre Programme (CRC). In 1999, CRC funding comprised 13% of all government research expenditures (A$140 million p.a.).[xviii] In 1999, there were 65 CRCs in existence.[xix] The CRCs have five main areas of activity – manufacturing, information technology, mining and energy, agriculture-based industry, environment, medical science and technology. The objectives of the CRC program are "[t]o maximise the capture of the benefits of research through the development of enhanced co-operative linkages between

researchers and research users in the public and private sector". [xx] The Australian government believes that the CRC program is extremely successful as it increases the efficiency of research and research training through cross-sectoral collaboration, encourages sharing of major facilities and equipment, and stimulates 'outsider' involvement in the university system.

7.9 In Canada, the National Centres of Excellence Programme (NCE) has operated successfully for over ten years and was made a permanent programme by the federal government in 1997.[xxi] The NCEs have been seen as a tremendous success: "Since their inception, the NCEs have stimulated outside investments of over $200 million, including more than $150 million by the private sector companies".[xxii] The Canadian government selects research centres based on a pre-determined list of research subjects, which are increasingly being chosen based on political and economic reasoning. There are currently 15 NCEs in operation,[xxiii] and by the end of 2000, four further research centres will be established.[xxiv]

7.10 In Ontario, the provincial government has established a similar centre-based research program, entitled the Ontario Centres of Excellence (OCE). The OCE "works with industry and universities through directed research, commercialisation of technology and training of workers".[xxv] There are currently four OCEs, covering the topics of: research in earth and space technology; communications and information technology; materials and manufacturing; and photonics research.

7.11 In its 1997 strategic plan, the Canadian Social Sciences and Humanities Research Council (SSHRC) committed itself to "promote productive partnerships between university-based researchers and stakeholders from diverse sectors of Canadian society, while maintaining its commitment to the advancement of knowledge in all fields of the social sciences and humanities".[xxvi] Its Major Collaborative Research Initiatives (MCRI) provides funding up to C$500,000 per year for a maximum duration of five years for large-scale research projects, including research networks, in the social sciences.[xxvii] Applications are evaluated on several collaborative-oriented criteria, including the potential for partnership with public or private sector organisations, and the potential for international collaboration.[xxviii]

7.12 The SSHRC Community-University Research Alliances (CURA) is a pilot project which combines research, teaching and knowledge dissemination functions into one collaborative funding mechanism. Its objective is "to help organisations within communities and university institutions combine forces and tackle issues they have identified as being of common, priority concern".[xxix] Selected projects must: "enhance mutual learning and horizontal collaboration between community organisations and universities. To date, funding has been provided for 22 CURAs, 19 of which have higher education institutions as lead organisation.[xxx]

Joint Funding Mechanisms

7.13 Some governmental departments and agencies, particularly those in Canada, seem to favour support mechanisms for collaborative research that include the stipulation that external funding from industry or other partners must be in place *before* the allocation of government support. In Australia, the Strategic Partnerships with Industry – Research and Training Scheme (SPIRT) is designed to support smaller research projects with shorter time frames. Successful SPIRT

projects must increase the "responsiveness of the higher education system to the research and research training needs of industry and the broader community, as well as have the potential to result in economic and/or social benefits for Australia".

7.14 The Canadian Natural Sciences and Engineering Council (NSERC) supports university-industry research through its Collaborative Research and Development (CRD) grants. NSERC meets industry contribution on a 2:1 funding ratio (NSERC:industry) basis.[xxxi] NSERC also administers partnership research programs on behalf of various government departments and agencies, providing funding for industrial research chairs, new faculty support, and targeted funds for the areas of agriculture, forestry, defence and space technology. The Ontario government established the University Research Incentive Fund (URIF) to encourage co-operative research ventures between the university and private sectors. URIF matches, dollar-for-dollar, the financial contributions of the corporate contributor towards a university research project. URIF projects can receive up to C$250,000 and can last for a maximum duration of three years.[xxxii]

Transitional Research Funding

7.15 There are no examples of funding mechanisms which are similar to CollR in its targeted research development goals for "new" universities. However, one can draw some parallels between CollR and the regional funding mechanism in Australia. Nearly 27% of Australian R&D, and almost all basic research, takes place in the university sector.[xxxiii] Research is not evenly distributed through the Australian university system, as the top quartile of institutions accounts for 70% of all research expenditure. This disparity is similar to the situation in the United Kingdom, where seven universities account for one-third of all research funding, while half of universities account for only 8 per cent.[xxxiv] With the introduction of a new research policy and a shift toward a competitive research funding mechanism for regional universities, the Australian government has acknowledged the need for a transitional funding mechanism to ensure short-term research program stability for those institutions without the strongest research programmes.

7.16 As a result, the government introduced a A$6 million fund, available to thirteen regional institutions, to guarantee that there is no deterioration of research funding for any institution within the first three years of the new system (2000-2002).[xxxv] This "top up" funding will be negotiated through the annual review process, and must be used by the institutions to "strengthen their research focus" and to "link research activity to the needs of regional communities".[xxxvi]

Conclusion

7.17 Although many of the funding mechanisms outlined above have similar goals as CollR, there are some important differences. Collaborative research funding in Australia, Canada and New Zealand is generally allocated on a competitive basis, which forces the higher education institutions to improve their linkages with the wider community in order to remain competitive. In addition, research funding mechanisms in these countries, with rare exceptions[xxxvii], support objective-oriented funding. Research objectives are wide ranging – from small one-time research projects and student research assistance, to multi-year collaborative research centres. Nonetheless, objectives are clearly defined within the

research proposal and must be followed throughout the lifetime of the project, unlike the ‘blank slate’ funding of CollR. However, it is difficult to determine whether the choice of funding mechanism is strategic, or due to smaller research funds, which oblige these countries to target their resources selectively.

8 The Effectiveness of the Initiative Overall

8.1 In this chapter we review the effectiveness of the initiative to date, and the extent to which it has met its objectives as set out in chapter 3.

8.2 From the perspective of almost all institutions receiving CollR funding the initiative is felt to have been important and to have made a major contribution to the enhancement of research. For example, one large university with a developing research base responded to our survey that "the receipt of CollR funding has been strongly welcomed by this university and the whole of the post-1992 sector of universities, and...is playing an important part in the development of our research". Three other universities of similar size but with less developed research concluded respectively: "for this institution without CollR support the research activity would be severely depleted"; and "for an organisation like... who has a comparatively low level of QR funding, the importance of CollR is crucial"; and "CollR is a small but disproportionately valuable resource. In an environment where we are nurturing a young but growing research culture, this little goes a long way". The comments on the value of modest amounts of funding were also echoed in the responses received from a number of smaller institutions.

8.3 Some - but not many - institutions were prepared to go further in their responses to us, and identify not just the benefit of CollR in developmental terms but also in terms of their expectations for higher RAE scores in 2001 from the UoAs or departments concerned. Thus one university reported that "all of the grade 2 groups have made substantial progress in the development of their research portfolio. At this stage, we expect all grade 2 groups to improve their scores in the upcoming RAE, some by a considerable margin".

8.4 The reasons why CollR has been generally valued within the sector are not hard to identify. Not only has approximately £16 million of additional resource been provided a year, but institutions have had considerable flexibility in how the income should be spent - subject, of course, to the requirement for an initial plan, and the expectation to stick broadly to it in relation to implementation. Interestingly, perceptions the value of CollR appears to be generally consistent across all types of institutions, even though the proportions of CollR to QR funds vary considerably.

8.5 An assessment of the extent to which the initiative is being effective in meeting its own objectives is more complex, and four key expectations were identified in paragraph 3.3:

- That institutions receiving CollR grants would use them selectively to achieve higher quality ratings in future RAE exercises.
- That CollR funds should promote the sharing of the physical research infrastructure, including equipment and libraries.
- That collaboration in various forms was to be encouraged (hence the name of the initiative), for example between higher education institutions, and between HEIs and the private and public sectors. However, collaboration was not compulsory.

- That institutions were encouraged to build on the strength of the former PCFC institutions in "user related research", particularly in serving their local communities.

The effectiveness of the initiative in achieving these four intended outcomes is summarised below.

a) Using CollR funds selectively to achieve higher quality ratings in the future RAE

8.6 We note above in paragraph 9.3 that a small number of institutions have identified specific expectations that UoAs which have received CollR funding should achieve a higher RAE score in 2001. More generally the strength of institutional commitment to achieving such outcomes (both related to CollR and more generally) appears to vary, with some institutions undertaking very selective and targeted activities to increase RAE outcomes, whereas others adopt less managed approaches to enhancement. To this extent it is unreasonable to expect CollR funds to be used in different ways from the general research funding portfolio within larger institutions (indeed as we note in chapter 6 in practice there is considerable cross-subsidy with other funds), and thus an important factor in the degree of selectivity in the use of CollR funds will be the general extent of selectivity within institutional resource allocation processes.

8.7 However, it may be possible to produce data for the final evaluation of CollR in 2002 that provides some ways of more generally assessing impact, for example by correlating 2001 RAE scores with different levels of CollR funding. In the meantime, our conclusion is that most institutions receiving CollR support appear to be allocating funds in a manner which is broadly consistent with a selective approach, as their own resource allocation processes define selectivity. Thus as noted in chapter 6 this may range from a highly centralised and very selective approach using a competitive bidding system, to a highly devolved approach which relies on budget centres applying their own definitions of selectivity.

b) Promoting the sharing of the physical research infrastructure

8.8 As we note above, only 11% of CollR expenditure has been spent on infrastructural costs (including IT equipment and books), although a small number of institutions have devoted a considerable part of CollR spending in this area while others have spent nothing. We have also been unable to find many cases where the use of CollR funds has involved significant gains in the shared use of infrastructure including equipment and libraries. In practice this is not surprising, and arises from a number of factors:

- A lack of incentives for research intensive universities to share facilities.

- The relatively small number of inter-institutional agreements between UK institutions to share research infrastructure which may be required for sustained long term sharing of facilities.

- The generally small allocations of CollR to individual UoAs within institutions which has encouraged expenditure on direct costs rather than infrastructural support.

- The majority of UoAs funded are not being in subject areas where a high cost infrastructure is required.

8.9 In such circumstances it is unlikely that institutions will wish to place emphasis on sharing physical infrastructure costs, except in a small number of areas that represent specific institutional priorities. However, for non-research intensive universities and colleges with low QR income this represents a considerable problem, in that resources are generally not available to develop a research infrastructure. Such an issue cannot realistically be tackled by using small amounts of CollR funding, and but needs rather to be considered more broadly as part of the Fundamental Review.

c) Encouraging collaboration

8.10 We have already noted above in chapter 5 that the extent to which CollR has currently encouraged collaboration is mixed. A small number of institutions are actively pursuing collaboration with UK and international higher education partners, others are choosing to concentrate on collaboration with private organisations (partly using HEROBiC funding), while others have found external collaboration difficult and have placed a higher priority on supporting research internally.

8.11 It is therefore difficult to reach an overall conclusion on effectiveness in this area that accurately reflects the sector as a whole. However, notwithstanding the collaborative successes of a few institutions, the response of one university to our survey fairly reflects a general conclusion in this area: "CollR has been more effective in underpinning research in general than it has been in encouraging collaboration per se. This is not to say that CollR has failed to encourage collaboration - clearly a significant amount of .... collaboration would not exist without CollR - but it is to suggest that collaboration is a function of research and not the other way around".

d) Encouraging institutions to build on existing 'user related research'

8.12 This objective of CollR needs to be seen in the overall context of increasing selectivity, because there is no necessary link between the UoAs to be supported and existing strengths in user related research, which we take to mean applied research generally directed to community, commercial, and regional needs. Indeed to the extent that such research was particularly well developed in some institutions, the UoAs concerned may have attracted QR funding, and have not been eligible for CollR.

8.13 However, in general both the CollR plans as accepted by HEFCE and existing institutional strategies identify developing user related research as a priority, and a review of HEROBiC bids confirms institutional intentions in this area.

Conclusion

8.14 In summary, in its first two years of operation CollR is providing valuable support for that part of the higher education sector previously funded through DevR. However, with the exception of a more selective allocation system concentrating on 2 and 3b rated UoAs, it is difficult in most institutions to see a significant difference between the types of activities

supported by DevR and those by CollR. This suggests that with the exception of selectivity the specific aims of CollR do not address the immediate priorities of institutions, a point confirmed by an analysis of recent patterns of expenditure. This view is confirmed to the extent that many institutions still appear to regard the initiative as DevR and some even continue to describe it as such.

8.15 The following comment provided by one university summarises well what we believe to be the general position within the sector: "We believe that the concepts underlying DevR were in many ways more helpful than those that appear to have informed the creation of CollR. CollR appears to have been predicated on the idea that the research in the departments and units to be supported could only be developed by collaboration with others outside the institution. In fact, many of the UoAs supported by CollR were already demonstrating a strong upward trajectory in their research as the result of DevR support, and a continuation of that support was their prime need".

8.16 It follows that for the remainder of the initiative until 2002 we would expect CollR to provide valuable financial support to underpin the selective development of research in eligible institutions. However, there is less indication that it will enhance research collaboration much beyond that which would in any case have taken place in order to meet institutional strategic plans. It also seems unlikely to lead to any significant sharing of infrastructural and associated costs.

ENDNOTES

[i] David Kemp, Minister of Education, Training and Youth Affairs (1999) *New Knowledge, New Opportunities: A Discussion on Higher Education Research and Research Training,* Commonwealth of Australia.
[ii] Ibid., xvi.
[iii] David Kemp, Minister of Education, Training and Youth Affairs (1999) *Knowledge and Innovation*, Commonwealth of Australia.
[iv] Ibid, Attachment B.
[v] D.A. Kemp, Minister of Education, Training and Youth Affairs (1999) *Higher Education: Report for the 2000 to 2002 Triennium* [Online] Available at: www.detya.ac.uk (2000, March 14).
[vi] Ibid.
[vii] Ibid.
[viii] Government of Canada (1999) *Speech from the Throne to open the Second Session of the Thirty-Sixth Parliament of Canada* [Online] Available: http://www.pco-bcp.gc.ca/sft-ddt/doc/fulltext_e.htm (1999, December 15).
[ix] Minister of Finance (2000) *Budget 2000* [Online] Available: http://www.fin.gc.ca/budget00/bpe/bpch5_1e.htm#Investing (2000, March 14).
[x] Minister of Research, Science and Technology (MORST) (1999) *Briefing for Incoming Minister* [Online] Available at: http://www.morst.govt.nz/pubs/briefing.htm (2000, March 14).
[xi] Minister of Research, Science and Technology (MORST) (1999) *Blueprint for Change: Government's policies and procedures for its research, science and technology investments*, MORST, Wellington, 8.
[xii] Ibid., 30.
[xiii] Ibid, 9.
[xiv] Minister of Research, Science and Technology (MORST) (1996) *RS&T:2010* [Online] Available: http://www.morst.govt.nz/pubs/rst2010/action/goal.htm (1999, December 12).
[xv] Six years in exceptional cases.
[xvi] Ibid., 11.
[xvii] Ibid.
[xviii] Ibid., 22.
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[xx] http://www.dist.gov.au/crc/faqs/index.html#crc, as of 28/02/00.
[xxi] Networks of Centres of Excellence (NCEs) *About NCEs* [Online] Available: http://www.nce.gc.ca/facteng.htm (1999, December 6).
[xxii] Ibid.
[xxiii] Networks of Centres of Excellence (NCEs) *The Networks* [Online] Available: http://www.nce.gc.ca/thenet.htm (1999, December 6).
[xxiv] http://www.nce.gc.ca/en/news/2000/120120_e.htm, as of 10/03/2000.
[xxv] Government of Ontario *Ontario Centres of Excellence* [Online] Available: http://www.est.gov.on.ca:80/english/st/st_cex.html (1999, December 7).
[xxvi] Social Sciences and Humanities Research Council (SSHRC) *Community-University Research Alliances: A Pilot Program from SSHRC* [Online] Available: http://www.sshrc.ca/english/programinfo/grantsguide/cura.html (1999, December 8).
[xxvii] Social Sciences and Humanities Research Council (SSHRC) *Major Collaborative Research Initiatives (MCRI)* [Online] Available: http://www.sshrc.ca/english/programinfo/grantsguide/mcri.htm (1999, December 9).
[xxviii] Other criteria evaluated include: the intellectual/social significance and overall excellence of the proposed activity; the research qualifications of the team; the degree of institutional support; the research training opportunities available to students; the budget; and the dissemination possibilities of the proposed research.
[xxix] Ibid.
[xxx] Social Sciences and Humanities Research Council (SSHRC) (2000) *Community-University Research Alliances: A Pilot Program from SSHRC* [Online] Available at: http://www.sshrc.ca/english/programinfo/grantsguide/cura.html#context (2000, March 14)
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[xxxiii] Turpin, T et al (1999) *University and Industry Research Partnerships in Australia*, Higher Education Division, Department of Education, Training and Higher Education Division, Department of Education, Training and Youth Affairs (DETYA), 5.
[xxxiv] Higher Education Council for England (1998) *Industry-Academic Links in the UK* [Online] Available at: http://www.niss.ac.uk/education/hefce/pub98/98_70.html (2000, March 14)
[xxxv] Institutions which are eligible for funding are: Charles Sturt University, Southern Cross University, University of New England, University of Newcastle, University of Wollongong, Deakin University, La Trobe University,

University of Ballarat, Central Queensland University, James Cook University, University of Southern Queensland, University of Tasmania, and the Northern Territory University.

[xxxvi] Humanities and Social Sciences Federation of Canada (HSSFC) (1999) "Ottawa to turn universities loose on shopping spree" *Perspectives*, Volume 3, Number 2.

[xxxvii] A exception is the new transitional funding for regional universities in Australia.