Annex I

Alternative methods of quality assessment and related potential changes

Table I1 **Alternative assessment mechanisms and other potential changes - strengths and weaknesses**

Alternative	Strengths	Weaknesses
Use of formula based on research income and/or publications citations	• Potentially cheap to administer • Transparent • Viability shown in Australia • Grant income based on mix of prospective and non-specific retrospective (track record) judgement	• Requires complex validation/checking which may raise cost • Reduces plurality through dependence upon Research Council decisions • Works best in Science, probably not at all in Arts and Humanities • Citations are USA-centric and may divert research from UK interests • Citations information may not relate to current activities • May distort activity as researchers seek to boost performance in chosen indicators
Competitive bidding for block funding (c.f. JIF model)	• Very selective • Accountability built into funding contract • Model exists in funding for JIF and commercialised national labs (eg NPL) • Judgement based on mix of prospective and non-specific retrospective (track record) judgement	• High transaction costs in preparing and assessing proposals • Can cause wide fluctuations and instability in institutional income • Contracts may limit scope for innovation and academic freedom
Reputational assessment	• Broadens base of peer review to whole of field • Relatively cheap to administer • Feasible in any subject	• Highly susceptible to prejudice as no specific examination of evidence involved • Open to game playing and collusion • Nominations only likely for most visible, so little discrimination lower down table • Reputation may persist long after its causes have gone away • No instance of use in significant resource allocation
Freeze on present ratings	• Minimum cost option	• No incentive to improve for new entrants or revamped units • Could induce complacency in highly rated departments • No accountability
Partial further dual support transfer	• More explicit targeting of resources to successful research groups	• Reduced scope for HEIs to deploy funds strategically and to support new areas and emerging excellence • Leaves same transaction costs on either side of divide
Combined teaching and research assessment	• Recognises universities' holistic function • Single administrative effort	• Different criteria applied • Greater tension with interdisciplinary and multidisciplinary research • RAE much lighter demand on administration than Teaching Quality Assessment • TQA a rolling programme
Rolling assessments	• Spreads central administrative burden • Could facilitate emergence of distinct processes for science and	• Makes judgement of cross-disciplinary work harder if only part being assessed • Administrative burden always present in institutions and may require additional staff

	humanities • Could smooth funding changes	
Partial RAE, excluding 5/5*-rated	• Reduces burden on those who have demonstrated ability to sustain high performance levels over the long term • Reduces cost	• Need to establish equality of 'new' 5's • Need to ensure 5* funding not diluted by grade-drift • Games playing – loading staff into departments not subject to assessment
Royal Academy of Engineering approach	• Recognises the different dimensions of excellence	• Difficult to implemented as a funding basis as currently conceived, because of problems aggregating, or weighting, the different dimensions of excellence

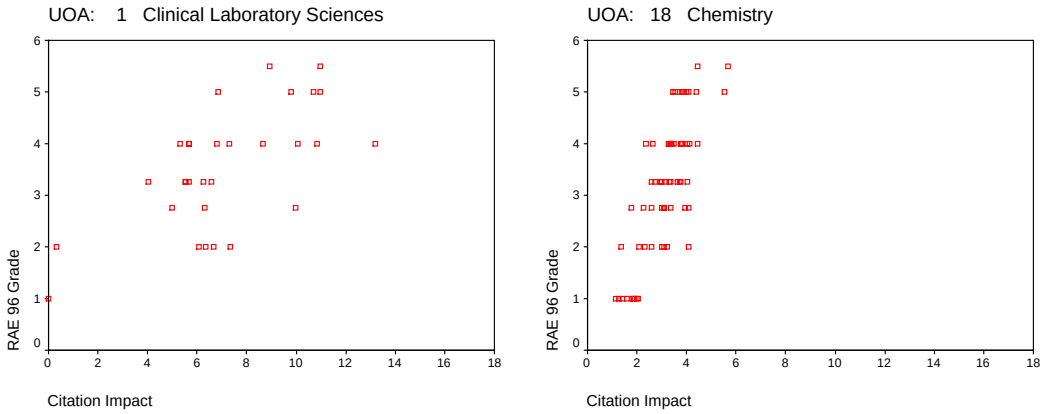
Radical alternatives to the RAE were considered in the course of the review. This table provides some of the relevant evidence. The report of the quality assurance sub-group contains a fuller discussion of the options considered.

Table I2 **Major changes introduced for the 2001 RAE**

A three-fold increase in user representatives
Enhanced assessment mechanisms for interdisciplinary and multidisciplinary research
International peer review of 5/5* research ratings
Thematic sub-panels
Greater representation of women on panels
Better arrangements for dealing with staff transferring between institutions

The RAE continues to evolve to reflect the growing complexity of the research base and its interactions with stakeholders.

Figure I1 **Relationship between RAE scores and citation impact**



Increasing recognition of the diversity of the characteristics of excellence acknowledges that greater reliance might legitimately be placed on indicators such as income and citations in some disciplines. However, there are concerns that the system might become unstable if it became too self-referential. It may also be the case that, in looking at research income and bibliometric data, the analysis would become more retrospective than at present and would exclude any assessment of those elements held to be of increasing importance - strategy, research culture and research training. Any attempt to employ this simplistically across the spectrum of research activity is likely to lack credibility. There is also a significant concern that such a mechanistic approach might reduce risk taking and the willingness of institutions to invest in emerging talent and areas. The inability of an algorithm based on one or more existing performance indicators to drive the assessment process has been demonstrated by PREST. Their study shows that, although the number of Category A staff entered and the amount of Research Council and charity income per member of research active staff in the department were, in general, statistically significantly correlated with RAE rating, in no instance were they predictive in a meaningful sense - the margin of error was at least plus or minus 1 grade. This figure, which plots citation impact against RAE rating, shows that, even for chemistry - the discipline in which, uniquely, RAE ratings are very strongly correlated with other performance indicators - there is still significant variance; in clinical laboratory sciences the correlation is very poor.

Table I3 **Research evaluation practices in other countries**

No	Country	University research evaluation for allocation of core research Fund	Other National evaluation of University research
1	UK	Ex-post informed peer review (RAE)	
2	Hong Kong	Ex-post informed peer review (RAE)	
3	Australia	Ex-post quantitative evaluation based on primary performance indicators	
4	Poland	Peer review + ex-post informed peer evaluation	
5	The Slovak Republic	Student numbers moderated by ex-post informed peer review	
6	Denmark	Student numbers/ Performance based	Evaluation of specific research areas
7	Finland	Student numbers/ Ex-post quantitative evaluation	Evaluation of specific research areas
8	New Zealand	Staff and student numbers *	
9	Germany	Staff and student numbers	
10	Italy	Staff and student numbers	
11	Norway	Staff and student numbers	Evaluation of specific research areas
12	Sweden	Staff and student numbers	Evaluation of specific research areas
13	Hungary	Staff and student numbers	
14	Austria	Negotiation	Evaluation of specific research areas
15	France	Negotiation	CNE & CNRS Evaluation
16	The Netherlands	Staff and student numbers	VSNU research evaluation
17	USA	Staff and student numbers	Graduate-Research evaluation
18	Canada	Staff and student numbers	

*It is proposed that from 2000 a portion of core funding for research will be allocated based on peer review.

A full investigation was commissioned of research evaluation methods in use in other countries. This table presents a synopsis of the findings. There is considerable variation in the extent to which research funding is informed by performance:

a) Research funds allocated, at least in part, on the basis of some sort of research evaluation.

Apart from the UK, countries such as Australia, Poland û and China in respect of the Hong Kong-based universities û are determining research allocations based on research performance. In the UK and Hong Kong, the approach is based on informed peer review undertaken for the purposes of determining the allocations, while in Australia and Poland existing performance indicators are used.

b) Formulaic allocation using research performance indicators, but also including parameters related to the size of the teaching and learning activity.

Research funds are allocated together with funding for teaching and learning as part of the general institutional funding. Countries such as Germany, Italy, Sweden and Norway follow this kind of approach. Finland and Denmark allocate the largest share of general research funds on the basis of the amount of teaching and learning activity, but a small portion of core research funding is allocated on the basis of the teaching and research performance of the university.

c) Negotiation between institutions and the government department responsible for university funding.

In Austria this model is applied without undertaking any form of research evaluation, while in France information gleaned from an evaluation of university teaching, research and management activities is taken into account during the negotiation.

There is also a fourth category in which research assessment is carried out, but it does not inform funding decisions. In The Netherlands, evaluation of research performance is used to improve the research quality of the university. Funds are allocated using a formula based on student numbers.

The report from SPRU notes that, although only a small number of countries examined are currently using performance-based approaches to university research funding, most are either in the process of implementing some form of performance-based allocation, or are considering doing so.