



Consultation on draft panel criteria and working methods

Part 2C: Draft statement of Main Panel C

Main Panel C covers the following sub-panels:

- 16 Architecture, Built Environment and Planning**
- 17 Geography, Environmental Studies and Archaeology**
- 18 Economics and Econometrics**
- 19 Business and Management Studies**
- 20 Law**
- 21 Politics and International Studies**
- 22 Social Work and Social Policy**
- 23 Sociology**
- 24 Anthropology and Development Studies**
- 25 Education**
- 26 Sport and Exercise Sciences, Leisure and Tourism**

The following sections set out the criteria and working methods that Main Panel C and its sub-panels will apply in assessing submissions. These should be read alongside the guidance provided in REF 02.2011 'Assessment framework and guidance on submissions' (hereafter 'guidance on submissions') and the generic statement of criteria and working methods provided in Part 1 of this document.

Section 1: Submissions and units of assessment

Section 2: Assessment criteria: outputs

Section 3: Assessment criteria: impact

Section 4: Assessment criteria: environment

Section 5: Working methods

Section 1: Submissions and units of assessment

1. The sub-panels of Main Panel C cover a diverse range of content, disciplines and methodologies. Each sub-panel expects to receive submissions in its UOA whose primary research focus falls within that UOA's stated remit. Submitting units are encouraged to submit their strongest work, including interdisciplinary work, in the UOA where it is most appropriate.

Unit of assessment descriptors and boundaries

2. Each sub-panel within Main Panel C has provided a description of its unit of assessment and has identified where it anticipates that work may be submitted at the boundaries with other UOAs.

UOA 16: Architecture, Built Environment and Planning

3. **Descriptor:** The UOA covers all forms of theoretical, applied and practice-based research relevant to architecture, the built environment and planning, and their history, both in the UK and internationally. This includes: building engineering, building science, communities, construction economic development, environment, housing, landscape, real estate, regeneration, sustainability, transport, urban and regional analysis, urban design, and urbanism. The UOA also covers any other research in which the built environment (including its operation and use) forms a major field for application or provides the context for research. It expects submissions in this UOA from a broad range of disciplines, research methodologies and forms of output, across the spectrum of fundamental, applied, policy and practice-based research. Much of the submitted research is expected to span disciplinary and methodological boundaries. The sub-panel has wide-ranging experience in this area and welcomes interdisciplinary submissions. However, where the sub-panel feels the need to appoint assessors or to seek advice from other sub-panels it will do so according to the guidance in paragraphs 32 and 33.

4. **Boundaries:** The sub-panel anticipates that there may be overlaps with UOA 2 (Public Health, Health Services and Primary Care (such as work that relates to healthy cities and healthy environment)), UOA 4 (Psychology, Psychiatry and Neuroscience), UOA 7 (Earth Systems and Environmental Sciences), UOA 11 (Computer Science and Informatics), UOA 13 (Electrical and Electronic Engineering, Metallurgy and Materials), UOA 14 (Civil and Construction Engineering), UOA 17 (Geography, Environmental Studies and Archaeology), UOA 19 (Business and Management Studies), UOA 22 (Social Work and Social Policy), UOA 23 (Sociology), UOA 24 (Anthropology and Development Studies) and UOA 34 (Art and Design: History, Practice and Theory).

UOA 17: Geography, Environmental Studies and Archaeology

5. **Descriptor:** The UOA covers all aspects of research – conceptual, substantive and applied – conducted within the disciplines of geography, environmental studies and

archaeology, as broadly defined. This research embraces a wide range of enquiries into natural, environmental and human phenomena, and their interrelationships in particular systems, contexts, periods and locations. In **Geography**, submitted research may include work from all fields of physical and human geography (for example, hydrology, geomorphology, biogeography, glaciology, Quaternary science; economic, development, social, political, urban and rural, cultural and historical geography; and geographical information sciences), and may include work that uses a wide range of available methods, from science-based to humanistic and participatory, from the abstract to the experimental and field-based. In **Environmental Studies**, submitted research may include work in any area of the field, including some also present in environmental geography (for example, environmental governance, policy, management and economics), and some areas of environmental science (for example, environmental pollution, ecology and conservation, resource management). In **Archaeology**, submitted research may include work from all fields of the subject (for example, archaeological theory and historiography, archaeological science, the archaeology of human origins, and prehistoric and historic societies worldwide, early civilisations, Egyptology, classical archaeology and related historical studies, medieval and post-medieval archaeology, colonial and industrial archaeology, landscape and environmental archaeology, archaeological aspects of heritage management and museum studies, and archaeological conservation). The UOA also includes work on the history and theory of geographical, environmental and archaeological enquiry; as well as work on geographical, environmental and archaeological techniques, including remote sensing, geospatial analyses, dating methods, and bio- and geo-archaeology.

6. **Boundaries:** Given the breadth of the subject matter of UOA 17, there are likely to be overlaps with other UOAs, not all of which are located in Main Panel C. For example, much of physical geography and some environmental studies and archaeology share common ground with UOA 7 (Earth Systems and Environmental Sciences). Development geography and archaeology may overlap with UOA 24 (Anthropology and Development Studies); in archaeological conservation and heritage science, there may be some overlap with UOAs in any of the other main panels. The expectation is that submissions in UOA 17 that overlap with cognate fields will normally involve research in such areas that are integral to research programmes within geography, environmental studies or archaeology. In areas where there is overlap between UOA 17 and UOA 7, it is expected that submissions will be made to the UOA with the most appropriate expertise.

UOA 18: Economics and Econometrics

7. **Descriptor:** The UOA includes all aspects of economics and econometrics (including, where appropriate, economic history). Research of all types – empirical or theoretical, strategic, applied, or policy-focused – will be considered of equal standing.

8. **Boundaries:** Submitting units are encouraged to submit their strongest work irrespective of the form of output or the extent of its interdisciplinary nature, even if the research is at the boundaries of the UOA. There could be overlaps with any UOA, including the other UOAs within Main Panel C, particularly UOA 19 (Business and Management Studies).

UOA 19: Business and Management Studies

9. **Descriptor:** The UOA consists of the areas of: accounting and finance; business history; business and industrial economics; corporate governance and risk management; corporate social responsibility; employment relations; entrepreneurship and small firms; human resource management; information management and business systems; innovation and technology management; international business; management education and development; management science; marketing; operations and project management; organisational psychology; organisational studies; public sector management; public services and third sector; service management; strategic management; and any other field or sub-field aligned to business and management.

10. **Boundaries:** The sub-panel anticipates that work submitted in this UOA in particular may overlap with the remits of UOA 10 (Mathematical Sciences), UOA 18 (Economics and Econometrics) and UOA 36 (Communication, Cultural and Media Studies, Library and Information Management).

11. An anticipated exception to the preferred approach within Main Panel C of the majority of work submitted in a UOA being assessed by that sub-panel, is that significant aspects of submissions in UOA 19 (Business and Management Studies) are expected to fall within the remit of UOA 18 (Economics and Econometrics). These parts of submissions may be cross-referred to Sub-panel 18 for advice, although, in common with any cross-referred work, Sub-panel 19, (as the sub-panel for the UOA in which the work was submitted for assessment), will retain responsibility for recommending the quality profile.

UOA 20: Law

12. **Descriptor:** The UOA includes all doctrinal, theoretical, empirical, comparative, critical or other studies of law and legal phenomena including criminology and socio-legal studies. The sub-panel would also expect research on legal education to be submitted in this UOA.

13. **Boundaries:** All areas of law as described above fall within the boundaries of the UOA. Research in law may intersect with or draw upon a variety of disciplines and methodologies. The sub-panel has been constituted with a broad spread of relevant expertise to ensure informed assessment of all submissions, and encourages units to submit their strongest work including research which is at the boundaries of the UOA. Where it considers it necessary, the sub-panel will ensure that assessors are appointed with the appropriate expertise, or it may cross-refer parts of submission(s) to other sub-panel(s) for advice, identifying the particular aspects of research activity on which views are sought, according to the guidance in paragraphs 32 and 33.

UOA 21: Politics and International Studies

14. **Descriptor:** The UOA includes (but is not restricted to): comparative, area, national and sub-national politics; public administration and policy studies; political behaviour and political sociology; political theory and philosophy, including history of political thought; international relations, including strategic, war and peace studies, international history, international political economy and foreign policy analysis; methods in political studies; and higher education pedagogic research in politics and international studies.

15. **Boundaries:** The sub-panel expects submissions in this UOA from all areas of the discipline in the UOA descriptor, but recognises that some of the outputs submitted will cross disciplines. The sub-panel is confident of its ability to assess a wide range of interdisciplinary outputs, but where such outputs fall largely or wholly within the remit of another UOA, the sub-panel will appoint appropriate assessors or may cross-refer parts of submissions for advice, according to the guidance in paragraphs 32 and 33.

UOA 22: Social Work and Social Policy

16. **Descriptor:** The UOA covers all forms of research in social work, social policy and administration and criminology, including those in governmental, voluntary and community, and private for profit and not for profit areas. Research includes:

- a. Theory, methodology, empirical research, ethics and values and pedagogy as they apply to social work, social care, social policy, criminology and criminal justice policy, gerontology and substantive issues in these areas of study.
- b. Comparative research and research into international institutions, policy and practice.
- c. Research that uses a range of disciplinary approaches including (but not exclusively) the following: business and management, demography, development studies, economics, education, geography, health studies, history, law, politics, psychology and sociology.
- d. Relevant links with other stakeholders, professionals, service users and carers.
- e. Policy-making processes, practice, governance and management, service design, delivery and use, and inter-professional relationships.

17. **Boundaries:** Social work, social policy and administration, and criminology are essentially multidisciplinary subjects and are closely related to a range of other disciplines within the social sciences and more broadly.

UOA 23: Sociology

18. **Descriptor:** The UOA includes empirical and theoretical study of the social structures, cultures and everyday practices of societies, including styles and material standards of living, opinions, values and institutions. It covers all areas of social theory, historical and comparative studies, and social research methodology (including

qualitative and quantitative methods and visual methodologies), philosophy of social science, and research on pedagogy in sociology.

19. The sub-panel expects submissions in this UOA from all fields of sociological enquiry including, but not restricted to, research on cultures, economies, and politics; class, ethnicity, gender, sexuality, disability, and age; religion, education, health and medicine, family, media, welfare institutions, and work and employment; environment, technology, and climate change; the body, interpersonal and inter-group relations, violence; urban and rural issues; language and social interaction; political sociology, public policy, and social movements; political economy, globalisation, development, migration, and diaspora; comparative studies of societies of all kinds, including work on transnational structures and agencies, the European Union, world systems. The sub-panel welcomes works in social theory and the history of social thought. The sub-panel will also consider research on the sociological aspects of interdisciplinary fields such as demography, criminology, socio-legal studies, socio-linguistics, socio-psychology, psychosocial studies, media and cultural studies, and social studies of science and technology, including science and technology policy.

20. The sub-panel welcomes work in interdisciplinary women's studies and work in such areas as lesbian, gay, bisexual, transgender and intersex studies. All work in women's studies may be submitted in UOA 23 (Sociology), or may be cross-referred by other sub-panels to Sub-panel 23. Assessors will be appointed to consider the interdisciplinary aspects of women's and gender studies that fall outside the expertise of the sub-panel.

21. Work submitted in this UOA may overlap significantly with the remit of UOA 22 (Social Work and Social Policy). This arises from the large number of academic units that combine the constituent subject areas and that may make a combined submission in UOA 22 or UOA 23. It is anticipated that the use of joint assessors and cross-referral of parts of submissions may be required in order to ensure an appropriate assessment.

UOA 24: Anthropology and Development Studies

22. **Descriptor:** The UOA covers all aspects of research within the disciplines of Anthropology and Development Studies, including research that is conceptual, theoretical, empirical, applied, strategic and practice-based, and that draws on a broad range of methodologies that includes the qualitative, quantitative, field-based, laboratory-based, experimental, participatory, evaluative, visual and comparative. **Anthropology** is understood to include the broad fields of biological anthropology, and social and cultural anthropology (including, but not limited to, material culture studies, gender, visual anthropology, performance studies, area studies, conservation and biodiversity, anthropology of development and medical anthropology). **Development Studies** covers issue-driven research concerning the analysis of global to local processes of cultural, demographic, economic, environmental, political, technological and social change in developing and emerging parts of the world, with particular reference to structures and institutions; the changing relationships between developed and developing countries; and the critical interrogation of theories and development policy.

23. **Boundaries:** The sub-panel expects submissions in this UOA from all areas outlined in the UOA descriptor, but recognises that some of the work submitted might span the boundaries between two or more UOAs. The sub-panel is confident in its ability to assess a wide range of interdisciplinary work, but where such work falls largely or wholly within the remit of another UOA, the sub-panel will appoint appropriate assessors or may cross-refer parts of submissions for advice, according to the guidance in paragraphs 32 and 33.

UOA 25: Education

24. **Descriptor:** Research in education is multidisciplinary and is closely related to a range of other disciplines with which it shares common interests, methods and approaches. This diversity of content and methodology requires the sub-panel to be flexible in marking the boundaries of work relevant to the REF.

25. The UOA may be broadly described as being concerned with research in the areas identified in the following illustrative lists:

- Research which addresses education systems, issues, processes, provision and outcomes in relation to sectors **such as:** early years, primary, secondary, further, higher, medical, workplace, adult and continuing education. It also includes teacher, healthcare and other forms of professional education, vocational training; and informal, community and lifelong learning.
- Research which addresses substantive areas **such as:** curriculum, pedagogy, assessment, teaching and learning; children, young people, student and adult learners; parents, families and communities; culture, economy and society; teacher training, professionalism and continuing professional development; special and inclusive education; participation, rights and equity issues; technology enhanced learning; education policy; the organisation, governance, management, effectiveness and improvement of educational institutions; education, training, workplaces, industry and the labour market; comparative, international and development education.
- Research which employs a range of theoretical frameworks and methodologies drawn from disciplinary traditions **including, but not limited to:** anthropology, applied linguistics, economics, geography, history, humanities, mathematics, statistics, philosophy, psychology, science and sociology. Research in the field of education deploys a range of qualitative and quantitative methodologies with structured, exploratory and participatory research designs. These **include, but are not limited to:** surveys, experiments and controlled trials; ethnography, interview and narrative enquiry; action research and case study; evaluation research; critical theory and documentary analysis; analytic synthesis and systematic review.

26. The sub-panel welcomes submissions in pedagogical research in higher education and professional education (including healthcare) while recognising that such work may

instead be submitted in another relevant UOA. The sub-panel will consider submissions in counselling and neuroscience where this work has an educational orientation. However, submissions in these areas may be referred to another sub-panel for advice.

UOA 26: Sport and Exercise Sciences, Leisure and Tourism

27. **Descriptor:** Research in the UOA stems from the natural sciences, social sciences and the humanities. A wide range of disciplines and subject areas contribute to research in sport and exercise sciences, leisure and tourism including, in alphabetical order: adapted physical activity, anthropology, biochemistry, biomechanics, business and management, coaching, economics, education, engineering and technology, event management, geography, history, hospitality, law, medicine, molecular biology, motor learning and control, nutrition, outdoor and adventure education, philosophy, physical education and pedagogy, physical activity and health, physiology, policy studies, politics, psychology and sociology. Research in sport and exercise sciences, leisure and tourism is therefore derived from diverse disciplines and subject areas, and can also be multi-disciplinary and interdisciplinary.

28. The sub-panel expects submissions in this UOA of research of all types, and it expects to consider research informed by a variety of research epistemologies, methodologies and methods. The sub-panel will consider research defined as empirical, theoretical, strategic, applied, or policy-focused as having equal standing.

Pedagogic research

29. Main Panel C anticipates that individual sub-panels will assess pedagogic research where it relates to higher education in the sub-panel's discipline area. Where pedagogic research pertains to other sectors or more general educational issues, it may be submitted to UOA 25 (Education) or may be cross-referred by the receiving panel to UOA 25.

30. Assessors will be appointed for pedagogic research in those UOAs where the pattern of submission requires it.

Cross-boundary submissions and cross-referral

31. Given the breadth of subject areas in Main Panel C, there are likely to be overlaps with other UOAs, both within and beyond Main Panel C. The sub-panels have indicated where they might expect work submitted in their UOA to cross boundaries with other UOAs, but recognise that there may be other overlaps. The preferred approach within Main Panel C is that the majority of work submitted in a UOA will be assessed by that sub-panel.

32. Between them, sub-panel members have a broad range of experience in conducting and assessing research across the different disciplines and subject areas contained within the UOA descriptors, as outlined in paragraphs 2 to 28. If a sub-panel judges that it does not have sufficient expertise to assess submitted outputs which span one or more boundaries with other UOAs, it will first seek to appoint appropriate

assessors. The main panel may invite assessors to work on behalf of more than one sub-panel, where the submitted research outputs make this necessary.

33. Sub-panels will retain the possibility of seeking advice from another sub-panel via cross-referral, but anticipate that this will be the exception rather than the norm. Cross-referrals will be dealt with according to the procedure set out in 'guidance on submissions' (sub-paragraph 75d).

Multiple submissions

34. Main Panel C notes the generic criteria and procedures for permitting multiple submissions set out in 'guidance on submissions' (paragraphs 50 to 52). In general, Main Panel C does not expect multiple submission to be a common occurrence in UOAs under its remit, with the following exceptions:

- Sub-panel 17 (Geography, Environmental Studies and Archaeology) anticipates that requests proposing separate submissions by discrete geography and archaeology departments would normally fulfil the generic criteria.
- Sub-panel 24 (Anthropology and Development Studies) anticipates that requests proposing separate submissions by discrete biological and social anthropology and development studies departments would normally fulfil the generic criteria.

35. All requests for multiple submissions will be considered against the generic criteria. The final decision to agree a multiple submission request rests with the REF manager, but will be taken in consultation with the main and relevant sub-panel chair.

36. In addition to the arrangements above, requests for multiple submissions will be granted in any UOA where one of the submissions is joint with another HEI, or where HEIs have merged after 1 July 2011, as set out in 'guidance on submissions' (sub-paragraphs 50a and c).

Section 2: Assessment criteria: outputs

37. The main panel welcomes the arrangements, set out in 'guidance on submissions', to encourage institutions to submit all their eligible staff who have produced excellent research and, in particular, the arrangements to permit the submission without penalty of staff with fewer than four outputs in the circumstances described in 'guidance on submissions' (paragraphs 88 to 100).

Criteria and level definitions

38. The main panel has reached a common understanding of the generic assessment criteria for outputs of originality, significance and rigour. These will be applied by all sub-panels in the course of their assessment of outputs as follows:

- **Originality** will be understood in terms of the innovative character of the research output. Research outputs that demonstrate originality will: provide new empirical material; engage with new and complex problems; develop innovative research

methods, methodologies and analytical techniques; and/or advance theory or the analysis of doctrine, policy or practice.

- **Significance** will be understood in terms of the development of the intellectual agenda of the field and may be theoretical, methodological and/or substantive. Due weight will be given to potential as well as actual significance, especially where the output is very recent.
- **Rigour** will be understood in terms of the intellectual precision, robustness and appropriateness of the concepts, analyses, theories and methodologies deployed within a research output. Account will be taken of such qualities as the integrity, coherence and consistency of arguments and analysis, as well as the due consideration of ethical issues

39. For the purpose of assessing the quality of research outputs in Main Panel C, the following descriptors of the quality level definitions will be employed alongside the generic definitions given in Annex A of 'guidance on submissions':

Four star	Work that makes an outstanding contribution to setting agendas for work in the field or has the potential to do so
Three star	Work that very considerably advances the field
Two star	Work that considerably advances the field
One star	Work that contributes to the field
Unclassified	Work that fails to contribute to the field, or does not meet the published definition of research for the purposes of this assessment

Output types

40. Main Panel C welcomes all forms of research output that fulfil the eligibility criteria set out in 'guidance on submissions' (paragraphs 105 to 107), and recognises that work of the highest quality can be found in a range of media. The sub-panels will assess all forms of output on an equal basis, with no preconception of quality attached to the form or medium of an output.

41. All submitted outputs must embody original research. Main Panel C expects to receive a wide range of research output including, but not limited to:

- Books, edited works, parts of books, special issues.
- Journal articles (including web-based), including articles in supplements of journals.
- Physical artefacts, such as buildings, devices, images, installations, materials products and processes, prototypes.
- Digital artefacts, such as datasets, multi-use datasets, archives, software, film and other non-print media, web content such as interactive tools.

- Temporary artefacts, such as exhibitions and performances.
- Other paper-based outputs, such as: case notes; catalogues; conference papers; designs; design codes; monographs; multilateral and international agencies' research reports; outputs from projects commissioned by all levels of government, industry and other research funding bodies; policy evaluations/reports/commissioned reports; primary data reports; publications of development donors; published maps; patents; review articles; systematic reviews; teaching and curriculum materials; teaching and assessment materials; textbooks (including those for training and/or for practice); working papers.

Outputs with significant material in common

42. As stated in 'guidance on submissions' (paragraph 108), where two or more research outputs listed against an individual in a submission include a significant amount of material in common (for example, an article reissued as a chapter in a book, or two articles informed by the same empirical research and which make the same argument), the sub-panels may decide to assess each of these outputs only in terms of the distinct material included in each, or judge that they should be treated as a single output if they do not contain sufficiently distinct material.

Outputs including significant material published before 1 January 2008

43. As stated in 'guidance on submissions' (paragraph 113), where a listed research output includes significant material that was previously published before 1 January 2008, the sub-panels may take the view that not all of the work reported in the listed output should be considered as having been issued within the publication period. Panels will apply the general principle that where an output submitted to the REF contains significant material published before 1 January 2008, they will only assess the new or distinct content in that output.

44. In implementing this principle, it is recognised that there may be some forms of outputs that would not be considered by the panels as representing the published version of the work. An example might be where preliminary findings have been shared with limited audiences prior to 1 January 2008 for the purpose of developing the research. Where an output submitted to the REF contains material that was previously shared in such a way exclusively, the output will be assessed in full. In order for the main panel to develop clearer guidance on this, respondents to the consultation are invited to identify particular forms of research output, including the one given, that should be regarded as exceptions in this way. Any such exceptions might be general or relate to particular disciplines.

45. All sub-panels within Main Panel C request that where a listed output includes significant material published prior to 1 January 2008, institutions provide details of how far the earlier work was revised to incorporate new material (see 'guidance on submissions', sub-paragraph 127c).

Other guidance relating to outputs

46. To ensure that practice-based outputs are assessed on an equal basis with other outputs, submissions should include an explanatory presentation of the building, design or intervention in an easily-handled paper-based format, sufficient to allow the panel both to understand the output without visiting it, and to make a judgement of its research contribution.

47. Software must be supplemented by a full description in a paper-based format in order to avoid accessibility problems. Where the form of an output makes this essential, the paper-based submission may be supplemented by limited visual material in an accessible format such as DVD.

48. For **any** submitted output where the research content and/or process is not evident from the output itself, such as non-text outputs or teaching materials, submissions should include a statement in the REF2 form of up to 300 words which identifies the research questions, methodology and means of dissemination.

Co-authored and co-produced outputs

49. Main Panel C recognises that collaboration is a positive and increasing dimension of research within its remit, and that collaboration results in co-authored or co-produced research outputs. It recognises that collaborative work may be addressing issues of significant concern to today's society. It expects, therefore, that co-authored works will represent a significant proportion of output submitted for assessment.

50. Where a co-authored or co-produced output is submitted for assessment, it is expected that the submitting author will have made a substantial contribution to it. The order of authors will not be taken into account in the assessment process, as conventions in this regard vary between subject areas.

51. Where a co-authored output is submitted for assessment by only one author within an HEI's submission in an individual UOA, no information on the nature of that author's contribution is required and should not be supplied.

52. Sub-panels wish to receive the fullest possible picture of a submitted unit's research activity and advise that, if additional outputs of comparable quality will give a wider picture of research in the submitting unit, an item of co-authored work should be submitted only once within a single submission.

53. However, sub-panels recognise that there may be circumstances in which institutions wish to submit a co-authored output against more than one member of staff returned within the same submission. In such cases institutions must explain the rationale for doing so in REF2 (maximum 100 words). This explanation should include a succinct description of the distinct contributions of the submitting authors to the output.

54. Sub-panels will assess cases made for submitting a co-authored output against more than one member of staff returned within the same submission separately from assessing the quality of the submitted work. Outputs submitted more than once by the same institution in the same UOA will be assessed on the same basis as other outputs. If the rationale for dual submission is accepted by the sub-panel, then the outcome of the assessment will be assigned to both instances of the output in the outputs sub-profile. Where the rationale is not accepted, one of the instances of the output will be graded as 'unclassified' in the outputs sub-profile.

55. Main Panel C does not expect to see a given co-authored output submitted more than twice in the same submission in a UOA.

Double-weighted outputs

56. Main Panel C recognises that there may be some cases where the combined scale of academic investment in the research activity and intellectual scope of the research output is equivalent to two single outputs, and may have limited the ability of an individual researcher to produce four high quality outputs within the assessment period. The sub-panels may recognise and double-weight such outputs, where requested by the submitting HEI.

57. Without privileging or disadvantaging any particular form of research or type of output, the sub-panels anticipate that double-weighted work should reasonably have required exceptional research effort.

58. Institutions may identify for double-weighting outputs they consider to be worthy of double-weighting and should use a supporting statement to justify their claim in REF2 (maximum 100 words). Sub-panels will assess the claim for double-weighting separately from assessing the quality of the submitted work, and there is no presumption that double-weighted outputs will be attributed the highest quality grade. Where the claim for double-weighting is accepted the assessment of the output will be given a double weight in the outputs quality sub-profile. If the claim is not accepted then the item will be treated as a single output and the 'missing' output will be graded as 'unclassified'. No reserve item may be submitted.

59. In highly exceptional cases the sub-panels may accept claims to double-weight co-authored outputs.

60. As the number of outputs assessed cannot sum to more than four per member of staff submitted, no more than two outputs per researcher may be submitted with a request for double-weighting.

61. Sub-panels will only double-weight outputs identified by the submitting institution, and will not double-weight any output that has not been so identified in the submission.

Additional information on outputs

62. Institutions may provide, in REF2, additional information about the significance of a submitted output where this information has only become available after the output became publicly accessible (maximum 100 words). This information **must** be limited to factual, verifiable information and should relate only to nationally or internationally awarded prestigious prizes or similar significant recognition. It must relate specifically to the submitted output, rather than to an author's output in general. Where provided, statements should be succinct. It is expected that in the majority of cases considerably fewer than the 100 words allowed will be required.

63. The assessment of output quality remains one of peer review based on professional judgement, and no negative inference will be drawn from the absence of additional information.

64. The additional information at paragraph 48 should also be provided.

Citation data

65. Sub-panels 16, 19, 20, 21, 22, 23, 24, 25 and 26 will neither receive nor make use of citation data, or any other form of bibliometric analysis.

66. No sub-panel within Main Panel C will use journal impact factors or any hierarchy of journals in their assessment of outputs.

67. Sub-panels 17 (Geography, Environmental Studies and Archaeology) and 18 (Economics and Econometrics) will receive and may make use of citation data, where they are available and considered appropriate. Sub-panel 17 may make use of citation data for some areas of physical geography and environmental studies, consistent with the practice in UOA 7 (Earth Systems and Environmental Sciences). It will not use citation in respect of the archaeology outputs that it assesses, nor for human geography.

68. Where such data are available, the REF team will provide citation counts for those outputs where this is possible (by a pre-determined date and from a pre-specified and consistent set of sources), as additional information. The absence of citation data for any individual output will have no bearing whatsoever on its assessment.

69. Sub-panels 17 (Geography, Environmental Studies and Archaeology) and 18 (Economics and Econometrics) will be mindful that for some forms of output (for example research monographs, or forms relating to applied research), and especially for very recent outputs, citation data may be unavailable or a particularly unreliable indicator.

70. They will also be aware of the analysis of the REF bibliometrics pilot exercise in relation to equality implications of using citation data, and will be alert to any potential bias that might arise from using citations data.

71. Citation data will not be used as a primary tool in the assessment, but only as supplementary information, where this is deemed helpful, about the academic significance of an output. Sub-panels will make rounded judgements about the quality of outputs, taking into account the full range of assessment criteria (originality, significance and rigour). The sub-panels will only use citation data provided by the REF team and will not refer to any additional sources of bibliometric analysis, including journal impact factors.

Section 3: Assessment criteria: impact

Introduction

72. The REF introduces a new element of research assessment: the assessment of the impact achieved by the research beyond academia. That is, the impact of the research of a submitting unit beyond any impact on or contribution to research or the advancement of knowledge within the higher education sector, and beyond impact on students, teaching or other activities within the submitting HEI¹.

73. Main Panel C wishes to encourage the disciplines submitting to it to showcase the impact that their research has achieved outside academia during the assessment period. The panel anticipates that impact will have been felt by a wide range of beneficiaries, and encourages units to submit case studies in any sphere consistent with the general guidance in Section 3 and Annex C of 'guidance on submissions'.

74. Submitting units should read this 'panel criteria and working methods' document alongside that guidance. As outlined in the 'guidance on submissions' (paragraph 158), case studies must provide evidence that they meet certain criteria in order to be eligible for assessment. As well as meeting the definition of impact for the REF, they should provide evidence that the impact was achieved during the assessment period (between January 2008 and July 2013) and that they are underpinned by excellent research conducted by the submitting HEI between January 1993 and December 2013 (except for UOA 16 – see paragraph 95).

75. Since the REF constitutes a new research assessment process, the main panel recognises that institutions will be considering how to ensure that they prepare case studies which represent their strongest extra-academic impacts. In drawing up its assessment criteria and the advice to submitting institutions, the main panel agreed that providing HEIs with detailed lists of impacts and evidence and/or indicators for those impacts would be unhelpful because these could appear prescriptive or limiting. It wishes

¹ Main Panel C welcomes the important distinction in the generic definition of impact for the REF ('guidance on submissions', Annex C). Impacts on students, teaching or other activities within the submitting HEI are excluded. Impacts on students, teaching and other activities within the HE sector are included where they extend significantly beyond the submitting HEI. Main Panel C expects that impact case studies will be submitted, describing such impact on HE (including, for example, on teaching or HE policy).

to encourage the submission (across the REF as a whole) of a wide range of types of change, benefit or effect outside academia, as evidence of the strength and diversity of the impact of research from Main Panel C disciplines.

76. The main panel also acknowledges that there are multiple ways of achieving impact. Impact may arise from individual research projects or from collaborations within or between a range of organisations, within higher education and beyond. The resultant impact may be achieved by a variety of possible models: from individuals, to inter-institutional groups, to groups including both academic and non-academic participants. The relationship between research and impact may be neither direct nor linear. The main panel has determined that no one model or relationship will be considered intrinsically preferable, and each impact case study will be assessed on its own merits.

Range of impacts

77. As noted in paragraph 73, the sub-panels in Main Panel C welcome case studies that describe any type(s) of impact which fulfil the definition of impact for REF (see 'guidance on submissions', Annex C). The main panel acknowledges that impact within its remit may take many forms and occur in a wide range of spheres. These may include (but are **not** restricted to): culture (for example, impacts, benefits or effects on shared beliefs, values, understanding, or on artistic and social pursuits); the economy (for example, impacts, benefits or effects on the management of the resources of an area, business sector, community, country or countries); the environment (for example, impacts, benefits or effects on the built and/or natural environments); health (for example, impacts, benefits or effects on the condition of the body or mind of individuals or groups); public policy, law and services (for example, impacts, benefits or effects on decisions, strategies and/or operations as decided or provided by authorities at a variety of levels); and society (for example, impacts, benefits or effects on groups of individuals, whether organised or otherwise). Case studies may describe impacts which have affected more than one sphere.

78. For the purposes of this assessment, the following are **excluded**:

- Impacts on research or the advancement of academic knowledge within the HE sector (whether in the UK or internationally).
- Impacts on students, teaching or other activities within the submitting HEI.

79. Impact of any type may be local, regional, national or international, in any part of the world. The beneficiaries of impact may include (but are **not** restricted to) communities, the environment, individuals and organisations. The panel will treat all forms and spheres of impact and any beneficiaries described on an equal basis, assessing them according to the REF criteria (common across all the main panels) of reach and significance.

80. The main panel particularly acknowledges that there may be impacts or effects arising from research within Main Panel C disciplines which take forms such as holding public or private bodies to account or subjecting proposed changes in society, public

policy, business practices, and so on to public scrutiny. Such holding to account or public scrutiny may have had the effect of a proposed change not taking place, and this may of itself be claimed as impact or benefit. There may also be examples of research findings having been communicated to, but not necessarily acted upon, by the intended audience, but which nevertheless make a contribution to critical public debate.

Confidential impact

81. The main panel does not anticipate that many case studies will be submitted which contain impacts or evidence of impacts which are commercially – or otherwise – confidential. All panel members, advisers, assessors, observers and others involved in the assessment process are bound by a confidentiality agreement. Therefore, HEIs may submit evidence for an impact that includes commercially confidential information. If HEIs believe that there are main or sub-panel members who would have a commercial conflict of interest in assessing confidential reports, such individuals should be named when making submissions.

82. For case studies with a high level of confidentiality, for example impacts related to national security, submitting units may submit a disclosable statement that provides outline information together with the security clearance required by assessors and contact details for additional information for the case study to be assessed. Institutions should allow sufficient time for proposed statements to go through the organisation's internal release processes. Institutions may wish to consider whether assessing impacts in this way will allow the assessors access to sufficient information to make a full assessment and may, under circumstances of such high levels of security, prefer to submit an alternative case study instead. The onus is on the submitting unit to ensure that sufficient information is available to enable the case study to be assessed on an equal basis with non-confidential studies.

Impacts from public engagement

83. Impact is described, for the purposes of the REF, as any benefit, change or effect felt outside academia and could also be summarised as a benefit, change or effect to the thoughts and/or practices of non-academic users or stakeholders. While impact presupposes the dissemination or transfer of the insights offered by the research that underpins a case study, it should not be conflated with the dissemination or transfer of research findings. Public engagement activity may often be a part of the chain of activity leading to demonstrable benefit, change or effect, but should not of itself be claimed as impact without evidence of some benefit, change or effect beyond the engagement activity itself.

Case studies: evidence

Evidence of impact

84. Case studies will be assessed in terms of the criteria of reach and significance (see paragraphs 99 to 101). In arriving at an assessment of impact case studies, taking into

account both criteria, sub-panels will pay due regard to the chain of evidence linking excellent research within the submitting unit to the impact, effects, benefits or changes claimed. Institutions should provide the indicators and evidence most appropriate to the impact claimed and to support that chain of evidence.

85. The main panel anticipates that impact statements and case studies will refer to a wide range of types of evidence, including qualitative, quantitative and tangible or material evidence, as appropriate. Individual case studies and statements may draw on a variety of forms of evidence and indicators. The main panel does not wish to pre-judge forms of evidence. It encourages submitting units to use evidence most appropriate to the impact claimed.

86. However, submitting units should ensure that, so far as possible, any evidence cited is independently verifiable. Where testimony is cited, it should be made clear whether the source is a participant in the process of impact delivery (and the degree to which this is the case), or is a reporter on the process. While it is recognised that the evidence for many significant and far-reaching forms of impact may be hard to define, greater weight may be placed on evidence of fact over evidence of opinion in determining the significance and reach associated with a claimed impact.

87. The sub-panels in Main Panel C's remit wish to understand how activity has led to impact or benefit, for which simple descriptions of activity will not suffice. Acting as an adviser to a public body, for example, does not, of itself, represent impact. Providing advice based on research findings from the submitted unit, which has influenced a policy, strategy or public debate would constitute impact, if there is evidence that the advice provided has had some effect or influence. Sub-panels expect the same standard of evidential links between the distinct contribution of the underpinning research in such cases and the effect claimed as with any impact or benefit, and will assess such claims on a fair and equal basis with any others submitted for assessment.

Underpinning research

88. The main panel notes in particular that while the REF is a process for assessing the excellence of research in submitting units, there is a key difference in the assessment of impact: the excellence of the underpinning research for an impact case study is a threshold judgement (a level which has to be met in order for a case study to be eligible for assessment), but the quality of the underpinning research will not be taken into consideration as part of the assessment (or indeed the assigned quality profile) of the claimed impact.

89. Submitting units must ensure that each case study fulfils the threshold criterion on research quality, which is that the underpinning research predominantly meets the REF definition of the two star quality level, or an equivalent to it. A sample of the underpinning research should be cited that is sufficient to identify clearly the body of work, or individual project, being claimed. Sub-panels do not expect to review an underpinning research output(s) to establish that the threshold has been met. The onus is on the institution submitting case studies to provide evidence of this quality level. Some of the indicators of

such quality might be (but are **not** restricted to): research outputs which have been through a rigorous peer-review process; research outputs which are the result of external grant funding which has been peer-reviewed (sources should be specified); end of grant reports referencing a high quality grading; favourable reviews of outputs from authoritative sources; prestigious prizes or awards made to individual research outputs cited in the underpinning research; evidence that an output has been highly cited and has formed a reference point for further research beyond the original institution. It is noted that not all indicators of quality will apply to all forms of research output.

90. Such indicators will allow sub-panels to make an initial assessment as to whether the underpinning research meets the threshold quality criterion to make a case study eligible for assessment. Where there is doubt that the evidence provided confirms that underpinning research meets the required quality threshold, sub-panels may decide to examine the outputs in more detail. This will be at the discretion of the sub-panel, and submitting HEIs will need to be able to make the outputs available on request.

91. The sub-panels do not anticipate that submitting units will normally need to cite more than five references, and submissions should include references that best demonstrate the quality of the underpinning research.

Distinctiveness of research contribution

92. It is expected that institutions submitting a case study will have conducted research with findings which have made a distinct and material contribution to the impact described in the case study. Sub-panels will expect to see clear narrative evidence of this in the case study. Main Panel C recognises that several groups or institutions may have made distinct research contributions to a given impact, and it wishes to see submitting institutions ensure both that their own contribution is specified clearly and that the contributions of others are acknowledged. Where an impact arises from a wider body of research, the panels may, in judging the impact, take account of the specific contribution made by the submitted unit's research.

93. 'Guidance on submissions' (paragraph 160) makes clear that case studies should be underpinned by research conducted at the submitting institution. There will be many cases where researchers have moved institutions during the period in which a body of research underpinning a case study was produced. Where this is the case, the submitting institution should make clear that the research output from the period the researcher spent with it made an identifiable and distinct contribution to the impact claimed.

Timeframe for underpinning research

94. In line with the eligibility definitions in 'guidance on submissions' (sub-paragraph 158c), the research underpinning impact case studies should have taken place between 1 January 1993 and 31 December 2013.

95. For UOA 16 (Architecture, Built Environment and Planning), this will be extended by five years, so that the eligibility period for research underpinning case studies in that UOA is 1 January 1988 to 31 December 2013. The main panel recognises the extended

time frame is necessary, in some cases, for changes to the built environment to be delivered in practice, based on the findings of research from some areas of planning and architectural practice.

Impact template

96. The impact template (REF3a) presents submitting units with an opportunity to describe how they have sought to enable and/or facilitate the achievement of impact arising from their research and how they are shaping and adapting their plans to ensure that they continue to do so in the future. This is distinct from evidence provided in the environment template, which should describe how a unit supports the production of excellent research.

97. The evidence put forward should concentrate on how the unit has facilitated the achievement of impact. The main panel recognises that there may be support available to encourage the achievement of impact within the submitting unit's institution, but notes that units should specify how any institutional support has contributed to the unit's achievement of impact, rather than simply stating its existence.

98. The sections of the impact template should provide explanation of and evidence for:

- Context: the context for encouraging impact achievement (such as the range of beneficiaries and depth of relationships with users. This may include co-production of research).
- Approach to impact: the unit's strategies and support for staff to achieve impact and infrastructural mechanisms.
- Strategy and plans: clearly stated goals and plans for maximising the potential of impact from current and future research.
- Relationship to the case studies: the relationship between the support for impact described and the case studies (although the main panel acknowledges that many impacts may have been serendipitous, rather than planned).

Impact criteria and sub-profiles

99. **Reach** will be understood in terms of the extent and diversity of the communities, environments, individuals, organisations or any other beneficiaries that have benefitted or been affected.

100. **The** potential domain for an impact will be taken into consideration. In other words, reach will be not be assessed in purely geographic terms, nor in terms of absolute numbers of beneficiaries, but rather in terms of the extent to which the potential number or groups of beneficiaries have been affected. It is, for example, recognised that a policy issue affecting one region of the UK uniquely has that region as the potential domain for the impact, and that defines the boundaries of the possible reach achievable.

101. **Significance** will be understood in terms of the degree to which the impact has enriched, influenced, informed or changed policies, opportunities, perspectives or practices of communities, individuals or organisations.

102. These criteria will be applied to the case studies. They will be used to assess the impact template in terms of the extent to which the unit's approach to impact is conducive to achieving impacts of reach and significance.

103. Sub-panels in Main Panel C will follow a common approach to the formation of the impact sub-profile, based on the level definitions in 'guidance on submissions' (Annex A, Table A3).

104. Each case study will be assessed by a group consisting of at least one user member or assessor and one academic member of a sub-panel, with relevant expertise. Each case study will be assessed in terms of the reach and significance of the impact on a holistic basis, which acknowledges that different elements may receive differential scores. This assessment will result in a profile for each case study.

105. The case studies will collectively contribute 80 per cent to the impact quality sub-profile. Each case study within an individual submission will carry equal weight in the impact quality sub-profile.

106. Each impact template will be assessed. A holistic assessment will be made based on a judgement of the merits of the individual sections according to the evidence presented. The impact template will contribute 20 per cent to the impact quality sub-profile.

107. Having assessed the case studies and the impact template, sub-panels will use their expert judgement to form an overall view about the impact sub-profile for each submission based on all the relevant information provided in the submission.

Section 4: Assessment criteria: environment

Environment template

108. 'Guidance on submissions' (paragraph 183) indicates the broad categories of information that institutions are required to provide to evidence the support for research in the submitting unit. Main Panel C provides more detailed guidance below on the areas which might be addressed, where relevant to the submitting unit, within the different headings of the template provided (REF5). Evidence and indicators should be included where appropriate. This part of the unit's submission presents the opportunity to describe how the unit has supported the production of excellent research. This is distinct from evidence provided in the impact template (REF3a), which should describe how a unit encourages and facilitates the achievement of impact.

109. There is no requirement that the environment element of a submission relates to a single, coherent organisational unit.

110. Information is requested in five sections of the environment template:

- a. **Overview:** This will not be assessed. It should be used to provide brief contextual information to the sub-panel, describing what research groups or sub-units are covered by the submission, and how research is structured across the submitted unit. Neither the existence of groups, nor their absence, is, in itself, considered significant by the sub-panels.
- b. **Research strategy:** Evidence of the achievement of strategic aims for research during the assessment period; and details of future strategic aims and goals for research; how these relate to the structure described above, and how they will be taken forward. This may include:
 - an evaluation of the strategy or strategies outlined as part of RAE2008 and subsequent changes, where appropriate
 - an outline of the main objectives and activities in research for five years following submission, and their drivers; methods for monitoring attainment of targets
 - new and developing initiatives not yet producing visible outcomes, or not yet performing at a national or international level, but nevertheless of strategic importance
 - identification of priority developmental areas for the unit, including research topics, funding streams, postgraduate research (PGR) activity, facilities, staffing, administration and management.
- c. **People:** Staffing strategy and staff development within the submitted unit, including: evidence of how the staffing strategy relates to the unit's research strategy and physical infrastructure; support for early career researchers and career development at **all** stages in research careers; evidence about the implementation of the Concordat to Support the Career Development of Researchers; evidence of how the submitting unit support equalities and diversity. This may include:
 - i. **Staffing strategy and staff development:**
 - staffing policy and evidence of its effectiveness, including: recruitment objectives and successes; the balance between short-term and long-term contracts among Category A staff; the demographic profile of the unit and how it affects current and future management of research activity; the pattern of staff recruitment over the assessment period, noting recent recruits and how departures have affected research; succession planning, with particular reference to early career researchers; the role and involvement of joint appointments and fixed-term appointments; the relationship of staffing policy to strategy

- prestigious/competitive personal research fellowships held by submitted staff during the assessment period, and how these have contributed to the development of the staff and the submitted unit
- evidence that equality of opportunity is being effectively promoted and delivered in arrangements for developing the research careers of all staff (including, where appropriate, Category C staff) including: study leave (evidence may include numbers of staff and length of period of leave); opportunities extended to develop the research careers of part-time staff, staff whose research career has been interrupted for any reason, and those seconded from outside academia; the implementation of the Concordat to Support the Career Development of Researchers and evidence of its positive influence
- where appropriate, the contribution of any Category C staff to the strength, coherence and research culture of the unit, and implementation of its research strategy
- mechanisms by which standards of research quality and integrity are maintained (for example ethics procedures and authorship policies).

ii. **Research students:** Evidence of the quality of training and supervision of PGR students, which may include:

- prestigious/competitive studentships and how they have contributed to the PGR culture and research environment
- evidence of a strong and integrated PGR culture, indicating the contribution to the research environment of both PhD candidates and those on professional doctorates (where appropriate), including: support offered to PGR students (including employability skills), and the contribution of submitted staff to doctoral programmes.

d. **Income, infrastructure, facilities:** Information about research income, infrastructure and facilities. This may include:

- research funding, including that allocated as part of larger research consortia, links between research funding and high quality research output, and major and prestigious grant awards made by external bodies on a competitive basis
- strategies for generating grant income appropriate to the discipline
- evidence of infrastructure and/or facilities supporting a vital and sustainable research environment could include: the nature/quality of research infrastructure, including major infrastructure funding; university investment and policies to support the research environment; significant

equipment; technical support staff; space/facilities available for PGR students and research groups including library and IT provision.

e. **Collaboration and contribution to the discipline:** Contributions to the wider research base, including work with other researchers outside of the submitted unit whether locally, nationally or internationally; support for research collaboration and interdisciplinary research; and indicators of wider influence or contributions to the discipline or research base (such as fellowships and relevant awards, involvement on external panels and journal editorships). This may include:

- interdisciplinary research, where appropriate, including what disciplines are involved, and arrangements to support interdisciplinary or collaborative research
- details of existing networks and clusters and of research collaborations with industry, commerce, third sector and other users of research, and how these have enriched the research environment
- evidence of national and international academic collaborations including indicators of their success
- seminar series, contribution to journal editorship and preparation, conferences and research-based continuing professional development
- contribution to professional associations or learned societies, and developmental disciplinary initiatives, both national and international
- co-operation and collaborative arrangements for PGR training, including whether these have received formal recognition nationally or internationally.

Environment data

111. The sub-panels will consider data on research doctoral degrees awarded and income (recorded on the REF4 form) and the standard data analyses provided by the REF team, and will take account of them in assessing the research environment.

112. Both doctoral degrees awarded and research income will be used as indicators of the vitality and sustainability of the research environment. This information will be assessed in the context of the narrative provided in the REF5 template and taking account of the size of the submitting unit, its areas of specialism, its research groups, research strategy and different levels of research funding available in different fields.

113. The sub-panels do not require these data to be presented by research group, and this information should not be provided.

114. For those UOAs indicated below, additional data are requested as part of the environment template (REF5). It is not required by any other sub-panel and should not be provided in any UOA other than those mentioned below.

115. Sub-panels 19 (Business and Management Studies) and 25 (Education) recognise the role of professional and other doctoral qualifications and their contribution to the vitality of the research environment. To obtain a clear understanding of the nature of the research environment, submitting units are asked to disaggregate the total number of doctoral degrees awarded as reported in REF4 for each year in the assessment period into PhDs and research-based professional doctorates. This information should be included as part of the 'People: research students' section of the REF5 template.

116. Sub-panel 26 (Sport and Exercise Sciences, Leisure and Tourism) proposes to assess whether PGR student research activity is growing in newer units and being sustained or developed further in more established units. The sub-panel recognises that some units that submit work for assessment in this UOA represent relatively 'young' discipline areas. Doctoral degree awards alone may, therefore, not present a full picture of this growing area of research. The combination of the number of postgraduate research student awards and registrations over the assessment period is therefore seen as a useful indicator of research capacity, sustainability and growth. The sub-panel, therefore, wishes to see the FTE of postgraduate research students enrolled on doctoral programmes, broken down into the years of the assessment period. Only full registrations should be included (not, for example, students who are writing up their thesis outside the normal registration period, or visiting from other institutions). This information should be included as part of the 'People: research students' section of the REF5 template.

Environment criteria and sub-profiles

117. Sub-panels will assess the quality of the research environment in terms of its vitality and sustainability, taking account of the information presented in REF4 and REF5. Vitality and sustainability refer both to the submitting unit itself and to the unit's contribution to the discipline in general.

118. The main panel has defined a common understanding of the terms 'vitality' and 'sustainability' which will be applied by all sub-panels in the course of their assessment of the research environment:

- **Vitality** of the research environment reflects the existence of a thriving, dynamic and fully participatory research culture based on a clearly articulated research strategy, displayed both within the submitting unit and in its wider contributions, and in terms appropriate to the scale and diversity of the research activity that it supports.
- The **sustainability** of the research environment will be understood in terms of the extent to which it is capable in the future of continuing to support and develop such research activity as defined in the quality levels, both within the submitted unit and the discipline more generally.

119. Sub-panels will build a quality profile for research environment, taking account of all of the narrative sections of the environment template, as well as the quantitative data (both standard and sub-panel specific where requested). The assessment will be carried

out in the context of the discipline area and in light of the range of research undertaken by the submitting unit.

120. The environment sub-profile will reflect the distribution of quality levels evidenced in the submission (REF4 and REF5), and will be based on the level definitions in 'guidance on submissions' (Annex A, Table A4).

Section 5: Working methods

Main panel working methods

121. The main panel is responsible for preparing criteria and working methods for its group of sub-panels, eliciting input from the sub-panels as appropriate, particularly in respect of issues which require variations in the criteria to accommodate disciplinary difference.

122. The main panel is also responsible for working with its group of sub-panels to ensure that the agreed common procedures are followed and that the overall assessment standards are applied consistently.

123. The main panel will also be responsible for deciding on the quality profile to be awarded to each submission in each unit of assessment, following recommendations made by the sub-panels. The main panel recognises that there may be a range of overall profiles for the UOAs within Main Panel C, reflecting the relative strength of the disciplines in the UK. However, where the recommendations of a given sub-panel for the overall results for that UOA are at substantial variance from the other sub-panels, the main panel will review them with reference to any available external evidence.

124. The chair of Main Panel C will meet regularly with the chairs of the other main panels to ensure close working and communication across the exercise, reporting back any issues for early action to the sub-panel chairs within Main Panel C. Main Panel C will provide guidance and support to its sub-panels in the following key respects.

Reporting

125. The main panel will play a key role in ensuring adherence to the assessment criteria. Sub-panel chairs will report to the main panel at key stages throughout the assessment period, describing how they are, in practice, implementing their working methods to provide assurance on the procedures being followed by their sub-panels and to share developing good practice among sub-panels. The main panel will identify and resolve any differences that may emerge. Members of the main panel will attend some meetings of sub-panels, to ensure that practices are consistent with the panel criteria and working methods across the group of sub-panels.

Oversight of assessment of interdisciplinary research

126. Main Panel C is broadly based in its intellectual scope and substantive content, interacting with a wide variety of other disciplines and is, therefore, inherently

interdisciplinary. The composition of the main panel reflects the natural diversity of the disciplines it covers, and interdisciplinary research will not be regarded as a distinct category of activity. Sub-panels will take responsibility for assessing interdisciplinary output in terms of their overall quality, rather than reducing them to their constituent parts for specialist assessment, but will retain the possibility of engaging additional assessors where necessary or cross-referring outputs.

127. Outputs that have arisen from interdisciplinary work may be identified as 'interdisciplinary' by institutions in REF2. Where this information is provided by institutions, it will assist sub-panels in providing reports to the main panel during the assessment period about the volume of interdisciplinary work received. The main panel will consider interdisciplinary work in its oversight of sub-panels' application of the assessment criteria.

Cross-referrals between UOAs

128. The preferred approach within Main Panel C is that the majority of work submitted in a UOA will be assessed within that UOA, using additional assessor members where necessary.

129. The main panel accepts that there are some cases where cross-referral to another sub-panel will be necessary and appropriate. The main panel will review all requests for cross-referral to evaluate whether it is the most appropriate means of assessment for the material in question and to agree between the relevant sub-panels which has the most appropriate expertise.

130. Institutions may also request cross-referral of parts of their submissions. Requests for cross-referral will be discussed by the main and sub-panel chairs to ensure the main panel maintains oversight and ensures a consistent approach is taken where appropriate.

131. In all cases where material is cross-referred to another sub-panel, the sub-panel for the UOA in which the submission was made will remain responsible for agreeing the quality assessment.

132. Sub-panels 18 (Economics and Econometrics) and 19 (Business and Management Studies) have a member in common, which will facilitate cross-referral between these sub-panels. Two or more sub-panels may agree to appoint one or more joint assessors if this is felt to be necessary, once the survey of submission intentions has been received and the extent of work at the boundaries between the sub-panels is known. There will be a further opportunity to identify assessors, including joint assessors, at the start of the assessment period should this be necessary to ensure appropriate expertise is available.

Selection of assessors

133. The main panel will review sub-panels' requests for additional assessors, whether academic or user. The main panel will review requirements to ensure a common approach and to encourage joint appointments. In relation to the assessment of impact,

sub-panels will be encouraged to explore the opportunity for research user members to work across one or more sub-panels according to their expertise, in other words for user members to act as additional assessors.

Consistency of assessment standards

134. The chair and members of the main panel will attend a selection of the sub-panel meetings during the assessment phase (and especially at an early stage in the assessment) to provide feedback and guidance on consistency of application between sub-panels. The panel secretariat will play a role in offering consistent advice and guidance to sub-panel chairs and providing feedback to the main panel chair as appropriate.

135. To ensure the consistent application of assessment standards, each sub-panel will undertake calibration exercises with respect to outputs and impact at an early stage in the assessment phase (or, in the case of research outputs, possibly immediately prior to it).

136. The calibration exercise for research outputs will involve all those members of the sub-panel who will subsequently be involved in assessing outputs and, as far as practicable, academic assessors of the sub-panels. International members of the main panel will also participate in the calibration exercises to assist in benchmarking judgements against levels of international quality.

137. The calibration exercise for impact case studies and templates will also take place at an early stage in the assessment phase and will include all academic members of the sub-panels, as well as user members and assessors. The user members of the main panel will also assist in benchmarking judgements across the sub-panels.

138. The main panel will have oversight of the sub-panel calibration exercises, with the chair and members of the main panel attending a selection of the sub-panel meetings that deal with this calibration.

139. The main panel will also review the preliminary assessments from each sub-panel at an early stage in the assessment phase, to support the consistent application of assessment standards. To facilitate this review, sub-panels will adopt a common sequence of assessment. There will be a preliminary assessment of the environment and impact submissions, before the preliminary assessments of research outputs are discussed. This sequence will be common across all sub-panels within Main Panel C.

140. In addition to participation in formal calibration exercises, international members will attend some sub-panel meetings in their general area of expertise to provide an international perspective. Academic assessors and research users may be invited to work across UOAs within the main panel, particularly at the boundaries of individual UOAs, to contribute to consistency of approach.

141. Where assessors are recruited after the formal calibration exercise has been undertaken they will receive guidance from the sub-panel chair, using the outcome of the calibration exercise as appropriate.

Sub-panel working methods

142. The REF assessment process will be one of peer review based on professional judgement. Sub-panels will allocate submissions (or parts of submissions) to members and/or assessors for assessment on the basis of expertise, taking account of any declarations of interest. This allocation may be at the level of individual outputs, impact case studies, whole impact templates and environment submissions.

143. Sub-panels are responsible for applying the agreed criteria and working methods in making their assessment of submissions. Sub-panels will construct three sub-profiles for each submission, on the scale of four star to 'unclassified', relating to the quality of the research outputs, the research environment and research impact. These will be weighted 65 per cent, 15 per cent and 20 per cent respectively in deriving an overall profile for the whole submission.

144. The decision about the recommendation to the main panel of a particular quality level for each submission rests with the sub-panel, and it is expected that all decisions will be reached by consensus. In the unlikely event that consensus cannot be achieved a majority vote will be used, with the chair having the casting vote.

145. While sub-panels already reflect a wide range of expertise, they expect that additional assessors will be required to ensure that all submissions are assessed by those competent to do so within the time available for completion of the assessment, and to ensure that impact case studies are assessed jointly by user and academic members with relevant expertise. Once appointed, assessors will be fully involved in sub-panel discussions.

146. In early 2013 sub-panels will make a preliminary assessment of their requirements for additional assessors for outputs and impact. In doing so they will take account of the expertise of panel members, conflicts of interest declared by members, and the information on the likely scale and scope of submissions provided by institutions through the survey of submission intentions. Additional requirements may arise when submissions are received and more detailed examination of submissions gets under way in 2014.

147. Each sub-panel will examine all, or virtually all, of the outputs submitted in its UOA in sufficient detail to make informed judgements about their quality. Sub-panels will examine the outputs by reading them in full, reading substantially from them, or (for outputs which by their nature cannot be read) an equivalent level of scrutiny. Sub-panels will take into account additional information about the quality of outputs (where requested as part of the criteria and where submitted by institutions as a supporting statement in REF2) and, where relevant in Sub-panels 17 (Geography, Environmental Studies and Archaeology) and 18 (Economics and Econometrics), citation data provided by the REF

team. The sub-panels will not, however, rely solely on the additional information in forming judgements about the quality of outputs.