

Forestry Commission response to the report of the Independent Review Group on science quality at Forest Research

The Forestry Commission (FC) welcomes the report of the External Independent Review Group of science quality in the FC's research agency - Forest Research (FR). The FC thanks the members of the review group for contributing their time and expertise to this important review.



Alice Holt Lodge, Farnham.

Background

The purpose of undertaking the review was to provide the Forestry Commissioners with an independent, expert assessment of the research, scientific and technical services and knowledge exchange being provided by FR by considering the work being done for the FC and other customers.

The review focussed on:

- Fitness for purpose and science quality – the quality of the research, innovation & development and knowledge exchange work being undertaken in FR, and

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- The extent to which FR's research programmes are contributing to FR's overall aims as set out in the 2011/12 Corporate Plan and in its science strategy, Forest Research Science Focus.

The Independent Review was chaired by Professor Sir David Read FRS, and the review took place between the 13th and 15th December 2011. Interviews with senior managers and all of Forest Research's Programme group managers were held either at the Northern Research Station, or at Alice Holt. The Review Group report summary is detailed in the Annex.

The criteria used to assess the quality were agreed with the Defra Chief Scientist and based on the Department for Business Innovation and Science's Science and Engineering Assurance framework together with some esteem indicators used by Defra.

Main headlines

Overall the Review praised the high level of commitment of FR staff, the excellence of innovative knowledge exchange and strong relationship between FR and its stakeholders. Of 25 stakeholder submissions to the review, all were positive about the services provided by FR. The report makes detailed comments on each of FR's 17 research programmes, rating three as 'Outstanding', five as 'Good' and the remaining as 'Satisfactory'. None were assessed as 'unsatisfactory'. We consider this a generally positive outcome, and the report has been helpful in identifying some areas for improvement, which we will be taking forward.

Where programmes were rated lower than good or excellent, this tended to be a reflection of the lack of peer reviewed papers in high impact journals. Peer reviewed publications are an important, established indicator of science quality. In the work which the FC purchases from FR it requires an appropriate balance between peer reviewed papers and practical advice and guidance based on published science. This is important, given the value of the work to policy and operational delivery for the whole UK forestry sector, and for ensuring that the results of the research reach the intended audience to give it greatest impact. In responding to the Review Group's recommendations below, we propose developing a more explicit statement of our approach to peer review, whilst recognising that FR's record of publishing peer reviewed papers is comparable to other Defra Science Agencies.



Taking a specimen from tree bark to test for *Phytophthora ramorum*.

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However, we also recognise that, for a number of the research programmes which are focussed on applied research, the importance of knowledge exchange with the sector will be reflected in the balance of publications and other outputs. In this respect, we contend that peer review in high impact journals may not always be the best way of delivering this.



The flux tower at Alice Holt Forest monitors the exchange of carbon dioxide between the atmosphere and forest.

It should also be noted that some of the programmes assessed as satisfactory will be closing over the next few years, so we will be concentrating our efforts on improving those which will continue. In addition, our recent priority setting exercise will result in the reallocation of resources from closing or reducing programmes to those which have been assessed as the highest performing.

In summary, the Review Group recognised the unique nature of FR and its importance to the sector, particularly in the light of the increasing challenges of climate change and the current economic climate. It commends FR for the improvement in the quality of knowledge exchange with the forest sector, but felt that attention needs to be paid to enhancing the quality of the science commissioned by the FC. We agree that there will always be room for improvement, but also have to ensure that our resources are used to commission science which is fit for purpose, as well as being of high quality.

Recommendations and FC response

The Review makes six major recommendations. They are listed below, together with a proposed FC response.

1. Identification of opportunities to enhance the integration of cross-cutting social science across all programmes

The FC agrees that this is an important aspect of a fully inter-disciplinary research programme, and will work with Forest Research to identify opportunities and find ways of achieving this in the current research programmes. We will also examine the opportunities for improving the capacity for undertaking economic analysis as part of research programme activity.

2. Consideration of introducing external peer review of the commissioning documents

The Commission recognises that this is now best practice, and will consider how best to achieve this in a cost effective way. Peer review in this context will cover the science methodology and programme outline in the proposal, as well as the science which is being commissioned. This should ensure that the quality and relevance of our science remains high.

3. Reconvening of the External Advisory Committee, to include social science representation

The FC has not had an Advisory Committee on Forest Research since the terms of the previous members concluded in 2010. Re-establishment of this body has been delayed pending a series of internal and external reviews of the Forest Research Agency. We will commit to forming a new body to provide independent advice on our science in 2012/13, with appropriate terms of reference. We will ensure that these include a role in the external review of the commissioning documents and allow the body to have an effective link with the Commission's Research Strategy Management Board.

4. Action to increase awareness of existing internal policies and advice to aid career development, including a greater focus on the publication of papers in peer-reviewed journals

The organisational changes occurring during the period 2010/11 to 2014/15 will have implications for career development across the FC. Forest Research will make every effort to raise awareness and make the best possible use of existing policies to help with staff development. Indeed a number of Forest Research's younger scientists have completed or are involved in management development training programmes. However, opportunities to more actively mentor early career scientists will be developed and implemented. Through the commissioning process, we will encourage all of our scientists to consider opportunities to produce peer reviewed papers. However, we will actively manage this process to ensure that we achieve an appropriate balance between peer review journal papers, and high quality information provision for policy makers and practitioners. To aid this, we are currently streamlining our publication process, so that future research commissioning will focus on improved collaboration between the FC and

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Forest Research towards achieving a better balance between journal papers and grey literature.

5. Ring-fencing of some funding to be allocated through internal competition to enhance innovation in relation to opportunities for earning external income

Given the challenging settlement under SR10, the reducing research budget over the next three years, and the research programmes already determined it will be very challenging to ring fence a meaningful sum in the short term. The FC is receptive to establishing such a challenge fund, and will work with Forest Research and other bodies to explore options for alternative avenues to fund innovation and new research areas.

6. Re-consideration of the need for urgency in implementing a commercialisation strategy, including strengthening the Commercial Services team.

Forest Research will move quickly to establish its planned new Commercial Services team during 2012/13 in order to build upon its recent successes achieved through PSRE funding.

In addition, Forest Research will consider the constructive and tractable comments made by the Review Group. A key focus will be on how best to move the programmes with a Satisfactory rating to Good or Outstanding. We will aim to review these continuing programmes again within the next 18-24 months to measure the impact of our actions against the recommendations.

Forestry Commission
April 2012

Report of External Independent Review of science quality in the Forestry Commission's (FC) research agency - Forest Research (FR).

Purpose and Methodology

The purpose of the review was to provide Forestry Commissioners with an independent, expert assessment of the quality of the research, its fitness for purpose and an evaluation of the extent to which FR's research and knowledge exchange programmes are contributing to its overall aims as set out in the 2011/12 Corporate Plan and its science strategy-Forest Research Science Focus. It was also charged with the requirement to make recommendations, as necessary, concerning changes that might be required to enhance both the quality and fitness for purpose of the science and to promote knowledge exchange and delivery. Terms of Reference are appended in Annex 1.

In advance of the Review, the Group was supplied with background documentation from FC, FR and Defra, as listed in Annex 2. The Review was carried out using the (relevant) criteria described in the Government's Science and Engineering Assurance Framework (Science and Engineering in Government (SEG, October 2009).

The Review was carried out on 13th, 14th and 15th December, 2011 and involved visits by the Group to the two FR research centres- the Northern Research Station (NRS) near Roslin, Midlothian and Alice Holt (AH) near Farnham, Surrey. The Review Group (RG) was chaired by Sir David Read, with the full membership in Annex 3.

The scientific activities of FR are carried out under the overall direction of the CEO (James Pendlebury) and Chief Scientist (Peter Freer-Smith), in three Research Centres (Centre for Forestry and Climate Change, Centre for Forest Resources and Management, Centre for Human and Ecological Sciences). Within the Centres, groups of scientists are dedicated to particular research 'Programmes' each of which has a Programme Leader. The RG received presentations (of variable length), followed by a question and discussion session, from each of the 17 separate research programmes commissioned by CFS plus the Programme on Modelling and mensuration commissioned by IFOS. The presentations were held in 2 parallel sessions, RG members being (broadly) assigned to those Programmes most closely matching their particular areas of expertise. Thus each Programme was reviewed by at least 3 RG members. Nominated 'lead' RG members reported group findings to plenary sessions of the RG and took responsibility for getting a written assessment agreed by the sub-group.

The RG report presents our overall conclusions and recommendations, supplemented by three Annexes.

Review Group report summary

Overall Conclusions and Recommendations

The RG was impressed by the high level of commitment that was demonstrated across the board by FR scientists. It recognised that the review came at a difficult time, in the midst of decreasing funding and with many posts having been lost through voluntary retirement and early severance schemes. While the RG observed some variation in the quality of the science conducted under different Programmes, it commends the excellence of innovative knowledge exchange processes seen across all Programmes and felt that relationships between the scientists and stakeholders were generally impressive. The RG was provided with comments received from 25 stakeholder groups, which were all positive. Overall the comments provided evidence of an upwards trajectory in the quality of stakeholder engagement, with some programmes identified for specific praise. Stakeholders also drew attention to the uniqueness of Forest Research's knowledge contribution to forestry policy and practice and hence its importance to the Forestry sector overall (both public and private).

Throughout the Programme reviews, the RG noted considerable variation in the quality of the science being carried in the different programmes. The programmes were marked on a scale of Unsatisfactory, Satisfactory, Good, Outstanding, 3 programmes received an 'Outstanding' mark. 5 were considered to be 'Good' in terms of quality of science and 10 were considered to be 'Satisfactory'. None were considered to be unsatisfactory. For those programmes with a 'Satisfactory' mark, suggestions are made on areas for improvement. Specifically, the RG identified some missed opportunities for enhancing the quantity and quality of interdisciplinary research and felt that social science generally has been insufficiently integrated within and between a number of Programmes. The applied social science Programme is relatively new, but its reputation is growing. In a period when future FC funding is likely to further decline, there is a need to develop links with other research centres and applied researchers and to more fully exploit external, chiefly commercial, funding sources for interdisciplinary, applied research. All of which suggests a need for strategic thinking on the integration of social science research within the organisation as a whole.

The RG identified a number of circumstances in which there was a tension between fitness for purpose (perhaps best considered as 'relevance') and science quality. This tension can arise from the nature of the commissioning process, which is largely an iterative interaction between 'Research Purchasers' in the FC and the scientists within the relevant programme. The degree of iteration (consultation with FR) is variable and neither the FC nor FR has sought external expert advice or feedback on submissions for new research funding. There is a clear need for more external expert scientific input to the research commissioning process. Expert external advice and monitoring has been inadequate since the disbanding of the independent Advisory Committee on FR in 2009 and we would recommend that this is reconvened and should include some social science

Review Group report summary

expertise A greater amount of external peer review throughout the research process will allow Programme teams to demonstrate more effectively the evident quality of some of the research being undertaken. The RG welcomes the statements in Section 6.9 (p33) of the FC Science and Innovation Strategy 2010-2013 that

- a) We will use the Advisory Committee on Forest Research to support peer review for formal external assessment of in-house research, and
- b) We will publish figures on the number of papers accepted by peer-reviewed journals in Forest Research's annual report

Publication of peer review papers is an important measure of science quality but the RG felt that the publication record of some Programmes was disappointing. We believe that a culture change is required to better recognise the value and importance of peer reviewed publications, both in order to enhance FR's access to alternative sources of funding, and to promote the longer term career opportunities, particularly of its younger scientists. When receiving submissions from the Programme leaders, the RG noted a lack of consistency in adherence to, and application of, existing policies regarding mentoring, review, and quality assurance. Again, this will be to the particular detriment of career progression amongst the younger scientists.

The RG had concerns about the scope within the current FR structure for scientific innovation. It recommends the allocation of 'ring-fenced' funding to support internal competition in support of the FR strategy for scientific innovation. Amongst other elements, this fund could be used to enable exploration of partnerships with Research Councils and Universities, with the aim of identifying opportunities both for enhancing science quality and identifying potential sources of new funding.

The review concentrated on the research commissioned by the FC, although reference was made to the extent of other funding won by some Programmes. The RG was disappointed, however, by the efforts of the organisation as a whole to identify replacement sources of income. It is noted that FR's external (i.e. non-FC) income has grown from £1.9 million in 2008/9 to over £2.8 Million in 2010/11) at a time when staff numbers have been declining. The RG was particularly concerned about the agency's capacity to find and exploit new sources of income and whilst acknowledging it had increased its non FC income by over 40% over the last 3 years believed it was imperative that it stepped up activity in this area. In this context the RG felt that the FR Corporate Plan (2010-2015) failed to show sufficient evidence either of strategic thinking or business planning under current or foreseeable economic climates. It stressed the need in the Commercial Services section of the 2015 Organogram for a more rapid and urgent attention to diversification of funding sources.

Review Group report summary

In summary, the RG recognises the unique nature of FR and its importance to the sector, particularly in light of the increasing challenges of climate change and the current economic climate. It commends FR for the improvement in the quality of knowledge exchange with the forestry sector, but feels that attention needs to be paid to enhancing the quality of the science commissioned by the FC. In particular it recommends:

- 1. Identification of opportunities to enhance the integration of cross-cutting social science across all programmes**
- 2. Consideration of introducing external peer review of the commissioning documents**
- 3. Reconvening of the External Advisory Committee, to include social science representation;**
- 4. Action to increase awareness of existing internal policies and advice to aid career development, including a greater focus on the publication of papers in peer-reviewed journals**
- 5. Ring-fencing of some funding to be allocated through internal competition to enhance innovation in relation to opportunities for earning external income**
- 6. Re-consideration of the need for urgency in implementing a commercialisation strategy, including strengthening the Commercial Services team.**

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ANNEX 1

Terms of reference for the External Review of Forest Research 2011/12

- 1) To review the research, scientific services and knowledge exchange being provided by FR by considering the work being done for the FC and other customers in the three Centres and by the Technical Services Unit.
- 2) To report on:
 - a. The extent to which FR's research programmes and the related, externally-funded, research are contributing to its overall aims as set out in the 2011/12 Corporate Plan (see Annex 1) and
 - b. Fitness for purpose and science quality – the quality of the research, innovation & development and knowledge exchange work being undertaken in FR.
- 3) To make recommendations, as necessary, on:
 - a. quality and fitness for purpose,
 - b. on new research opportunities and future priorities (bearing in mind the likely future needs for policy development and implementation),
 - c. and on knowledge exchange and delivery.

Written report and dissemination of the Review Group's findings

4) The Review Group is asked to provide a written report within one month of their visit. The report should provide commentary, recommendations and overall comments as necessary.

The report will be presented to the Forestry Commissioners. Once accepted by the Commissioners the report is presented to the FC's Research Strategy Management Board by the FC Chief Scientist and will be made available to CFS and FR for implementation.

ANNEX 2

Documentation provided to the Review Group:

- Terms of reference for the Review
- Programme for the Review
- Forestry Commission Science and innovation Strategy (2011)
- Forest Research Corporate Plan (2011-15)
- FR Science Focus (2011-2016)
- Organograms of FR's management structure
- 18 'Proposals for funding' for the individual research programmes funded by the Forestry Commission at Forest Research for 2011/12 through to 2014/15
- FC/FR publication list for the last 4 years
- Measures of esteem and publications for each PI whose work was presented to the RG.
- Advisory Service reports and examples of outputs
- Examples of policy reports
- Table of external income 2011/12
- Details of promotion process
- Responses from key stakeholders, partners and customers who were asked (By Professor Peter Freer-Smith or Roger Coppock) to: 'provide a short statement indicating your general level of satisfaction as a partner who has seen something of Forest Research's work. You may also have specific views which you would like the Group to consider during their review of Forest Research.'

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ANNEX 3

The group was chaired by **Professor Sir David Read** FRS, Emeritus Professor of Plant Science in the Department of Animal and Plant Sciences at University of Sheffield, and the membership comprises:

Professor Maggie Gill (formerly Chief Scientific Adviser, Environment & Rural Affairs Department of The Scottish Government.)

Shireen Chambers (Executive Director of the Institute of Chartered Foresters.)

Lindsay Bulman (Project leader in forest biosecurity at Scion (New Zealand Forest Research Institute Ltd)

Prof Antonio (Tony) Pizzi (Chair & Professor of Industrial Chemistry, ENSTIB, Université de Nancy.)

Dr. Clive Potter (Imperial College, London is Reader in Environmental Policy in the Centre for Environmental Policy and a Visiting Professor in the Department of Politics, University of Exeter.)

Professor Paul Milbourne (School of City and Regional Planning, and Director of Cardiff University's Centre for Research on Environment, Society and Space and the Wales Rural Observatory)