

REPORT OF THE VISITING GROUP TO THE INSTITUTE OF GRASSLAND AND ENVIRONMENTAL RESEARCH

6-10 JUNE 2005

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WHOLE INSTITUTE ASSESSMENT

SUMMARY ASSESSMENT

1. The Visiting Group (VG) agreed that there was a definite continued role for the Institute of Grassland and Environmental Research (IGER). The institute's activities were set in an important strategic context, with a strong theme of research integration. The institute benefited from a well-defined mission that made clear contributions to the strategic objectives of BBSRC and the principal external funder, Defra.
2. The VG considered that the departmental restructuring exercise, which took place following the last Visiting Group, had worked well, and agreed with the director's view that the existing structure should be allowed to mature in the period between this and the next assessment exercise. The VG commended the well-crafted and solidly positioned organisation of the three departments and the ten encapsulated programmes: this structure was well-mapped onto the overall strategic role of IGER, for the clear benefit of the institute's mission. The VG also felt that extending IGER's research beyond the farm gate was a positive new development.
3. There was clear linkage of BBSRC and Defra objectives, and the VG was pleased to observe a culture of parity of esteem for project leaders working in either context.
4. It was clear to the VG that these successes strongly reflected the vision and actions of the director, and the VG commended his evident commitment and strong leadership. It was recognised, however, that the director will reach retirement age within two years, and the VG felt that it was essential, for the continuing health and prosperity of the institute, that his expertise, activities and vision be disseminated to senior IGER staff within an appropriate timescale.

Recommendation 1

The VG endorsed the continuing need for the Institute of Grassland and Environmental Research and, recognising the value to IGER of the great strength of leadership, commitment and vision of the director, noted that it was vital that he should work with senior IGER staff to ensure that, following his anticipated retirement in 2007, his staff clearly recognise the strengths and weaknesses of the institute and were in a proactive position to assist the new director in developing existing and new research programmes which will ensure an important future role for IGER both nationally and internationally.

5. The VG concurred with the director's view that IGER must work with BBSRC and Defra, as a matter of urgency, towards a corporate agreement on the future sustainability of the institute's science base, in light of the recent Research Institute and Public Sector Research Establishment (PSRE) Sustainability Study (RIPSS) recommendations regarding public sector research establishment sustainability. The VG felt that this was an important challenge for the institute.

In particular it would be essential for IGER to secure adequate funding in the next round of Defra contract renewals in 2007.

Recommendation 2

In light of the RIPSS recommendations, the VG recommended that IGER and BBSRC urgently take forward discussions with Defra on the future sustainability of the institute's science base.

6. The VG commended the many examples of interconnectivity of disciplines, and of programmes within and between departments, which added value to the institute's strategic aims. The VG was able, to identify several important interactions facilitating the flow of knowledge and technology from fundamental science to strategic outcomes; for example, the red clover/polyphenol oxidase research connecting the activities of the three programmes within the Plant, Animal and Microbial Science department, and the *Lolium* research connecting the activities of the Molecular and Applied Genetics and Grass Traits and Varieties programmes. The VG felt that there was the opportunity in the near future for the institute to successfully link scales of research from plant genomics to animal nutrition to manure to soil processes, and thereby achieve an integrated approach to systems, potentially unique in its comprehensiveness within the UK agricultural research sector. This represented a clear success of the integration and coordination of varied research disciplines and diverse facilities within the institute, resulting in significant added value.
7. The VG was concerned that in some other cases, inter-programme connectivity appeared to be rather superficial: it was not clear in such cases whether all stated links represented genuinely productive lines of research. The VG felt that the programme leaders must ensure that the identified inter-programme links were enthusiastically pursued by researchers on the ground.
8. Whilst the interconnectivity of programmes was commended, the VG had concerns that the outputs of some programmes, in particular Nutrition and Microbiology, Livestock Systems and Integrated Land Use, and Behavioural and Community Ecology, might be too reliant upon the outputs of other programmes. The VG considered that in the context of the institute's mission, each programme must contribute clear and high quality science outputs. The VG felt that it was of great importance for programme leaders to identify independent outputs, based on the programme's scientific rationale, and ensure these materialised.

Recommendation 3

For the integration of programmes to be continuously effective, the leadership of each programme should identify, and strive to realise, scientific outputs that stand alone from the very positive interactions with other programmes.

9. The VG had deep concerns that the quantity and quality of peer-reviewed publications did not reflect the quality of the research conducted by the institute. This issue was consistently highlighted in previous Institute Assessment Exercises

and, despite detailed discussions and exposition of this issue during the visit, this remained a major issue for the VG.

10. The VG acknowledged that, in several cases, programme leaders had attempted to increase the profile of their publications, but noted that success had been limited: the reason given being the difficulty associated with publishing more applied work, or work based on non-model species, in higher profile, wider circulation journals. However, the VG was of the opinion that more could be done to address this challenge. In particular, the VG felt strongly that it would be possible in many cases to redraft manuscripts to highlight the central, fundamental scientific questions, rather than the applied outcomes, and that this strategy had been successful for researchers in other institutions. The VG felt strongly that the production of publications, targeted ambitiously towards higher impact journals where appropriate, and drafted accordingly, should represent a priority output of all programmes.

Recommendation 4

The VG had deep concerns that the quality and quantity of publications did not reflect the quality of IGER's science, and that this was an ongoing problem. The VG recommended that, where relevant, a strategy of drafting publications to highlight fundamental science be adopted, and that senior departmental leaders be tasked, as a priority, to make this happen. The production of high quality publications must be of the very highest priority for all programmes, in order to advance the mission of the institute. Aspiring to publish in high impact publications would help focus the scientific direction of programmes, improve the scientific visibility of the institute and improve the likelihood of obtaining competitive research income.

11. The VG was concerned that in some programmes insufficient attention was given to the definition of the fundamental scientific questions and central hypotheses underpinning the research. It felt that addressing this issue would help to drive publications into the higher impact journals, improve the success rate for competitive grant funding and assist in the 'filter down' of strategic vision to researchers. The VG also observed insufficient evidence of well-formulated formal or conceptual models driving the scientific activities in these programmes.
12. Whilst recognising that there had been attempts to increase the number of competitive (responsive mode) grants held by the institute, the VG also had concerns regarding the low success rates in obtaining such funding. This was felt to be aligned with the VG's concerns about the quality of publications, with both issues having similar underlying causes and, therefore, routes for improvement.

Recommendation 5

The VG recommended that programme leaders focus on defining the fundamental scientific questions and hypotheses driving the research programmes. Scientific activities should also be driven by well-formulated formal theoretical or conceptual models. Scientific leaders should strive to articulate the underpinning scientific drivers to their

staff and students, to provide clear focus and context for their research activities. This must also apply to the more strategic, externally-funded programmes. Improved focus on the underpinning scientific drivers would help to direct commensurate improvements in both the quality of publications and the success rate for competitive grant funding.

13. Related to the issue described in paragraph 11, the VG noted that research in some programmes was becoming increasingly data-rich, and that the institute was adopting an institute-wide informatics strategy to integrate data and get the best value from it. However, there was some concern that the programme strategies were not being driven by the need to address the underlying scientific hypotheses, and that high-capacity data collection, facilitated by the application of new technologies, should not be an end in itself. The VG also felt that the data collected should be immediately tractable and interpreted in the course of on-going scientific investigations, and that data ‘stockpiling’ for future interpretation should be of low priority. The VG had concerns that this was not always the case.

Recommendation 6

The increasing opportunities for high-throughput data collection must be harnessed to a clear and current need to obtain such data. The institute must guard against data- or technology-driven science agendas which are not directly linked to specific scientific objectives.

COLLABORATION

14. The VG noted that IGER had numerous links and collaborations with academic and industrial partners in the UK and internationally. In particular, the VG commended the strongly embedded nature of the main IGER site within the Welsh HEI cluster: there were several well-developed collaborations with researchers at the University of Wales at Aberystwyth and Bangor, and further interactions with the University of Cardiff, the University of Glamorgan and the Centre for Ecology and Hydrology (CEH), Bangor. Researchers at the IGER North Wyke site had also established reasonable local interactions with the Universities of Plymouth and Exeter, and CEH Dorset. The VG approved the stated ‘regional hub’ aspiration for the institute, particularly relating to key platform technologies and facilities, provided that this was to the net benefit of IGER, and did not detract scientific focus from the institute’s strategic priorities. However, the lack of any obvious links with national centres of ‘omics’ technologies was a serious short-coming given the difficulties of establishing these expensive facilities in-house. In particular, stronger links with the metabolomics Met-Ro consortium (a BBSRC initiative to establish a critical mass of plant and microbial metabolomics resources) would be particularly helpful.
15. The VG acknowledged that the broad spread of IGER’s programmes included collaborations with a long and varied list of UK research institutions, including important strategic connections with Rothamsted Research (RRes), the Macaulay Land Use Research Institute (MLURI), Scottish Crop Research Institute (SCRI)

and the Scottish Agricultural College (SAC). However, it was felt that there was scope to improve connectivity, particularly with institutions outside Wales. In particular, the VG felt that the institute should place a greater emphasis on developing productive collaborations with leading HEIs having relevant programmes of research and/or expertise, especially in the cutting-edge molecular and informatics disciplines.

16. The VG noted that the institute was at various stages in inaugurating several Cross-Institute Programmes (CIPs). The Sustainable Soil Function CIP with RRes offered significant opportunities to further the strategic aims of both institutes, and clearly represented a highly significant route for increased collaboration between IGER and RRes. The VG strongly supported the rationale for this CIP in principle, and felt that there was a strong case that appropriate associated resources should be targeted on the Manures and Farm Resources programme, to ensure that this programme was fit for purpose. The VG felt that they had insufficient information to allow comment upon any recruitment needs associated with the implementation of this CIP.
17. The VG also strongly supported, in principle, the Monogram CIP, and recognised that this CIP would provide an opportunity to share resources and expertise across institutes. The VG also encouraged continuing discussions on joint funding opportunities in the general area of agroecology, and suggested that BBSRC should explore the possibility of facilitating the creation of an ERA-Net in this area.

Recommendation 7

The VG strongly supported, in principle, the rationale for the Sustainable Soil Function and Monogram Cross-Institute Programmes (CIPs). It was highly important that sufficient support from the Sustainable Soil Function CIP was targeted, in particular, on the Manures and Farm Resources programme, for this programme to be fit for purpose. The VG strongly encouraged continuing discussions on joint funding opportunities in the general area of agroecology, and recommended that BBSRC should seek to facilitate an ERA-Net in this area.

18. Whilst recognising that IGER researchers had some links with the John Innes Centre (JIC), notably through comparative genetics, *Lotus japonicus* genetics and microarray-based work, the VG felt that there was considerable potential to develop further the connectivity between these two institutes. In particular, the VG felt that IGER should seek to obtain maximum leverage from potential investments in cereal genetics related to implementation of the BBSRC Crop Science Review recommendations, and that this would represent a prime opportunity for increasing collaboration with JIC and RRes.
19. The VG commended the numerous and appropriate collaborations with UK and international industry, particularly in the plant breeding area. The VG also

complemented the programme staff on their successful production of grasses, oats and clover varieties.

STRATEGIC RELEVANCE

20. The VG felt that IGER's research was of obvious relevance to several of the objectives of BBSRC's Strategic Plan 2003-2008. The 'biology of systems' approach pursued by the institute was well in tune with the Integrative Biology priority, and particularly so where scales of research were most effectively linked (see Summary Assessment). The entire portfolio of the institute clearly made a significant contribution to the Sustainable Agriculture priority and, in particular, made a strategically critical contribution to understanding and optimising ruminant agricultural systems, in the context of changing global climate. Several areas of the institute's activities also contributed to the Bioscience for Industry priority, particularly within the plant breeding-based programmes, with effective routes for knowledge transfer. There were many examples, throughout the institute, of productive collaboration with industry.
21. The VG felt that the institute was generally fulfilling the strategic objectives of external funders, and was clearly contributing to Defra's Sustainable Farming and Food strategy. The work of the Legume Breeding and Genetics programme, in particular, was felt to be likely to exceed these objectives, providing an example of strong strategic leadership. In all cases, interactively developing research programmes and allied objectives in close collaboration with Defra would be the preferable route to meeting applied needs with the best quality science.

SCIENCE AND SOCIETY

22. The VG felt that IGER had developed some commendable activities, such as the Science Café and Science in Society debates, and felt that the success of these should be shared with other institutes. It might be possible to share ideas about these activities either through coordinating organisations such as the British Association for the Advancement of Science or through BBSRC. The VG commended IGER for participation in the Nuffield Bursary scheme and also congratulated the institute for accessing money to run activities: the science with poetry activity was an example of excellence, where the institute had successfully secured funding to run a novel event.
23. The institute's Associates provided an extremely useful forum, both to act as ambassadors for the institute and as a potential means of stakeholder input to decision-making. The institute might wish to look at exploiting this group further, to ensure that the interaction was two-way and that institute strategies were appropriately informed by this diverse and influential group. Again, this was another model that could be compared with similar groups organised by other BBSRC-sponsored institutes to inform its development. While it was essential

- that there was lay input to the ethical governance of the institute and non-specialist membership of the Governing Body, the VG did not consider it necessary for lay membership of all committees.
24. The VG highly commended the director for his clear commitment and dedication to science and society, but felt it was vital that his knowledge and links with many influential organisations should be effectively passed on to colleagues; it might be that the total load he currently carries was too high to be passed on to a single individual and that his activities should be distributed.
 25. It was important that science and society activities were fully embedded in the institute's core business. The VG was of the opinion that it might be timely to review all activities against the institute's overall objectives, in order to target resources and to ensure that any new activities were outcome-led and in line with overall strategy.
 26. It was natural that much of the institute's focus for science and society activities was on Wales and the South-West of England. However, as the leading institute in grassland and environmental research, the VG felt that it would be useful to investigate means of widening reach across the rest of the UK. This might be affected by building on existing collaborations with organisations such as science centres, and forging new links, for instance with the new science learning centres. BBSRC could also look at increasing opportunities for BBSRC-sponsored institutes to work together.
 27. The VG felt there was excellent in-house expertise in communicating to non-specialist audiences. However, it might be useful to investigate the benefit of offering those new to communication the opportunity for formal training. BBSRC could help with funding or providing access to local courses.
 28. The website was felt to be a useful resource, and it was obviously well utilised. The VG considered that it might be possible to monitor its use more effectively, using software that allows the type of visitor and the particular pages downloaded to be identified. This would inform the site's development. Strategies for increasing traffic and incorporation of a wider range of links might also benefit the site.
 29. Many BBSRC-sponsored institutes were engaging in similar activities, for instance schools visits, talks and dialogue with interested groups. The VG felt that BBSRC could facilitate greater interaction, both to share best practice and inform cost-effective strategies and to provide practical assistance. At a practical level it might, for instance, be useful for BBSRC to maintain a database of scientists who could speak on particular topics, and organisations that invite speakers and organise public discussion. This might allow more individuals and organisations to draw upon the institutes' expertise, and allow institutes to enter into dialogue with a greater range of individuals and organisations.

Recommendation 8

The VG considered that an excellent quality and quantity of science and society activity had been achieved. It may be timely to review all science and society activities against the institute's overall objectives, which may help inform future strategy and ensure new activities were outcome-led. Building on existing collaborations with other organisations, and developing new ones, might help to widen the reach of activities nationally. The institute might also investigate the benefit of providing formal training for those new to communication with non-specialists. In addition, more informed monitoring, investigating a broader range of links and looking at strategies to increase traffic may inform development of the website. BBSRC should investigate ways of facilitating science and society activities for institutes to allow greater coverage nationwide and to share best practice.

KNOWLEDGE TRANSFER (KT)

30. The VG was in broad agreement with the findings of the Knowledge Transfer (KT) panel. The VG was impressed by the wide range of KT activities, which were highly appropriate for IGER's research activities, and commended, in particular, the director's current drive and commitment in converting research findings into Defra policy outputs. The VG was in agreement with the KT panel's observation that the personal contribution and success of the current director made succession planning of critical importance for IGER, to ensure that it maintained its strong position in the future.
31. In addition to the issues raised in the KT report, the VG had concerns that the current well-established, exclusive business relationships with Germinal Holdings and SW Seed Ltd., whilst providing a modest and ongoing income for the institute, might no longer be offering the best value for the institute or its research funders. The VG recommended that IGER review its current contracts with these companies to ensure that they represented the best deal possible for IGER.

STUDENTSHIPS AND FELLOWSHIPS TRAINING (SFT)

32. The VG was in agreement with the findings of the Studentships and Fellowships Training Assessment (SFT) panel. The VG observed that graduate students and postdoctoral researchers were highly enthusiastic about the research environment provided by IGER. In particular, the VG noted that PhD students, on the whole, felt that there was a good balance between training and the fostering of research independence, and that both students and postdoctoral researchers reported a high level of support from direct supervisors and within the wider institute environment. Reflecting the findings of the SFT panel's report, the VG felt that IGER provided a valuable research training environment, with access to excellent

and, in some cases, unique facilities, and that students and postdoctoral researchers benefited from high quality training support.

33. The VG had deep concerns about the very small number of PhD students currently studying at IGER, an issue captured and elaborated by the SFT panel's report. The VG recognised that the current low level of studentships was, in part, a result of loss of the BBSRC quota and CASE studentships following previously poor submission rates, but they felt that this did not fully account for the decline in student numbers. The VG commended the efforts of IGER to improve submission rates with the aim of bidding for and restoring the BBSRC quota.
34. The VG supported the efforts of the institute to regain BBSRC quota and CASE studentships, and felt that it was appropriate to place a high emphasis on achieving this goal. The VG was also in agreement with the SFT panel's findings that IGER should look beyond this goal, and employ innovative means to rejuvenate its studentship programme. The VG particularly agreed with the need to adopt highly proactive recruitment measures, and supported the SFT panel's view that a dedicated Director of Postgraduate Research would be a highly worthwhile appointment.
35. The VG supported all of the recommendations set out in the SFT panel's report, and felt that these recommendations effectively identified mechanisms by which IGER could increase studentship numbers and optimise training. The full report is at Annex 2.

BUSINESS PLANNING AND ORGANISATION

36. The VG felt that there was evidence of strong organisational management of the institute as a whole, and of the departments in general. The VG was impressed with the effective organisation and management of the institute's varied facilities; in particular, the VG felt that Trawscoed farm represented a particularly well-managed and fit for purpose facility. The VG commended the ongoing laboratory augmentation at this site, to add Category 2 laboratory facilities. The management and facilities of the Bronydd Mawr research station were also complimented by the VG.
37. However, the VG had concerns that the scientific leadership of some of the programmes needed to improve. Despite the tremendous difficulty and pressures of balancing organisational and scientific leadership demands, the VG was particularly concerned about the lack of 'filter down' of departmental scientific and strategic vision in some programmes to the level of individual researchers, particularly to PhD students and Band 5/6 researchers. The VG felt that the level of scientific stimulus pervading the departments was not always as high as it could be.

38. The VG felt that it was of critical importance for the institute to ensure that the great enthusiasm and high potential evident amongst researchers were effectively developed and capitalised upon: the VG felt that there was a clear need in some cases for the departmental/programme leadership to provide more effective communication of scientific vision, curiosity, rigour, debate and inter-disciplinarity, in order to create departmental environments that maximised these qualities.
39. The VG also had concerns about the effectiveness of the director's stated strategy for succession planning via the nurturing of home-grown talent. Whilst a strong policy of internal career development for promising individuals was viewed as highly commendable, the VG was strongly of the opinion that IGER must place a greater emphasis on the active external recruitment of new senior scientists as a matter of priority.

Recommendation 9

The Visiting Group recommended that IGER place a strong emphasis on external recruitment for the institute's leadership positions. There was a clear need to implement mechanisms to actively recruit international scientists with proven track record and to attract personal fellows and postgraduate students to the institute.

40. The VG observed that interactions with Defra were project-based, and that significant inefficiencies resulted from this relationship, in terms of the amount of time administering and reporting on numerous small projects, and fragmentation of effort and focus. Given the high value of Defra contracts to the institute's business, the VG felt that programme leaders should exert maximum influence to vigorously pursue a programme-based approach in discussions with Defra. This would be particularly timely in light of the Defra contract renewals in 2007.

Recommendation 10

In light of the contract renewals in 2007, the VG recommended that programme leaders vigorously pursue the use of programme-based approaches in future discussions with Defra. The current system of project-based interactions with Defra was clearly highly demanding for programme leaders, and the resulting fragmentation of effort was to the detriment of scientific outputs. Programme-based interactions should be pursued with the aim of targeting Defra funding towards strong, international quality science outputs.

41. The VG commended development of an institute-wide, forward strategy for informatics, statistics and data management. However, the VG had some concerns about an apparent lack of a formal project definition driving this strategy, particularly with respect to the proposed central data repository. This would be necessary to guard against the repository becoming an expensive silo of data with limited integrative capacity.

Recommendation 11

The institute should develop a formal project definition for the institute-wide informatics strategy, to ensure both that this strategy met current and future needs and that resources were deployed in the most effective manner.

RESEARCH FOOTPRINT

Research footprint assessment summary					
	Number of programmes in each assessment category				
Externally-funded	Outstanding	Good	Satisfactory	Unsatisfactory	
	-	2	1	-	
Mixed programmes*	High international	Inter-national	High national	National	Unsatisfactory
	-	5	1	1	-
	Outstanding	Good	Satisfactory	Unsatisfactory	
	1	4	1	-	

Programme**Assessment rating****BBSRC External****Plant Genetics and Breeding Department**

- | | | |
|---|---------------|-------------|
| 1: Molecular and Applied Genetics (mixed) | International | Good |
| 2: Grass – Traits and Varieties (mixed) | International | Good |
| 3: Non-Forage Crops (external) | - | Good |
| 4: Legume Breeding and Genetics (mixed) | International | Outstanding |

Plant, Animal and Microbial Science Department

- | | | |
|-------------------------------|---------------|------------|
| 5: Plant Cell Biology (mixed) | International | No rating* |
|-------------------------------|---------------|------------|

**Classified by VG as primarily as providing a service function*

6: Nutrition and Microbiology (mixed) High national Good

Soil, Environmental and Ecological Science Department

7: Livestock Systems and Integrated Land Use (external) - Satisfactory

8: Soil Science and Environmental Quality (mixed) International Good

9: Behavioural and community Ecology (mixed) National Satisfactory

10: Manure and Farm Resources (external) - Good

ANNEX 1: MEMBERSHIP AND ACKNOWLEDGEMENTS

MEMBERSHIP

- i The Institute of Grassland and Environmental Research was reviewed by a Visiting Group (VG) between 6 and 10 June 2005. The Group comprised:
- | | |
|-------------------------|--|
| Professor S Bright | Warwick-HRI |
| Professor R Edwards | University of Warwick |
| Professor J P Gustafson | University of Durham |
| | United States Department of Agriculture |
| | University of Missouri, USA |
| Professor G Jellis | Home Grown Cereals Authority |
| Professor J J Kennelly | University of Alberta, Canada |
| Mr A Peck | Dry Drayton Estate Ltd, Cambridge |
| Professor K Ritz | Cranfield University |
| Professor H J Flint | Rowett Research Institute |
| Professor A W Illius | University of Edinburgh |
| Professor M J Kearsley | University of Birmingham |
| Dr D Murphy-Bokern | Defra |
| Professor O Oenema | University of Wageningen,
Netherlands |
| Dr A F Raybould | Syngenta |
| Professor J Scholes | University of Sheffield |
| Dr M Tas | Defra |
- ii. The Group was joined by additional experts to review the institute's contributions to the Science and Society agenda:
- | | |
|----------------|-----------------------|
| Dr J Schollar | University of Reading |
| Dr J D Gunning | Cardiff Law School |
- iii The following people attended from BBSRC Office: Professor Nigel Brown; Dr Mari Williams; Dr Maggie Leggett; Dr Jef Grainger; Dr Simon Kerley; Dr Andy Cureton; Mrs Carol Milner.

ACKNOWLEDGEMENTS

- iv The VG was most grateful for the welcome and hospitality extended by the director and staff of the institute, who had done much to contribute to the smooth-running of the visit. The VG also appreciated the considerable amount of background work that had been undertaken by the institute in preparation for the visit.

ANNEX 2: REPORT ON STUDENTSHIPS AND FELLOWSHIPS TRAINING ASSESSMENT

BIOTECHNOLOGY AND BIOLOGICAL SCIENCES RESEARCH COUNCIL

2005 INSTITUTE ASSESSMENT EXERCISE

STUDENTSHIPS AND FELLOWSHIPS TRAINING (SFT) ASSESSMENT

VISIT TO THE INSTITUTE OF GRASSLAND AND ENVIRONMENTAL RESEARCH: 22 SEPTEMBER 2004

INTRODUCTION

1. The Institute of Grassland and Environmental Research (IGER) was visited by a BBSRC Studentships and Fellowships Training (SFT) assessment panel on 22 September 2004. The SFT assessment forms part of the Institute Assessment Exercise (IAE). The SFT panel comprised two members of the Committee on Studentships and Fellowships (CSF): Professor Mary Bownes (University of Edinburgh; chair) and Professor Susan Wonnacott (University of Bath). The panel was accompanied by staff from BBSRC Swindon Office: Dr Ian Lyne (Head of Postgraduate Training and Fellowships) and Dr Bill Eason (Evaluation and Policy Unit).
2. The visit was informed by a background paper prepared by the institute, which provided the basis for a meeting with senior institute staff with designated responsibilities for postgraduate and postdoctoral training. The panel subsequently met a group of postgraduate students from IGER for an informal, free-ranging and confidential discussion about their experiences and expectations of the training provided by the institute. In addition, the panel viewed examples of laboratory and office accommodation used by students at IGER, together with some of the site's specialised facilities. At the time of the visit there were no recipients of BBSRC David Phillips postdoctoral fellowships (or equivalent early career fellowships) at IGER.
3. In assessing its provision of postgraduate training, the panel had regard to IGER's effectiveness in meeting the requirements of the Joint Statement of the Research Councils Skills Training Requirements for Research Students (http://www.bbsrc.ac.uk/funding/training/skill_train_req.html) including:
 - Research skills and techniques
 - Research environment
 - Research management
 - Personal effectiveness
 - Communication skills
 - Networking and team working
 - Career management

In making its assessments the panel considered a range of factors which contribute to the delivery of the requirements set out above, including the environment and facilities; links with universities; supervisory practice; generic training and pastoral care and the student community.

4. The panel provided an overall assessment in three key areas:
 - Provision of research-based training
 - Provision of generic, non research-based training
 - The quality of the training environment
5. Each aspect was assigned to one of three broad categories
 - (i) good
 - (ii) adequate
 - (iii) unsatisfactory

PROVISION OF RESEARCH-BASED TRAINING

Overall rating: Adequate

6. The panel noted that IGER provided a unique training and research environment on grassland and environmental research with work ranging from the systems to the molecular level. Students at IGER benefited from access to large-scale catchments systems, unique plant material, excellent support infrastructure and increasingly rare skills such as plant breeding. Students were based at IGER's Aberystwyth or North Wyke sites.
7. The panel was concerned by the low number of students at IGER. At the time of the visit there were six students at IGER (excluding institute employees registered for PhDs). Five students were based at Aberystwyth and one at North Wyke. IGER accepted the need to increase student numbers, which were described by the institute as being below critical mass. IGER suggested numbers needed to increase to at least 15. The panel felt that a range of measures was needed to increase student numbers to at least this level and in the long term the institute should aspire to reach a student population of around 20-30, similar to that which had been achieved in the past where there had been an annual intake of around 10 students.
8. It was reported that the low number of students was attributable to loss of BBSRC Quota and CASE studentships following previous poor submission rates. One BBSRC Research Committee Studentship was held at IGER; the remaining projects were funded by a range of mostly industrial sources including levy boards. IGER reported that submission rates had now improved and would exceed 70% in 2004, thereby making them eligible for future consideration for Quota students. The panel felt that submission rates would need to be sustained and improved still further before a Quota allocation was restored. IGER should note that bidding for quota awards is highly competitive and that the 70% submission rate is a minimum requirement and

not a guarantee. Moreover, the panel felt that the loss of the current Quota did not alone account for the decline in student numbers (see paragraph 11 below).

9. It was reported that poor submission rates were, in part, a result of the type of science carried out, particularly for field-based studies. The panel noted however that currently most projects were not, in fact, field-based. This point aside, the panel recognised that challenges were faced in completing field-based projects within three years, but felt that with effective planning submission rates should not be significantly affected. The panel felt that mechanisms could be developed to manage field-based studies. For example, the development of continuous datasets would mean that students would not need to collect three separate years of data. Although in the long term it was accepted that IGER would need to develop more continuity in studentship funding to enable such an approach, initially this might require additional investment.
10. It was also reported that studentships funded through non-BBSRC sources (e.g. DEFRA) were less flexible than BBSRC Quota projects, and this could impact on the ability of a student to complete a viable PhD. While a mentoring system was in place to advise on the progress of studentship projects, the panel was concerned that this mechanism was not sufficiently comprehensive. All potential studentship projects should be assessed against the needs of students and the full training requirements for a PhD. IGER's Graduate Studies Committee (GSC) should screen all studentship projects in advance and during the research period to ensure that they could be completed in 3-4 years (see also paragraph 17).
11. IGER had developed a number of links with other research institutes and with a number of universities. For example, a new Cross Institute Programme with Rothamsted Research would potentially provide an additional route for student recruitment. However the panel felt strongly that more should be done to promote IGER as a place for postgraduate research and to increase overall levels of recruitment. This should include more proactive measures to increase student numbers, such as targeting key university departments, dedicated materials and web pages publicising the postgraduate training environment. IGER should consider innovative ways to deploy its own resources to rejuvenate its studentship programme. For example the panel felt that part-funded projects (possibly in association with the University of Wales Aberystwyth (UWA)) or student bursaries could attract more students from developing countries, where IGER had previously demonstrated a clear role in capacity building. The panel felt that this should also be part of the GSC remit. More specifically the panel felt that what was needed was an individual, backed up with adequate resources, with a clearly designated role to champion studentship training at IGER. This role is often described as a 'Director of Postgraduate Research' and provides clear ownership of postgraduate training and its development at an institution.
12. Student training, progress and monitoring requirements were set out in a Postgraduate Handbook, which was also available on the IGER intranet site. This set out the minimum training requirements and was informed by the Joint

Statement of the Research Councils Skills Training Requirements for Research Students, which included the minimum mandatory training, reporting and monitoring procedures for all students. The exact procedures followed by a student depended on the minimum standards set by the university with which each student was registered. Of the current six students, four were registered at UWA with one each at the Universities of Bristol and Sheffield. The Sheffield-registered student was based at North Wyke, with the rest based at Aberystwyth. The panel felt that the Postgraduate Handbook was a good source of information and set out clearly the basic training and progression requirements. In some areas, however, the panel considered that more information about exactly what was expected of students could be included (e.g. guidance on thesis preparation), although this gap was in part a reflection of the different individual requirements of registering universities. The panel also wished to note that the submission paper for the SFT was not sufficiently clear and obscured the detail of student training policy, as it did not refer to key documents such as the handbook, details of which gradually emerged during the visit.

13. Students were clearly well integrated into one of three departments within IGER. The panel was satisfied that students were generally well supported by their IGER supervisors. Students were expected to participate in departmental seminars and each year gave an oral presentation at a local, national or international science conference (of which at least one during the three years would be national or international). This included the Plant Science Wales conference, which was organised by IGER with other local organisations including the University of Wales at Aberystwyth, Bangor, Swansea and Cardiff and the Centre for Ecology and Hydrology, Bangor. Contact with university supervisors was underpinned by the minimum reporting standards set by the university each student was registered at. All students had access to facilities and training offered by their partner universities. Links with UWA were clearly effective with students reporting frequent meetings with supervisors and time spent in university laboratories. Inevitably, links with more distant universities were not as well developed. For the North Wyke-based, Sheffield-registered student, in terms of research time and supervisor contact the focus was clearly at IGER. There was frequent contact with their university supervisor but this was primarily by email/phone. The panel did not see the Aberystwyth-based, Bristol-registered student.
14. IGER had developed a policy on Supervisor Training and Monitoring, which set out minimum training requirements. All new supervisors were mentored by an experienced supervisor and had to attend half-day "Introduction to supervision" workshops at UWA. More extensive training was also available at UWA. Existing supervisors were encouraged to take the UWA training periodically but this was not mandatory. The panel felt that all supervisors should undergo mandatory and perhaps more comprehensive training in supervisory practice. Furthermore the GSC should be responsible for ensuring that supervisory standards were maintained.
15. The use of Departmental Tutors as part of the extended student support structure at IGER appeared to be working well. Students reported that Tutors

were a good source of help and advice. In addition to pastoral care their main responsibilities were to ensure that satisfactory progress was being made and that all formal training was taking place. Tutors also provided an additional source of confidential support separate from their main supervisors. Their precise role was clearly set out in the Postgraduate Handbook.

16. Human Resources staff (HR) were responsible for keeping records of training. Students completed Skills Development Records at least every year and these provided an accurate record of training. However HR did not maintain academic records for the students (e.g. copies of first year reports or other progress reports). This aspect of student progress was monitored by the host university and, although copies of student reports were kept by IGER supervisors, HR did not maintain central records. It was strongly felt by the panel that IGER should improve its interface with university monitoring and maintain its own clear records of all aspects of student progress (see also paragraph 17).
17. The primary role of the IGER Graduate Studies Committee, formed in 2000, was described as being to oversee all aspects of postgraduate training; however, it had met only twice in the last two years. The Committee had developed policies on training, supervision and support of students, and it became clear that its main focus was on generic issues. It was not responsible, for example, for overseeing individual student progress, which was dealt with by Tutors together with the partner university. It was also not responsible for vetting studentship projects (see 10, above). In the view of the panel IGER was at least equally responsible with the university for all aspects of student training, and as such should be more closely involved in the monitoring and supervision of student progress. The panel recommended that the GSC remit be re-defined and given additional responsibilities and powers for an initial assessment of projects and for the monitoring of student progress and supervision. At a minimum it should: vet all new projects to ensure suitability for studentship training; maintain central records on all aspects of student training and progress; and provide a source of support and arbitration. Consideration should also be given to student representation on the GSC to ensure that student feedback was given proper consideration by IGER. The panel further recommended that IGER examines practice and corresponding structures at other BBSRC institutes.
18. The panel also met with a group of IGER postdoctoral fellows. All reported good access to training and good mentoring, support and advice from senior colleagues and the IGER HR section. However, the panel was concerned that none was involved in student supervision. They also provided no evidence that any transition mechanisms were in place following the end of their current fellowship. It was hard to determine any significant way in which the fellows presented to the panel were in a different category of staff from postdoctoral staff on contracts. Two of the four fellows confirmed that they were not independent research fellows (both were working on projects written by supervisors at IGER). IGER confirmed that they currently had no BBSRC David Philips postdoctoral fellowships (or equivalent early career

fellowships). The panel felt that confusion may have arisen as a result of the definition of fellows in the SFT guidelines.

PROVISION OF GENERIC, NON RESEARCH-BASED TRAINING

Overall Rating: Good

19. Students had access both to university and to BBSRC generic skills training. Minimum standards of generic skills training were set out in the Postgraduate Handbook. All Aberystwyth-based students, including those not registered at UWA, were also able, with the agreement of their registering university, to take UWA skills training (in lieu of training offered by their university) with considerable practical benefits to individual students. For the North Wyke student, the main training was undertaken with the registering university (the University of Sheffield) and at IGER. For this student, although most IGER training was carried out at North Wyke, occasionally training was taken at the Aberystwyth site (e.g. technical writing). Additionally all students at North Wyke had access to specific skills training more conveniently located at neighbouring universities (e.g. statistics training).
20. Students reported favourably on courses taken and could see the added value of training available at both IGER and the university. Students reported equal access with IGER staff to the training budget and there were no reports of training being denied.
21. Students attended mandatory statistical training courses at UWA and had access to the on-site statistician for help in design and analysis of their research.
22. Careers advice was offered in initial induction training and all students had access to the careers advice at their own university.

THE QUALITY OF THE TRAINING ENVIRONMENT

Overall Rating: Good

23. All students had access to excellent designated laboratory and office space. Each student had a dedicated computer. The panel noted that there appeared to be sufficient additional capacity to cope with significant increases in student numbers. The meeting was held at the Aberystwyth site so the panel did not see facilities at North Wyke.
24. Students had access to a range of on-site facilities and resources including a staffed high-throughput facility for DNA sequencing and a new purpose-built controlled environment facility. Students did not report any problems with access to equipment or facilities. In addition students benefited from facilities located at UWA including con-focal microscopy and real-time PCR. Students had full access to molecular databases with subscriptions paid by IGER.

GENERAL COMMENTS

25. The panel was satisfied that students at IGER were receiving high quality training in a first rate research environment. The added value of working in an institute was appreciated by all students.
26. The panel felt however that IGER needed to make much more effort to achieve both a sustained increase in student numbers and a more structured approach to the mechanisms by which it could continue to ensure the provision of a high quality training environment. The role of the Graduate Studies Committee needed to be strengthened to drive this process forward. There was recognition that students were an essential part of a thriving research community. However the panel felt that more needed to be done to champion their role in IGER, by both encouraging students to come to IGER and for staff at IGER to seek out more opportunities to incorporate studentships into their research programmes.

SUMMARY OF RECOMMENDATIONS

Recommendation 1

IGER suggested student numbers were currently below critical mass and needed to increase to at least 15. The panel felt that a range of measures was needed to increase student numbers to at least this level and in the long term the institute should aspire to reach a student population of around 20-30, similar to that which had been achieved in the past.

Recommendation 2

The panel felt strongly that more should be done to promote IGER as a place for postgraduate research and to increase overall levels of recruitment. This should include more proactive measures to increase student numbers, such as targeting key university departments, dedicated materials and web pages publicising the postgraduate training environment. IGER should consider innovative ways to deploy its own resources to rejuvenate its studentship programme. The panel felt that this should also be part of the GSC remit. More specifically the panel felt that what was needed was an individual, backed up with adequate resources, with a clearly designated role to champion studentship training at IGER.

Recommendation 3

The panel felt that submission rates would need to be sustained and improved still further before a Quota allocation was restored. IGER should note that bidding for quota awards is highly competitive and that the 70% submission rate is a minimum requirement and not a guarantee.

Recommendation 4

The panel recognised that challenges were faced in completing field-based projects within three years, but felt that, with effective planning, submission rates should not be significantly affected. The panel felt that mechanisms could be developed to manage field-based studies.

Recommendation 5

All potential studentship projects should be assessed against the needs of students and the full training requirements for a PhD. IGER's Graduate Studies Committee (GSC) should screen all studentship projects in advance and during the research period to ensure that they could be completed in 3-4 years.

Recommendation 6

The panel felt that all supervisors should undergo mandatory and perhaps more comprehensive training in supervisory practice. Furthermore the GSC should be responsible for ensuring that supervisory standards were maintained.

Recommendation 7

It was strongly felt by the panel that IGER should improve its interface with university student monitoring procedures and maintain its own clear records of all aspects of student progress.

Recommendation 8

The panel recommended that the Graduate Studies Committee remit be re-defined and given additional responsibilities and powers for an initial assessment of projects and for the monitoring of student progress and supervision. At a minimum they should: vet all new projects to ensure suitability for studentship training; maintain central records on all aspects of student training and progress; and provide a source of support and arbitration. Consideration should also be given to student representation on the GSC to ensure that student feedback was given proper consideration by IGER. The panel further recommended that IGER examines practice and corresponding structures at other BBSRC institutes.

The following documents were tabled during the meeting:

Postgraduate Handbook
IGER Policy on PhD Student Supervisor Training and Monitoring
Sample minutes of the GSC
UWA Continuing Professional Development Courses
List of first destination data
Skills Development Report form
UWA Information for Postgraduate Research Students
Examples of student files
Information for students, supervisors and tutors on the intranet

