Dear Mr Dey,

Thank you for your letter of 6 October 2017 regarding the research investment made by the Scottish Government in relation to the Rural Affairs, Food and Environment (RAFE) Strategic Research Portfolio.

I am Deputy Director for Rural and Environment Science and Analytical Services (RESAS), and the responsible officer for the following Level 3 budget lines as they appear in Scottish Government budget documents: Programmes of Research, Contract Research Fund, Economic and Other Surveys, and the Royal Botanic Garden Edinburgh.

While much of this investment is focussed on six institutes, termed “Main Research Providers” (MRPs)\(^1\), enabling their participation in hundreds of collaborations both here and in more than 50 countries around the world, it also supports work in many of Scotland’s universities.

Responses to the questions you posed in your letter are collated in Annex A, and I would be happy to provide you and your Committee with any further clarifications you may require.

Yours sincerely,

DR LINDA POOLEY

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\(^1\) Main Research Providers: Biomathematics and Statistics Scotland, James Hutton Institute, Moredun Research Institute, Rowett Institute, Scotland’s Rural College and Royal Botanic Garden Edinburgh.
Annex A: Questions and responses

The Strategic Research Programme (SRP) is currently funded on a five year basis to provide longer term strategic research primarily in areas which help to deliver evidence in support of Scottish Government policy. Nevertheless, it fulfils wider functions including: innovation, advice to policy and infrastructure, collections and human capital that are an important part of Scotland’s science base. Although funded from the ECCLR portfolio for which Ms Cunningham has lead responsibility, the content and outputs are relevant to a number of portfolios, with the Rural Economy and Connectivity (REC) portfolio having a notable interest. While Royal Botanic Garden Edinburgh participate in the SRP through the research they undertake, their funding is delivered through grant in aid.

**Strategic Research Programme (SRP)**

*What is the programme governance structure and how has this been determined?*

The governance structures of the SRP were agreed by Ministers as part of the tendering process for the delivery of the SRP. The Scottish Government has put in place mechanisms for the ongoing in-year monitoring of delivery of the programme and collects and publishes annual metrics and programme output highlights. In previous programmes, a formal mid programme review has also been undertaken. It is the responsibility of the directors of the Main Research Providers (MRPs)\(^2\) to ensure that work is delivered as agreed in the tender documents and ongoing programme management discussions.

The MRPs have established their own Directors Executive Committee (DEC), comprising the Directors of each of the MRPs and the Knowledge Exchange (KE) Director. This provides operational top level management of the SRP and its associated KE. DEC established its own Strategic Advisory Group drawn from scientific and stakeholder communities who inform and advise DEC on strategic research and KE activities. This group reports to DEC and is chaired by an independent member.

The SRP is organised into three Themes, which are in turn divided into Work Packages. DEC appointed three dedicated Theme Coordinators who oversee all Theme activities, and collate activity reports based upon information provided by each Work Package Coordinator. Researchers within the SRP host working groups and stakeholder fora in which the results and outputs are discussed with potential end users.

A Strategic Advisory Board (SAB) chaired by the Chief Scientific Adviser for Rural Affairs, Food and Environment and involving key Scottish Government Directors has been established to have oversight and provide advice on the portfolio investment in science. The SAB has an independent membership drawn from across academia, research funders and end users together with a representative from the Directors of the MRPs.

\(^2\) Main Research Providers: Biomathematics and Statistics Scotland (BioSS), James Hutton Institute (JHI), Moredun Research Institute (MRI), Rowett Institute (RI), Scotland’s Rural College (SRUC) and Royal Botanic Garden Edinburgh (RBGE).
SAB was established by RESAS and it examines all aspects of the performance of the 2016-2021 SRP. The main role of SAB is in helping advising Ministers on future strategic science needs. The remit of SAB also includes monitoring of the performance and impact of the SRP. SAB is supported in that aim by an Operational Group, chaired by the RESAS Deputy Director, and including the Directors of the MRPs or their deputies, who are responsible for reporting on SRP delivery. The Operational Group provides regular reports to SAB on progress of the 2016-2021 SRP.

How is the programme of strategic research developed? How are the priorities identified and the needs of end users assessed, and what role do stakeholders and the MRPs have in this?

The form of the current SRP was influenced by three key pieces of evidence developed during 2014 (1) the conclusions of the independent mid programme review panel for the 2011-2016 SRP, (2) extensive consultations with policy teams, stakeholders and potential end users of the research, and (3) a public consultation on the RESAS Research Strategy 2016-2021. The MRPs were involved in each of these discussions.

The evidence gathered resulted in changes from the 2011-2016 SRP that include: (1) three research Themes, replacing the previous two Programmes, (2) a new, overarching and centralised Knowledge Exchange function, (3) a proposed new Centre of Expertise on Plant Health and (4) an innovation funding strand, replacing the Strategic Partnerships of the 2011-2016 SRP.

Stakeholders and potential end user of the outputs of the programme were also involved in the assessment of the bids received for the 2016-2021 SRP.

What monitoring, evaluation and reporting framework is in place to assess the impact of the research programme on the delivery of the SG purpose and the objectives and targets of the National Performance Framework?

There is annual metrics-based reporting to assess overall programme impact, which adopts measures commonly used in reporting outcomes of research programmes, including funding leveraged, quality of academic publications, levels of international collaboration. These metrics and other materials for the 2011-2016 SRP have been combined into a report3 highlighting the key research outputs, their impacts, and the National Outcomes the research supports. The economic impacts of research are also assessed, although they play out over the longer term, as set out in the economic assessment of the 2011-2016 SRP4.

A web based delivery monitoring framework (DMF) has a more outputs-based focus on delivery and performance. Information is also provided via the DMF on annual progress towards meeting the strategic aims and objectives of the SRP, which includes a narrative indicating how the outputs contribute to the objectives of the

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3 Highlights of Scottish Government's Strategic Research Programme 2011-2016
4 Economic Impact of the Strategic Research Programme 2011-2016
National Performance Framework, the strategic objectives and priorities and the Government’s single purpose.

*How are the programmes funded? Are they match funded from other sources? and if so the Committee would welcome the figures for this within each theme.*

The programmes are funded directly from the Scottish Government’s Programmes of Research Level 3 budget line. The SRP itself is not match funded from other sources. However, as part of receiving this funding, MRPs are encouraged, and have been successful, in using this investment to attract additional funding opportunities. For example, in the 2011-2016 SRP, the MRPs levered additional investment of £0.60 for every £1 of Scottish Government funding. Over the same period, the MRPs more than doubled their Research Council annual income, from £2.1m to £5.2m.

The funding received by the MRPs not only allows additional funding opportunities but also provides the basis for wider economic benefits, as set out in the report on the economic impact of the 2011-2016 SRP noted above.

*Is the funding provided for a set time period related to specific outcomes or is it granted on a rolling programme? and how flexible is the funding allocation if circumstances or priorities change?*

The intended length of the programme is five years, and that is the basis of the bidding process. Funding is provided by annual grant, subject to Parliamentary approval of the Budget. The overall SRP funding allocation is fixed and therefore any flexibility requires resources to be moved within that funding envelope. Changes which may be required as the SRP progresses are made by mutual agreement between the MRPs and the Scottish Government.

The Contract Research Fund (discussed below) can be used to support more immediate needs not served by the SRP.

*What is the anticipated impact of the UK exit from the EU, particularly in terms of the themes of the programme (the work packages and research deliverables), the funding allocations within the themes and the capacity of the MRPs to deliver the programme?*

The anticipated impact of the UK exit from the EU will be felt variably across the current SRP. For example, in areas such as environmental protection, where Scottish Ministers have already indicated their intention to retain equivalence, the change in content of the research undertaken should be minor, however, this will be kept under review. There is flexibility within the current arrangements subject to agreement, to move resources where required to provide necessary capacity.

The work of the SAB and wider stakeholder consultation will also inform future themes beyond the current programme.
Centres of Expertise (CoEs)

What is the purpose of the virtual centres of expertise? How were they identified and established and what is their lifespan?

The purpose of the centres of expertise (CoEs) is to deliver timely, high-quality analyses and advice to support Scottish Government policy teams and their key delivery partners, using knowledge and skills contained within both the MRPs and the wider academic base of Scotland. The rationale for their establishment was recognition that enhanced collaboration between the MRPs and the university sector would broaden the supply base. This should also strengthen the linkage and flow of information from the findings of the SRP and other research activity to inform policy development. Their role is distinct, concentrating on synthesis and translation of existing research, rather than undertaking research directly.

CoEs on water (‘CREW’), animal disease outbreaks (‘EPIC’) and climate change (‘ClimateXChange’, or ‘CXC’) were identified as critical policy areas with a need for access to more integrated and responsive scientific advice. The centres were established by tendering for collaborative applications between the MRPs and the broader academic base in Scotland – universities and other research institutes. The lifespan of the existing three CoEs continues to 2021, subject to budgetary constraints. EPIC was first funded in 2006; all three were subsequently commissioned for five years from 2011-2016, and re-commissioned for another five years from 2016-2021.

How are the centres managed and how do they work with other higher education institutes and research providers?

The three current centres are managed through similar models of operation. All centres are managed by a Director who is supported by a small administrative team. All centres are set up as a consortium consisting of MRP and University partners. Both EPIC and CXC Directorates are based within a university while CREW is based within JHI. EPIC and CREW are also supported by an external independent steering group, which provides strategic advice on performance and direction. CXC has a network of post-doctoral fellows who advise on specific topics and also contracts out policy-led research projects.

All centres report to RESAS annually on outputs and metrics, and more frequently on finances. They all maintain regular contact with their main policy customers in order to ensure the work planned reflects ongoing priorities and they do this as follows: CREW through project workshops and annual stakeholder meetings, EPIC through biannual policy-liaison meetings, quarterly stakeholder meetings and a biennial conference, and CXC through a mixture of monthly and annual meetings.

The Centres' work is aligned to research within the MRPs, closely linked to the wider policy agenda from Government, and draws widely on the resources within Higher Education Institutes and other research providers.
How is the work of the centres determined and how does this align with or complement the research within the MRPs?

The work programmes of each CoE are generated through consultation with policy teams and other agencies, and adjusted and amended to respond to emerging priorities. All of the current CoEs draw upon skills and experience available not only from within the MRPs, but also from the wider research base of the participating institutions.

How are the centres funded (on a contract or rolling programme basis), what proportion of their funding comes from the Scottish Government and how is the level of funding from the Scottish Government identified and assessed?

Grant funding is allocated on an annual basis as part of a rolling programme, in line with the rest of the RESAS research portfolio. The work they undertake for Scottish Government is fully funded but they, like the MRPs, are encouraged to lever additional funding opportunities wherever possible. Each CoE has been created by redirection of funding within the existing available resource, rather than by increased overall funding.

How does the work of the centres link with areas of Scottish Government policy priority and the needs of end users, what is the anticipated output of their work and how does this contribute to the National Performance Framework?

As detailed above, CoEs have established management structures that are responsive to policy priorities of Scottish Government. They are required to generate analyses and knowledge exchange activities that enable the best use of science to support high priority policy areas that link to National Outcomes, including National Outcome 3 (Research and innovation). Some examples of their outputs include:

- **CREW**: a National Coastal Change Assessment to support more sustainable planning for coastal flooding and erosion in the light of a changing climate, and an improved surface water flood forecasting for urban areas, tested during Commonwealth Games 2014 in Glasgow, and contributing to the National Outcome 10 (Sustainable places).

- **EPIC**: supporting for preparedness and rapid responses to animal disease outbreaks, such as disease prevention measures for an avian influenza outbreak in 2016/17, and analysis that supported the transition to a national recording system for keepers on cattle locations in the event of a disease outbreak, and contributing to National Outcome 1 (Business).

- **CXC**: supported policy development on the net potential GHG abatement benefits from peatland restoration in Scotland, providing reports and analysis that were used in the development of the second Report on Proposals and Policies, and contributing to National Outcomes 12 (We value our natural environment) and 14 (Environmental Impact).
How does the Scottish Government support research capacity and development of expertise out with the centres of expertise?

The development of the CoEs has led to a series of post-doctoral appointments in universities and institutes across Scotland.

What work is the Scottish Government currently undertaking or planning with stakeholders to identify opportunities for further centres?

In discussions with the SAB, the Scottish Government recognises the need for a clear decision framework to be developed to inform decisions on the future of existing centres and the potential establishment of further CoEs. As part of that work, an internal evidence needs review is currently being undertaken in Scottish Government, and will report its findings to SAB later this year. The resource to establish any future centres will need to be met from the existing Programmes of Research budget line.

Innovation Funding

What is the purpose of the innovation fund?

The intention of this funding stream is to provide a small, but focused fund that can be used to draw out innovation from any aspect of the longer term research of the SRP, with the intention of creating short and medium term impact from that work with non-research partners, as well as other researchers. An emphasis was placed upon working with partners to exploit research findings from previous SRPs and on developments that might confer future economic benefits in Scotland.

Is 2017-18 the first year of the operation of the fund?

2017-2018 is the second year of the operation of the fund.

How has the funding been allocated for this year and what were the assessment criteria?

The funding for this year has been allocated to existing projects already agreed from the first year of the programme, and which continue into subsequent years. The criteria used to assess projects considered the potential impact of the proposal in terms of science, economy and society, framed in terms of the Scottish Government’s single purpose. Eleven bids were received and seven were awarded funding based on these criteria.

How does the fund link with or complement other collaborative arrangements?

The fund stands separate from other Scottish Government innovation funding. It is intended to generate collaborative arrangements, through the linkages the MRPs form in their proposals developed with other bodies in the private and public sector.

How significant is cross border collaboration within and out with the UK?

As described above, SRP funding has been successful in promoting significant cross border collaboration. In 2016-2017 alone, there were over 350 active collaborations.
with over 500 universities, research organisations and commercial partners, from over 50 countries around the world. However, the purpose of innovation funding was specifically to lever activity primarily in Scotland, by helping to unlock the knowledge and skills from within the SRP with Scottish enterprises and public bodies.

How will success be measured and does the Scottish Government anticipate extending the amount of funding allocated to this in future years?

Each project will be required to produce a final report in which an assessment of the economic and social benefits will be presented. Wherever possible, the emphasis was on generating findings that have wide utility for sectors identified as potential beneficiaries. Future funding will be dependent on decisions taken as a result of budget deliberations.

Underpinning Capacity

How is a key asset determined, what are the range of key assets and where are they located?

Key assets within the underpinning capacity are defined as separately identifiable activities that maintain key collections or attributes of the Scottish science base and specialised infrastructure that are recognised as of national, or international, significance.

At JHI underpinning capacity funding supports collections of potatoes, soft fruit and barley that are maintained and regenerated to support the production of these economically important crops for Scotland. JHI also maintains specialised laboratory infrastructure for the long term study and isolation of pathogens and pests of these crops, and undertakes monitoring of airborne pollen and aphids as part of a wider UK network. In addition, JHI holds the National Soils Archive, which contains over 43,000 soil samples collected over the past 80 years, and the associated Scottish Soil Database, which includes mapping of the soil types of Scotland.

The directorate of BioSS is based within JHI but has staff distributed across all the MRPs. The entire SRP relies upon high quality statistical advice, and in many areas, biomathematical skills to be efficient, authoritative and to be able to fully exploit the outputs from the newest analytical advances. BioSS creates a single, efficient critical mass of specialised staffing resource available to all MRPs which underpins the entire SRP with provision of training, advice and specialised support.

At MRI, underpinning capacity funding supports a responsive and reactive capacity to develop diagnostic tests, vaccines and disease control programmes that helps to support livestock Scottish farming. At MRI that capacity is based upon highly specialised laboratory and farm infrastructure, and including the long term study and isolation of pathogens and pests which affect Scottish livestock.

At SRUC underpinning capacity funding provides partial support to the maintenance of a long term dairy cattle genetics study and associated databases.
What activities are supported, what are the costs attached to each, which MRP delivers these and what are the expected outcomes?

In 2017-2018, the Scottish Government is providing £8.9m of funding towards Underpinning Capacity activities. This funding is intended to help maintain, some of the services which support the science and knowledge exchange elements of the Strategic Research Programme.

There are four elements of Underpinning Capacity funding (see Table 1 below), which are variably available to each MRP, depending on the facilities they provide and the wider funding support mechanisms they already have access to:

- **Support to policy** – this resource is used to provide short *ad hoc* expert support to all areas of policy needs, where there are no other available resources (*e.g.* CoEs) to do so. In 2017-2018 so far the budget has been used for analysis in high profile areas such as supporting the Agricultural Champions appointed by the Cabinet Secretary REC and evaluating the impacts of the most recent Pillar I CAP reforms together with further projects supporting the rural economy, animal health and welfare, hill farming and emerging growth sectors in the food and drink industry.

- **Seedcorn** – funding to support development of new areas of science within MRP.

- **Platform** – to support scientific and research activity at an MRP, where other sources of funding (*i.e.* Research Excellence Framework grants) to support non-FEC grants, are not available.

- **Services** – discrete, separately identifiable, activities that maintain key collections or attributes of the Scottish science base as described in the section above.

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How are the funds allocated? Is this on a project basis or as part of a rolling programme?

The funds are allocated on a rolling programme basis alongside the SRP, described in an earlier section.

How is effectiveness of this funding allocation monitored, evaluated and assessed?

There is an annual metrics-based approach to assess overall programme impact. Each MRP receives underpinning capacity funding for different services and produces an annual report tailored reflecting the targets set for the activities funded.

Scottish Environment, Food and Agriculture Research Institutes (SEFARI)

Why and when was SEFARI established and does it have a fixed lifespan?

The Centre for Knowledge Exchange and Impact (rebranded as SEFARI) was established in April 2016 in direct response to the finding of an independent panel review of the 2011-2016 SRP. The panel members noted the uniqueness of the SRP as a multidisciplinary programme, but also that its visibility was low, both internationally and in the UK. Based on the panel members’ experience of other research initiatives, they recommended the formation of a single “shop front” to promote the SRP, develop new partnerships and engage with a wider range of audiences.

The initial commissioning was for two years and the progress of SEFARI will be assessed shortly to inform decisions on future funding.

What are its priorities and programme of work and how is this established?

The priorities of the Centre were articulated in the invitation to tender and were based upon the finding of the panel review of the 2011-2016 programme. Those priorities included:

- Identifying areas and key themes where KE activity can deliver maximum impact that is both targeted and accessible, and where relevant, policy friendly.
- Providing advice, guidance and direction on potential KE opportunities for researchers within the SRP.
- Co-construction of research and KE activities with a wide range of stakeholders, identifying and encouraging exploitation of intellectual property rights to the benefit of Scotland, thus contributing to sustainable economic growth.

SEFARI is based on a collective bid by the Directors of the MRPs and draws their staff together to deliver KE from the distinctive multi and increasingly trans-disciplinary research that is contained within the SRP. Activities to date include holding Think Tank debates on national and grand global challenges such as urban food, and biodiversity targets, creating a Fellowship Programme which shortens the gap between evidence and decision takers with organisations such as Cairngorms National Park, Scotland’s Futures Forum, SPICe, and developing innovative KE
activities such as a showcase film which is currently being shown at the Royal Botanic Garden Edinburgh.

*How does the Scottish Government plan to monitor and review the success of the programme?*

An annual report will provide information on the levels/volume of activity, performance against agreed targets and supporting financial data.

**Contract Research Fund (CRF)**

*The funds available through the contract research budget have declined significantly. How has this impacted the delivery of National Outcomes?*

In the widest sense, the CRF contributes to **National Outcome 3** (Research and innovation) through its mechanism of open competition to potential contractors, supporting universities and the wider Scottish research base. Individual projects will of course, contribute to individual National Outcomes, and some examples are provided below. Despite reductions in CRF budget, there has not been a discernible impact on the delivery of research and evidence in support of National Outcomes.

The most recent tranche of CRF projects covers a wide-ranging agenda that delivers to multiple National Outcomes, for example:

- The validation of the national framework of monitoring nitrogen dioxide (NO₂) to provide more robust air quality information supporting improvements to Scotland’s air quality. This supports **National Outcome 8** (Children, young people and families) as evidence shows that poor air quality can have a detrimental effect on lung development of young children and **National Outcome 10** (Sustainable places) by providing more robust NO₂ data enabling poor air quality (particularly in urban centres) to be tackled.

- Producing new data on the Scottish agricultural labour market, including patterns of migration to inform the Scottish Agricultural Wages Board to support Ministers in pushing rural Scotland towards being a high productivity, high skill economy and supporting **National Outcome 2** (Economic opportunities) and **National Outcome 7** (Inequalities).

- Investigating microbiological risks of STEC (shiga-toxin producing *E. coli*) in venison will aid risk assessment, support the Scottish food industry, ensure the future quality of Scottish venison and help to deliver on **National Outcome 6** (Healthier lives).

- Better predictions of the potential impacts of offshore renewable energy on Scottish seabird populations supports **National Outcome 12** (We value our natural environment) and **National Outcome 1** (Business).
Economic and other surveys

How is this budget prioritised and what are the criteria for spending decisions?

This budget funds a range of activities which help provide data and models which are used to inform future Scottish Government policy decisions, and supports a number of mandatory actions e.g. the annual Farm Business Survey, an EU requirement which is used to inform policy decisions on the reform of the Common Agricultural Policy. The budget also co-funds, with the UK Government and the other devolved administrations, a farm model which has provided vital evidence to inform Scottish Government policy, including analyses of the impact of different Brexit scenarios on the farming sector.

Although the budget funds multi-annual surveys and models, the overall budget is assessed on an annual basis as part of the budget process. Prioritisation of spend takes into account a range of factors, including the policy importance of the data and models funded, value for money from our investment, and the potential for penalties to arise from non-compliance with mandatory European Commission data collection.

What monitoring, evaluation and reporting framework is in place to assess the impact of this budget on the delivery of the SG purpose and the objectives and targets of the National Performance Framework?

The Economic and Other Surveys budget provides the analytical basis for assessing the performance of key sectors in the Scottish economy, such as the Kantar Worldpanel survey which provides evidence on the sales of Scottish food and drink brands, and for assessing the impact of Scottish Government policies. Therefore it indirectly contributes to a range of National Outcomes e.g. National Outcome 14 (Environmental Impact), as the contribution we make to the British Survey of Fertiliser Practice (BSFP) provides detailed information of farming practices in Scotland.

What projects has it funded in 2017/18 and what are the anticipated funding priorities for 2018/19?

In 2017-2018 this budget will fund the Farm Business Survey, the Food and Agricultural Policy Research Institute (FAPRI) UK agricultural model, access to Kantar Worldpanel data on the food and drink sector, the publicity costs of the agricultural census to ensure an acceptable response rate, a contribution towards the BSFP, and the publication costs of a range of research projects. In November 2017 the World Forum on Natural Capital will be held in Edinburgh and a one-off contribution (£15,000) was made from the budget to assist with the hosting of this major international event.

It is anticipated that the 2018-2019 budget will continue to fund the multi-annual contracts for the Farm Business Survey, the FAPRI UK agricultural model and the Kantar Worldpanel data on the food and drink sector. In addition, subject to resource

availability, it is anticipated that the BFSP and publicity costs of the agricultural census will be supported.

Royal Botanic Garden Edinburgh

What process is used to agree the RBGE budget?

Consideration of the RBGE budget forms part of the Scottish Government budget planning process as part of the Spending Review. This is an internal exercise informed by discussion with RBGE and consideration of key Government priorities and available resources. Final decisions on the overall Scottish Government budget, including levels of Grant-In-Aid funding to Non-Departmental Public Bodies, including RBGE, is subject to the approval of the Scottish Parliament.

What is this budget allocated to?

The RBGE budget is focused on the delivery of priorities and objectives set out in the corporate and business plans which are agreed by Scottish Ministers. RBGE’s work is focused on four key areas: Science and Conservation; National Collections; Tourism and Recreation; and Education and Skills.

Do you expect the budget for the RBGE to increase or decrease in the coming years?

The future budget for RBGE will be determined by the outcome of the Scottish Government budget planning process as part of the Spending Review.

General

Is CAMERAS currently operational? If so, what are its strategic priorities and programme of action and what is the predicted annual cost of delivery?

Yes, CAMERAS is currently operational, with the more recent meeting of the Board taking place on the 29 September 2017. The CAMERAS objectives are as follows:

- Make better use of the collective resource and capacity within the CAMERAS partner organisations in terms of people and of research budgets
- Provide improved support to Ministers and policy makers
- Maximise the impact of evidence and analysis
- Provide a more coordinated response to relevant wider UK and global issues e.g. climate change, food security, biodiversity loss.

At present CAMERAS does not have an operating/work programme budget, focusing instead on ensuring that the activities of member organisations are co-ordinated and aligned to meet the objectives above.

What does the Scottish Government consider to be the key challenges for the research community and research funding over the next 10 years?

Scottish Government policy challenges are evolving and increasingly complex requiring evidence from a number of sources to be gathered and synthesised. The research this funding supports has historically been focussed upon agriculture, food
and environment. While those areas still have needs, the new Programme for Government highlights a focus on the environment and a low carbon economy and new needs are emerging and pressing e.g. climate change, land reform and air quality.

Scottish Government has over the years encouraged both multi- and interdisciplinary approaches to research, providing real-world impact. In the next decade this need will intensify as impact of research becomes increasingly important to demonstrate, and the MRPs should be in a good position to be able to meet this challenge.

These challenges are occurring at a time when the research landscape is undergoing a period of unprecedented change, in terms of both research funding and potential decreasing research funding options.

The significant changes include:

- The risk of exclusion from participation in EU funding opportunities, the potential for a reduced attractiveness of Scotland as a research destination, coupled with the potential loss of skilled researchers as a result of UK withdrawal from Europe.

- The changes to the governance structure of the UK Research Councils and the formation of UK Research and Innovation (UKRI). UKRI will have responsibility for UK-wide reserved research funding and Scottish Government will be seeking to ensure that UKRI have an equitable and proportionate approach across the whole of the UK and an understanding of the policy context and research priorities across the whole of the UK including in Scotland.

- The introduction of the Global Challenges Research Fund (a 5 year, £1.5bn fund led by UK government) which aims to ensure that UK research takes a leading role in addressing the problems faced by the developing world. This refocusing of research presents opportunities for the research community, but also uncertainties as the funding approach of the Research Councils accommodates this new initiative.

Specifically what is the estimated impact of withdrawal from Europe on the research community and funding available to rural, food and environment research in Scotland?

The MRPs were successful in securing £29.2m of EU funding over the period of the last programme (2011-2016) and received £4.7m of EU funding in 2016-2017 alone, and c. 16% of their staff are non-UK EU nationals. Therefore, the two main concerns of MRPs regarding impact of withdrawal from Europe is their ability to continue to attract and retain the best EU students and researchers; and future access to Horizon 2020 and other EU funding opportunities.
What steps is the Scottish Government taking to address those challenges?

The Scottish Government supports universities and research institutes in Scotland remaining committed to collaborating with our European partners and to attracting the best international talent.

The Scottish Government aim, set out in *Scotland’s Place in Europe*[^6], is for Scotland to remain as a member of the single market which would allow us to continue to be part of Horizon 2020 and future EU research programmes. We continue to engage with the UK Government to ensure that Scotland’s views regarding access to EU funding and programmes are reflected in any negotiations.

We have given EU nationals certainty to study or work at universities in Scotland. We have confirmed that eligible EU students already studying here, starting a degree this year or in 2018 will continue to be eligible to receive free tuition. There has been no change yet to the right of EU nationals to reside in the UK. Scotland as part of the UK remains part of the EU, and EU nationals working and studying in Scotland continue to be able to exercise their rights under EU Freedom of Movement. In order to plan beyond 2018-2019, we continue to urge the UK Government to provide assurances that the immigration status and rights of EU nationals currently living in Scotland, or who wish to work or study here in future, will not change in the future.

The Scottish Government has established a Standing Council on Europe who will advise Ministers throughout our negotiations on the best way to secure Scottish interests and objectives. Professor Anne Glover, former Chief Scientific Adviser to the Scottish Government has been appointed to the Council. This ensures that scientific understanding is at the heart of Scotland’s response.

How much additional funding does the Scottish Government research budget lever into research in Scotland?

The total income leveraged by MRPs from the SRP 2011-2016 was £149.0m (58% leverage) and £25.3m (52% leverage) in 2016-2017. This additional funding comes from a number of sources including the Research Councils, EU, Defra, and other innovation funding sources.