

**Report
Rural Economy and Land Use Programme
(Relu)**

**Societal and Economic Impact Evaluation
(REFERENCE PS110020)**

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EXECUTIVE SUMMARY

Background

Relu (Rural Economy and Land Use) is a research programme receiving over £26.5M between 2004 and 2013 to explore complex, multi-faceted issues. Its formal objectives are:

- (i) *“to deliver integrative, interdisciplinary research of high quality that will advance understanding of the social, economic, environmental and technological challenges faced by rural areas, and of the relationships between them;*
- (ii) *to enhance and expand capabilities for integrative, interdisciplinary research on rural issues;*
- (iii) *to enhance the impact of research on rural policy and practice by involving stakeholders in all stages of RELU, including programme development, research activities and communication of outcomes.”*

Relu is a joint investment toward these aims, with support from the Economic and Social Research Council, the Biotechnology and Biological Sciences Research Council, and the Natural Environment Research Council, along with funding from the Scottish Government and the Department of the Environment, Food and Rural Affairs. Relu in turn has supported 39 projects in four funding waves, along with smaller scale activities.

This evaluation was commissioned by the Economic and Social Research Council, in consultation with all the funders, to:

- a) identify examples of impacts and provide a rigorous assessment of the extent to which RELU has met its policy and practice impact objectives:
- b) capture learning about impact-generating processes (and reflections upon their evaluation) so that others with similar aims can benefit in the future.

More specific aims included exploration of: contributions to policy (including science policy) debates and utilisation/application by policymakers and practitioners; mechanisms through which Relu’s work influenced policy/practice; changes in policy/practice; influence of movement to non-academic settings by Relu-related individuals; awareness of Relu among policymakers and practitioners; and value-added to the impact effort by Programme organisation. Aims also included the capturing of lessons learned regarding maximising the non-academic impact of research and offering critical reflections on the methods used to assess and identify research impact.

Approach and Methods

Exploring Relu as an imaginative experiment to facilitate interdisciplinarity and knowledge exchange that can fuel evidence-based policy and practice, this evaluation was grounded in a conceptual model which considers research impact to be a function of the interaction between the content of the research, the context for its application and the processes of user engagement. We have made use of the ESRC’s Conceptual Framework for Impact Evaluation (ESRC 2011) and our own flows of knowledge conceptual model (Meagher et al. 2008). We captured multiple types of impacts, as seen from not only researcher but also stakeholder perspectives.

Methods integrated by a Framework of Core Questions included: Document Analysis; 45 Semi-structured Interviews; Case Studies; Observation; an expert Focus Group; and three different yet comparable tailored Surveys (for Researchers – project leaders/deputy leaders, Stakeholders associated with individual Projects, and Stakeholders associated with the overall Programme) responded to by 40 researchers and 99 stakeholders.

Commentary: Key Findings

1. Impacts: Relu was successful in generating a portfolio of a significant number and a diversified range of types of impacts and impacts-in-progress, in a variety of contexts.

Through qualitative findings and surveys, this evaluation's "snapshot in time" found significant development of various types of impact, including as highlights:

- **Instrumental Impacts:** there was sound evidence of instrumental impacts, for example, contributions to food sourcing decision-making by a major supermarket company and to Defra and EA's Catchment Management Approach with related pilots
- **Conceptual Impacts:** Conceptual Impacts were the most commonly cited form of impact, for example helping a water company to see the business value of stakeholder engagement and sound science, generating an appreciation of the more complex "big picture" around food sourcing, and spreading awareness that rural and land use policies must be holistic and integrated.

2. Knowledge Exchange: Relu has built a solid base for future Knowledge Exchange, within and beyond the specific researcher/stakeholder relationships forged. Relu researchers and stakeholders perceive that effective Knowledge Exchange has been achieved by Relu, a perception in line with the array of impacts or impacts-in-progress achieved. Development of commitment to knowledge exchange among researchers and stakeholders bodes well for follow-on interaction that may enhance the likelihood of additional impacts.

The Relu Directorate utilised a set of Knowledge Exchange mechanisms (including but not limited to: a requirement that projects pursue Knowledge Exchange; researcher/ stakeholder events; Work-shadowing; Visiting Fellowships; Stakeholder Advisory Forums, publication of accessible policy and practice briefing notes).

In a distinctive example of pro-active influencing, the Director worked to improve the viability of "both sides" of the Knowledge Exchange equation, seeking to catalyse communities of willing policy partners for new areas of research.

Knowledge Exchange was defined, encouraged and exemplified by the Relu Directorate, which "grew" this emphasis so that it became a central theme of the Relu culture and also helped promulgate the concept of two-way Knowledge Exchange beyond the programme. Relu's other emphasis, on interdisciplinarity, appears to have bolstered capacity for both working with individuals having different perspectives and generating usefully integrated findings.

Beyond Relu, the programme has been used as a learning opportunity by other research and science policy/funding bodies hoping to encourage Knowledge Exchange and impacts. The Relu leadership (Director and Assistant Director) have demonstrated cordial willingness to share lessons learned with others, including acting as advisors or reviewers.

3. Contribution of Individual Projects and other Investments

Relu projects have clearly generated numerous impacts and impacts-in-progress. Relu projects reached a variety of non-academic domains, in particular Environment and Land Use, and a range of sectors, in particular the Private Sector and National/UK Policymaking. Projects' impacts ranged from local community action around flooding to training of regulators about new bio-pesticides to incorporation of research in UK-wide policies on integrated land and water management in the light of climate change. In this report, three Case Studies describe projects' impacts and routes toward impacts and a vignette captures the story of one project's "human vectors" of Knowledge Exchange.

Our analysis of the projects from Calls 1, 2 and 3 that were cited in survey respondents' free text comments, together with Relu's own Changing Landscapes publication, show thirty-two impacts, with many of these encompassing multiple impacts.

Projects were expected to engage in Knowledge Exchange. While generally lower percentages of Project Stakeholder than Researcher respondents perceived that each of five

types/stages of involvement had taken place, highest percentages of both saw non-academics as engaged “during the course of the research – as research subjects and/or participants in interactive dialogues/events”.

4. Contribution of the Programme Organization and its Management

Relu’s Directorate and Programme-wide efforts added value, directly as non-academic impacts/influence and also through “interactive value-added” enhancing the capacity of constituent projects to generate impacts. Relu itself was effectively a “Knowledge Intermediary”, adding value through: its leadership; Strategic Advisory Committee and funded directorate carrying out activities such as events, communications and a variety of Knowledge Exchange activities. Through its own actions and its requirement that projects show stakeholder engagement as well as interdisciplinarity, the Relu Programme created a distinctive culture oriented toward addressing stakeholder issues. Learning from Relu should help future complex initiatives aiming for multiple impacts.

Interviewees and survey respondents affirmed the importance of an array of multiple factors contributing toward impacts, including: Relu’s culture; enhancement of Knowledge Exchange by interdisciplinarity; roles played by Knowledge Intermediaries; emphasis on Knowledge Exchange; activities promoting and celebrating Knowledge Exchange (e.g. Work-shadowing, Visiting Fellowships, final conference’s Impact Awards).

A Programme-level Case Study on Land Use illustrates ways in which the Programme itself led to various impacts and enhanced projects’ ability to do so; just a few of these included: its broadly publicised Great Land Use Debate; the input of numerous Relu projects, the Director and other individuals’ input into the Foresight Land Use Futures project; and placement of Relu-related individuals on key advisory groups, e.g. for Defra. Programme-level Communications effort was also analysed, suggesting useful learning for the future.

Without doubt, this is a programme that is more than the sum of its parts. Although there is no counter-factual available, it is improbable that the projects acting individually would have interacted so much with stakeholders, joined up results or penetrated in as many ways into diverse stakeholders’ realms, leading to so many impacts. Through formal and informal communication and behaviour, the programme has achieved a significant level of recognition and credibility as “genuinely” seeking two-way interaction between researchers and stakeholders in order to contribute to important issues - thus helping to pave the way for impact-generation.

Much of the “value-added” of the Programme can be traced to its entrepreneurial leadership (Director and complementary Assistant Director) constantly and pro-actively encouraging stakeholders as well as researchers to participate fully in Relu. This pro-active stance combined with a budget for a centralised directorate allowed experiments to be conducted in ways to foster Knowledge Exchange and related impact-generation. Naturally, not all experimental mechanisms or indeed all projects led to effective Knowledge Exchange or impact-generation. However, the portfolio of impacts is robust. Relu’s legacy also includes influences on the science policy arena; a cadre of individuals oriented to and capable in Knowledge Exchange; and numerous stakeholders aware of the potential usefulness of research.

5. Legacy

Significant legacies created by Relu include:

- Enhanced conceptual and practical understanding of 'land use'
- Influence in the research and science policy arenas, particularly in growth of acceptance of interdisciplinarity in policy-relevant research and in a shift from a model of "Knowledge Transfer" to two-way "Knowledge Exchange"
- Evidence of a set of approaches that can deliver research impacts.

6. Lessons Learned offered by Relu Participants

Relu researchers and stakeholders offered suggestions to funders (and research leaders) hoping to generate impacts in the future, emphasising the practical challenges facing complex initiatives and the importance of:

- Interdisciplinarity
- requiring early engagement of stakeholders
- leadership
- a central pot of 'discretionary money'
- collaboration across *funders* in the future.

Conclusions

1) Relu has significantly helped to change policies and practices concerning rural economy and land use.

2) Relu has generated an exemplary volume and distribution of impacts and impacts-in-progress across types of impacts: Conceptual, Instrumental, Capacity-building, Enduring Connectivity and Attitude/Culture Change. Conceptual Impacts are the most common, but Relu also led to some significant Instrumental Impacts and other types of Impacts.

3) At the programme level, Relu's pro-active leadership, Strategic Advisory Committee, effective and resourced central directorate, culture and innovative Knowledge Exchange mechanisms combined to add significant value to impact generation, both directly and through enhancing the impacts that individual projects were able to generate.

4) This evaluation has elicited unusually extensive and informative input from stakeholders. This has validated and enriched the findings, while also underscoring the effectiveness of Relu's engagement.

5) This evaluation offers lessons for future complex large-scale initiatives as well as illuminating impact-generating and impact-evaluation processes.

We have examined in detail: a) Relu's collection of approaches toward Knowledge Exchange and impact generation, including but not limited to leadership, culture, and specific activity and communication mechanisms and b) Relu's portfolio of impacts and impacts-in-progress achieved at the Programme and the project level, as well as c) researcher and stakeholder perceptions of both. Taking all this into account, we conclude that **Relu's impact generation is substantial and significant**. At least two-thirds of the first three waves of projects have generated some sort of impact; this represents a strong return on investment, even if all do not lead to tangible impacts. (Conventionally, venture capitalists hope that ten per cent of investments will become successful companies, for example.)

The Relu programme constitutes a benchmark, a new 'standard' in impact-generation from which others in the future can learn and toward which they can strive. Despite issues inherent in a pioneering and risk-taking experiment, Relu has had everything going for it – multiple funders, an entrepreneurial leader and an able assistant director with complementary strengths, a discretionary budget for centralised activity, topical subject matter, and reach and longevity across a significant number of projects over close to a decade. This does not imply that Relu was perfect, or that future initiatives should aim to copy it slavishly or be limited by its achievements. However, it does offer what may be a

usefully realistic picture as to what sorts of non-academic impacts and impacts-in-progress can reasonably be expected (or not) from a research initiative at the moment, if it is provided with the advantages enjoyed by Relu.

Recommendations

1. Continue to collaborate across funding bodies to support interdisciplinary research initiatives with a strong theme of Knowledge Exchange and development of integrated solutions for complex problems. Take deliberate steps to ensure “organisational learning” and retention of lessons learned, to the benefit of funders and, perhaps via mentoring, individuals establishing initiatives in the future.
2. View large-scale, multi-project initiatives of this sort as worthwhile conduits toward an array of impacts. Expect such initiatives to take informed risks.
3. For any one initiative, view research projects, efforts/activities and impacts as a set of inter-related ‘portfolios’ - encourage diversification in each but do not expect all projects or activities to be equally successful, or that all impacts will manifest at the same time or be neatly identifiable and attributable (even stakeholders make this last point!).
4. Provide an array of “design features” as factors that can help an initiative achieve goals of integration, Knowledge Exchange and impact-generation:
 - Select leaders who are entrepreneurial and can encourage innovative approaches both internally and externally, recognising that these individuals are quite unlikely to be conventional senior mono-disciplinary academics
 - Set out aspirations through the design of project application criteria (e.g. interdisciplinarity and working in partnership with users from the start); employ appropriate processes for evaluation of project proposals
 - Allocate a discretionary budget for a central directorate with the right leaders and staff to drive pro-active mechanisms toward Knowledge Exchange and related interdisciplinarity
 - Provide an informed, committed oversight and sounding board through a group such as a Strategic Advisory Committee consisting of funder representatives, researchers who understand the subtleties of objectives, and other stakeholders; expect the roles of this group to evolve over time. One role could be to plan ahead for the initiative’s legacy/succession
 - Consider both sides of the Knowledge Exchange equation; include stakeholders in question-framing, events and publications and even when necessary help to catalyse new stakeholder communities
 - Encourage formative evaluation – encourage reflection (and subsequent ownership) by all involved, including stakeholders. This complements entrepreneurial momentum and can improve initiatives as they progress, heighten chances for impact-generation, and learn/share useful lessons
 - In addition to formative evaluation and an end-of-award evaluation of non-academic impacts, fund a 3-5 year-out follow-on evaluation, to capture a complementary set of impacts that may take time to emerge (even if impacts identified earlier may no longer be as visible).

1. BACKGROUND TO RELU AND ITS POLICY AND PRACTICE IMPACT OBJECTIVES

Relu (Rural Economy and Land Use) is a major interdisciplinary research programme which began in 2004. Relu was complex and innovative: it had multiple funders; its management experimented in various ways with fostering interdisciplinarity and connectivity with stakeholders; and its research was relevant to diverse issues. Relu was extensive, an initiative lasting nearly ten years, supported by over £26M and incorporating 39 projects (8 in the first wave, 11 in the second, 11 in the third and 9 in the ongoing fourth wave) (**Annex A**) as well as numerous other activities. Relu was a joint investment by the Economic and Social Research Council (ESRC), the Biotechnology and Biological Sciences Research Council (BBSRC) and the Natural Environment Research Council (NERC), with additional funding provided by the Scottish Government and the Department for Environment, Food and Rural Affairs. Relu describes itself, its goals and context on its website <http://www.Relu.ac.uk/about/> :

“Harnessing the sciences for sustainable rural development

Rural areas in the UK are experiencing a period of considerable change. The Rural Economy and Land Use Programme aims to advance understanding of the challenges caused by this change today and in the future. Interdisciplinary research is being funded between 2004 and 2011 [extended to 2013] in order to inform policy and practice with choices on how to manage the countryside and rural economies.

The Rural Economy and Land Use Programme enables researchers to work together to investigate the social, economic, environmental and technological challenges faced by rural areas. The Programme will encourage social and economic vitality of rural areas and promote the protection and conservation of the rural environment.”

Relu publications note that its principles “enable knowledge exchange to take place during the actual process of knowledge production, in the form of new connections, perspectives and understandings”¹ and “The programme has taken a novel approach to stakeholder involvement that recognises the myriad ways in which research findings ripple outwards into policy and practice.” (Relu 2010)

2. POLICY AND PRACTICE CONTEXT AND KEY AUDIENCES

Within the context of rural economy and land use, Relu grouped its projects under issue-related Themes: Land and Water, Sustainable Food Chains, Animal and Plant Disease, and Adapting to Environmental Change, with the theme of Interdisciplinarity in all projects.

A distinctive feature of Relu is the range of audiences with which it has worked, within the context of its broad mandate to consider “rural economy and land use”. Thus Relu counts among its stakeholder types:

- National: government departments, local government, state agencies
- Private: small and large businesses, trade associations
- Third: voluntary bodies, charities, non-governmental organisations
- “Societal”: individual consumers or members of the public.

This evaluation’s interviewees and respondents also represented diversity of perspectives, including policymakers at various levels, third sector organisations, private sector and practitioners.

¹ RELU’s stated principles underlying its knowledge exchange philosophy are: “Stakeholders must be engaged throughout the research process..... The scientist is not the only source of knowledge – non-academics have knowledge and expertise to contribute....Transfer of ideas and information happens through multiple channels, including informal networks and the movement of people between research and practice...Networking and exchange activities can build connections for effective transfer of knowledge.” (RELU 2010)

Relu attracted –and supported efforts by—individuals who were “genuine” in terms of longstanding commitment to Knowledge Exchange and, for researchers, Interdisciplinarity. This was demonstrated by survey findings as between 85% and 90% reported experience in working on research projects with the “other” sector (academics with non-academics, and vice versa) prior to Relu. Nearly all Researcher respondents (92.3%) had previously worked with individuals in other disciplines.

3. INTRODUCTION TO THE EVALUATION, APPROACH AND METHODOLOGY

Commissioned by the Economic and Social Research Council, and designed in consultation with the co-funders, this evaluation had the remit to identify examples and indicators of impacts-in-progress and to capture learning that illuminates processes of impact generation (and evaluation) for future funders and researchers. We grounded the evaluation in a conceptual model which considers research impact to be a function of the interaction between the content of the research, the context for its application and the processes of user engagement. These involve multidirectional flows of knowledge, expertise and influence across a web of networks and relationships. We have made use of the ESRC’s Conceptual Framework for Impact Evaluation (ESRC 2011) and our own flows of knowledge conceptual model (Meagher et al. 2008²). We have captured Instrumental, Conceptual and Capacity-building Impacts of RELU research, defined in the footnote below³ and also two additional types of process-embodied early impacts found to be important in other studies (Meagher et al. 2008): Enduring Connectivity between researchers and research users and Attitudinal/Cultural Change regarding knowledge exchange.

A Framework of Core Questions (**ANNEX B**) helped to frame methods and to integrate analyses across methods and perspectives. Impact assessment was addressed by: Document Analysis of a range of reports, publications, website information; Surveys; Interviews and Case Studies. The learning purpose was addressed by: Surveys (free text questions), Interviews, Observation and a culminating Focus Group.

We observed Relu’s closing conference and final Science Advisory Committee meeting. We conducted 45 semi-structured interviews, two thirds with stakeholders (**ANNEX C**):

- Overview perspectives
- Case Study participants
- Additional diverse perspectives.

Qualitative insights from interviews informed the analysis, with quoted examples in this report citing “interviewees”.

We conducted three tailored online surveys, different yet allowing for cross-survey comparison. These provided input that we triangulated across project leaders and deputy leaders, programme-level stakeholders (those identified by Relu as involved and informed, e.g. members of Stakeholder Advisory Fora) and project-level stakeholders (identified by

² Meagher, L.R., Lyall, C. & Nutley, S. (2008), *Flows of knowledge, expertise and influence: a method for assessing policy and practice impacts from social science research*. *Research Evaluation* 17: 163-173

³ Although other definitions exist for types of impacts, we use the following definitions (Nutley et al. 2007, p.36): “Broadly, *instrumental use* refers to the direct impact of research on policy and practice decisions. It identifies the influence of a specific piece of research in making a specific decision or in defining the solution to a specific problem, and represents a widely held view of what research use means. *Conceptual use* is a much more wide-ranging definition of research use, comprising the complex and often indirect ways in which research can have an impact on the knowledge, understanding and attitudes of policy makers and practitioners. It happens where research changes ways of thinking, alerting policy makers and practitioners to an issue or playing a more general ‘consciousness-raising role’. Such uses of research may be less demonstrable but are not less important than more instrumental forms of use”.

project leaders as having been involved in their projects).⁴ **ANNEX D** Forty (60.6%) Researchers responded. We were particularly pleased that 99 Stakeholders responded, an unusually large return: 77 at Project level (25.2%), 22 at Programme level (32.4%). Securing this high number of stakeholder responses not only speaks well for the sense of engagement Relu and its projects have engendered, it also allows us to speak about impacts with a rare degree of stakeholder validation. Throughout this report, findings arising from surveys refer to “respondents”.

Sensitive evaluation can uncover subtleties of processes, understanding of which can in turn enhance both future processes and evaluations. We pursued insights through interviews and surveys; highlights from participant recommendations to future funders and leaders are captured just before our own Conclusions and Recommendations.

Case studies integrated researcher and stakeholder perspectives to illustrate impacts and successful processes: three at project-level, one at programme-level and an analysis of programme-level communications (**Part Two**).

Part Two also includes critical reflection on impact evaluation; in particular, this draws upon the Relu evaluation to explore initiative level processes and implications for evaluation. We include a summary of an expert Focus Group on Critical Reflection on Impact Generation and, very unusually (possibly uniquely), we capture extensive reflection on impact evaluation from a range of *stakeholders*.

4. MAIN COMMENTARY, ADDRESSING EVALUATION CRITERIA

4.1 Awareness

Relu appears to enjoy a high level of awareness among central government agencies and statutory bodies with relevant areas of responsibility; it is thought to be particularly well-known in Defra (the Department for Environment, Food and Rural Affairs). Three quarters or more of all three sorts of respondents felt that one aspect of value added by the Programme was “visibility”; “policymakers and practitioners are aware of Relu and its work”. Interviewees agreed, suggesting for example that “Relu is well-regarded. You can use the acronym ... confidently ... in certain areas”. A senior stakeholder in an advisory body commented:

“I’m surprised at how many people are aware of Relu compared to other research programmes. That still doesn’t mean it’s high enough and doesn’t mean that people fully understand what Relu is about or use it. That (level of awareness) is unusual; most research programmes you get a blank face and a “not relevant to me” attitude. ... There is a general assumption that it is useful.”

The Relu secretariat took deliberate steps to promote the programme; an Analysis of Communications is in **Part Two**.

⁴ It should be noted that, since we were seeking individuals with a good understanding of Relu, stakeholders were not identified randomly, and so are likely to be relatively deeply engaged; and among these, individuals choosing to respond may well feel particularly engaged. “Programme stakeholders” were identified by the Relu directorate through such connections as membership of a Stakeholder Advisory Forum; and Project-level stakeholders surveyed were those for whom email contact information was provided when requested by the Relu Directorate of project PIs, who primed them with names presumed by Directorate staff to fall into Meagher’s stated target categories of stakeholders who were significantly involved, e.g. through co-framing of research questions, co-production of knowledge or involvement in dissemination. Responses to each survey were analysed individually and together.

4.2 Impacts on Policy and Practice

4.2a Types of Impacts

Through document analysis and interviews, we see many, diverse Relu impacts on policy and practice, with numerous examples described below (Figures 2a-2d) and in Case Studies (**Part Two**). Unusually, we have actually been able to elicit and compare researcher and stakeholder views as to types of impacts generated, through not only interviews but also quantifiable survey responses. (Figure: Types of Project and Programme Impacts as Seen from Different Perspectives, in **Part Two**) For each of the five impact types (Conceptual, Instrumental, Capacity-building, Enduring Connectivity and Attitude/Culture Change), researchers and project-level stakeholders were asked about the role of their project, and researchers and programme-level stakeholders were asked about the role of the overall programme. In short, at both the Programme and the Project level, Researchers and Stakeholders saw a range of impacts as having been generated. The conclusion that Relu led to multiple, different types of impacts is robust.

For instance, even the famously elusive Instrumental Impacts, seen by the lowest percentages, were still seen by a third (34.4%) of Project Stakeholder survey respondents and nearly half (48.6%) of Researchers as having been generated by *projects* and by over half (54.6%) of Programme Stakeholders and 83.3% of Researchers as having been generated by the *Programme*. Conceptual Impacts were seen by the highest percentages: as arising from *projects* by 70.6% of Project Stakeholders and 97.3% of Researchers, and as arising from the *Programme* by 95.3% of Programme Stakeholders and 88.9% of Researchers. The four types of impacts other than Instrumental Impacts were seen as arising: a) from *projects* by high percentages of Researchers (75.7% to 97.3%) and by lower percentages, albeit still more than half (53.7% to 70.6%) of Project Stakeholders and b) from the *Programme* by high percentages of Researchers (88.9% to 91.6%) and also quite high percentages of Programme Stakeholders (70% - for Enduring Connectivity so perhaps “low” due to lack of knowledge- ranging to 95.4%).

A few examples of reflection from stakeholder interviewees underscore the importance of “intangible” contributions by Relu. One senior stakeholder interviewee from a devolved government observed:

“There is quite a lot in terms of conceptual impacts—to me that is more important in terms of different ways of thinking about things and looking at things. This goes back to if Relu was painting the whole picture or showing gaps -- it did show the benefits of looking at the bigger picture even if not (providing) the whole picture in itself. One can't attribute it necessarily to Relu, but there has been a change in government along those lines, of looking at the bigger picture -- is Relu part of that or stimulating or accelerating it, it would be hard to say. There has been a step change of people realising the need for bigger pictures and pulling in integrated evidence at that level. The fact that Relu and Philip in particular did try to pull those things together did contribute to this.The Programme as a whole and probably projects raised awareness of stakeholders that they can ask for some more of this government investment in research that should be relevant to them.”

Similarly, another overview interviewee in a high-level university post suggested:

“The more common language then was ‘Knowledge Transfer’ (even ‘Technology Transfer’) as the most common parlance. Not claiming Relu invented ‘Knowledge Exchange’, (but) it was not in common currency till Relu came along; I think Relu (reinforced) the Knowledge Exchange phrase and the two-way flow. ... An added value was (helping) policymakers or policy influentials to think holistically about the countryside, not narrowly in policy silos.”

An overview private sector stakeholder interviewee saw Relu as influencing an attitude change among researchers regarding the non-academic world:

“Even specialists are now thinking (for example) ‘if we increase the sugar content of grass, it is effectively now a dual crop-for animals and bioethanol-- and if it's that, what are the

implications for land use changes?’ Now that is normal thinking. ‘This is the research we are doing—what are the implications going to be?’”

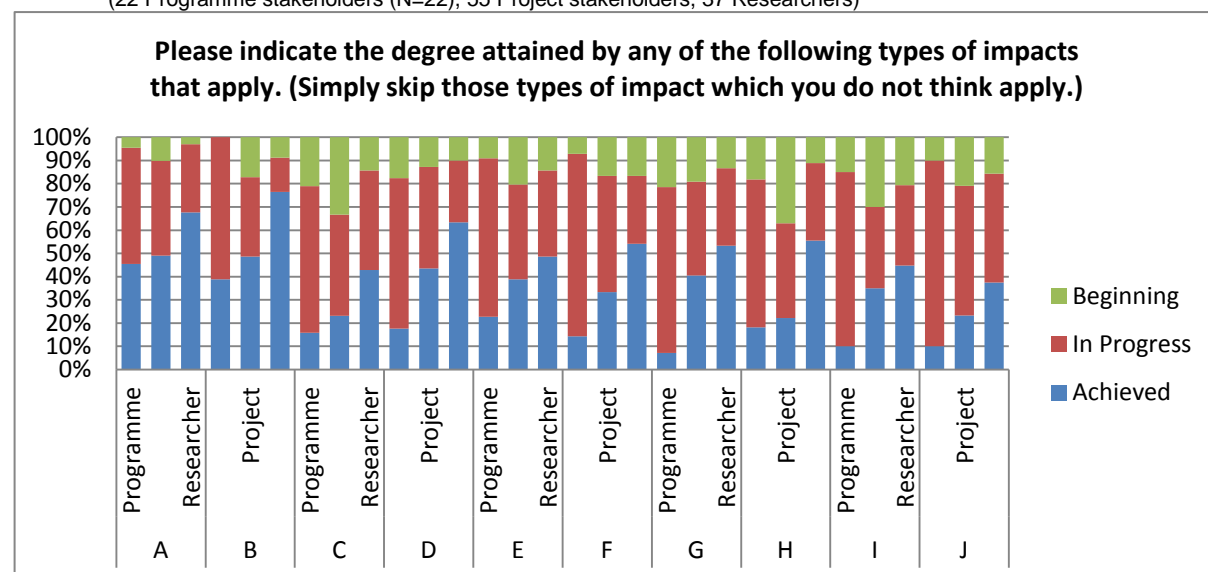
4.2b Development of Types of Impacts over Time

Impacts manifest over time with evaluations inevitably “snapshots” in time. In hopes of illuminating the dynamics with which impacts can unfold, surveys investigated the stages arrived at to date by various types of impacts. Each type of respondent was given the same list of ten types of impacts (falling within but often more specific than the five main categories of impacts) and asked to indicate the degree attained (Achieved, In Progress or Beginning) by any that they thought applied⁵. While only gathering “perceptions” of progress toward impacts, nonetheless this investigation gathered views from closely involved individuals with further robustness added by triangulation across three sets of perspectives. (See Figure 1)

Three quarters or more of Researchers and of Programme stakeholders saw all ten types as either Achieved or in Progress; three quarters or more of Project stakeholders saw seven types as Achieved or in Progress. A seemingly intangible type of impact laying the groundwork for future impacts, “Continuing dialogue, networking” (a form of Enduring Connectivity), was seen by very high percentages of all perspectives as either Achieved or in Progress (97% Researchers; 89.8% Project Stakeholders; 95.5% Programme Stakeholders). More tangible Instrumental Impacts –“Uptake/use by Industry, Policymakers, Practitioners” -- were seen as Achieved or in Progress by a considerable percentage of stakeholders (79.9% Project Stakeholders, 90% Programme Stakeholders) as well as Researchers (84.4%)

Figure 1 Degree of Impact Attained

(22 Programme stakeholders (N=22), 55 Project stakeholders, 37 Researchers)



Survey category key	
A	Continuing dialogue, networking
B	Developing collaborative abilities in academics
C	Developing collaborative abilities in non-academics
D	Enduring collaborative activity
E	Generating new understanding or raising awareness among potential users of findings
F	Improved facilitation of knowledge exchange by universities and partner organisations
G	Increased willingness of academics to participate in knowledge exchange
H	Increased willingness of early career researchers to access knowledge exchange opportunities
I	Increased willingness of non-academics to participate in knowledge exchange

⁵ It should be noted that respondents were afforded the opportunity to skip replying, if they did not think a particular type of impact applied; it may also be that some skipped due to lack of knowledge as to that type.

4.2c Future Knowledge Exchange

One lasting if nearly invisible impact of Relu seems to lie in a cadre of individuals participating effectively in future Knowledge Exchange, who could in turn generate additional impacts. This is apparent not only in Relu rhetoric, but in interviewee comments and survey responses from both researchers and stakeholders. So, for example, some connectivity (e.g. Relu's "soft networking") is likely to endure between individuals who have worked together on Relu projects, as most Researcher respondents (81.1%) and two thirds (68.5%) of Project Stakeholder respondents expect to continue collaborating with the same academic/stakeholder individuals even after the project. Perhaps even more importantly, Relu has proved enabling in a far-reaching sense: as 83.7% of Researcher respondents, 90% of Programme Stakeholder respondents and a smaller but still majority percentage (64.9%) of Project Stakeholder respondents felt that they "have learned from this Project and believe that I will be a more effective Knowledge Exchange partner in future collaborations (even with different individuals)".

Additional funds to strengthen Knowledge Exchange in Relu's fourth wave were provided by the Living with Environmental Change (LWEC) programme and NERC to introduce the wider Relu research community to LWEC research themes but also to inject into the LWEC Programme the procedural innovations made by Relu in Knowledge Exchange, stakeholder engagement and interdisciplinary working.

4.2d Influence on policymakers in research and science policy arenas

Relu was seen by many as a pioneer in interdisciplinarity, but concurrent growth in that phenomenon may, ironically, have muddied waters so that impacts cannot be tracked precisely. As one overview interviewee, a senior academic, put it, Relu was:

"contributing to a general change; Relu started off alone and by the time it reached maturity, a lot of others were doing interdisciplinarity, so attribution is a problem, but Relu definitely contributed. There was a bandwagon effect, was it the first seed or that the climate had changed ... but that doesn't detract from the important contribution."

This interviewee has seen various proposals aiming to do interdisciplinary work mention that they will use tools from Relu.

While it may be a fruitless quest to "prove" causality of impacts made by Relu on pervasive changes in research and science policy arenas, a sense of "Influence" often arises. For example, a government stakeholder interviewee commented that only relatively recently has Defra

"given much attention to social science, but there has been a push since the Evidence Investment Strategy was published in April 2010 to do more. DEFRA published an update in February 2011; a key aspect was the need to work in an interdisciplinary way. To some extent this follows discussions that have taken place over the last ten years, with the DEFRA Science Advisory Council. Having other initiatives taking that stance helps to reinforce that thinking. This has not all arisen because of Relu but the fact that Relu is going along as it does, flagging up interesting aspects of interdisciplinarity, is certainly a contributory factor." (<http://www.Defra.gov.uk/corporate/evidence/science/>) (N.b. Director Lowe was a member of Defra SAC.)

Interviewees suggested influences on other funded programmes, with one suggesting, for instance, that the BBSRC went on to conduct some interdisciplinary initiatives like DFID/BBSRC joint funding that seemed to "pull a lot from Relu, for example social and natural sciences" as well as involving some of the same individuals. There is a general sense that "other interdisciplinary initiatives involving the same Research Councils and agencies actually picked up on Relu and that Relu influenced their design." LWEC has drawn from Relu experiences, as well.

Vignette: ESPA as an Example of Influences of Relu on Funders of Subsequent Complex Research Programmes

A senior individual at NERC reflected on learning and influences from Relu, particularly in regard to aspects of the way in which ESPA (Ecosystems Services for Policy Alleviation) was established and run in its early years. Launched in 2009 with £40.5M, ESPA is jointly funded by NERC, ESRC, and DfID. Several comments underscored the “big picture” of Relu influences on research and science policy institutions. “It’s had a big impact on us as funders and how we do things” ... “Relu has definitely influenced our thinking about how to approach interdisciplinarity and interface with social sciences—so it has been an invaluable learning experience---and on top of that, it has produced some excellent science—that is pretty good!”

By demonstrating the feasibility of bringing together environmental and social sciences (“Relu proved that we could work with social science”), Relu has contributed to others’ acceptance of that interdisciplinary approach. It has given us confidence in the sense that if you look at some research programmes NERC has set up since, there are a significant number with a socioeconomic dimension....It doesn’t feel at all unnatural now to do that.

“Lessons learned from Relu have figured quite highly in ESPA”, in particular with regard to scale of investment, complexity and resourcing the directorate. Specific examples of learning include: “analysis of structure” (ways of thinking about functions to be played by a leadership team); the challenges posed by interdisciplinarity for assessment processes; seeing “how seed corn (funding) helped; we noted that teams that had had seed corn funding were more successful later on--- (that was) one of the reasons we did that for ESPA” (ESPA’s similar but not exactly the same approach included three capacity-building rounds before the main consortium round); Relu’s innovative approach (with some budget autonomy) to ongoing promotion (“we certainly picked it up in ESPA, since one of the main tasks of the ESPA Directorate is to promote the programme”) and recognition of the time necessary to bridge natural and social sciences (“don’t underestimate the amount of time to learn each others’ language. That message has really stuck with me”).

“Invisible influencing” related to these arenas lies in Relu’s affirmation of approaches and provision of advice, on interdisciplinarity and and/or Knowledge Exchange, through Directorate leaders visiting with/hosting other programmes’ leaders, sitting on review committees, giving formal and informal presentations, holding discussions with individuals in Councils, and so on. An overview interviewee leading a different interdisciplinary effort commented that “Relu would always help you, (it was) very much involved in the process. Others weren’t involved in the process, just doing it, so Relu was helpful.” A Programme-level respondent in a devolved government said

"The 'Relu approach' to knowledge exchange has been distinctive and made those of us involved in this area sit up and take notice. The increased awareness of the importance of knowledge exchange and the increased level of engagement between providers and users of new knowledge will be the Relu's legacy. The Scottish Government has involved the Director of Relu in the review and commissioning aspects of its investment in research. The insight provided was of tremendous value to us and was greatly appreciated."

A related influence may well lie in an increased pool available to those research and science policy arenas that pursue new approaches to integration. For example, an overview interviewee, an academic with wide responsibilities, “saw a legacy of Relu people in the participants in types of subsequent policy initiatives.... A number of characters appeared and you could see the Relu thinking, more systems thinking, coming through. ... (for example) ... the Insect Pollinator initiative was better than it could have been due to the systems thinking of the former Relu participants”.

4.2e Legacy

The concluding meeting of the Relu SAC spent some time discussing the importance of Relu’s legacy. Aspects discussed ranged from the tangible – archives and/or updating of Policy & Practice/Briefing Notes, or archived data in the Relu Knowledge Portal --- to the less tangible but potentially pervasive, such as a cadre of individuals capable in

interdisciplinarity and/or Knowledge Exchange. Programme stakeholder survey respondents and overview interviewees offered views on Relu's legacy; often, these related to impacts on policymakers in research and science policy arenas. Many Programme stakeholder respondents referred to the increase in interdisciplinary working brought about by Relu. About the same number referred to a greater awareness of how stakeholder issues and research can be interwoven. One Programme stakeholder respondent captured it all:

"An interdisciplinary science programme that successfully brought together natural and social sciences at a crucial time for policy development and showed that investment in knowledge exchange brings benefits in a faster take-up of outputs."

Overview interviewees considered Relu's legacy as capable of "infiltrating" the research scene of the future, having demonstrated the feasibility and validity of a programme being oriented toward interdisciplinarity and Knowledge Exchange.

"A key thing –people need to accept that Relu had a beginning and an end, but that doesn't mean it is the end of interdisciplinarity or transdisciplinarity. Like anything— it feels like the end of an era, but other things are coming up, because Relu was a success; Research Councils have gone into more interdisciplinary and collaborative funding between Research Councils and with Government departments. There are things taking it forward, so Relu had a role in that kind of change."

The much broader cross-funder initiative Living with Environmental Change (LWEC) was mentioned several times as a (potential) beneficiary of Relu's efforts acting as exemplars in stakeholder engagement and interdisciplinarity. A specific example of a "living legacy" of Relu is Relu Assistant Director Phillipson's recent appointment as an LWEC Strategic Challenge Fellow, in which capacity he will advise LWEC and explore possible initiatives "to link LWEC-accredited activities into contemporary rural land use policy and practice". (Relu Newsletter, April 2012). Another example is the Fourth Wave project (led by Mark Reed), "Sustainable Uplands: Learning to Manage Future Change/Sustainable Learning", which is capturing lessons learned during Relu and translating them into guidelines to aid future LWEC Knowledge Exchange efforts.

Additional examples taken from Relu's latest newsletter (April 2012) illustrate specific ways in which the legacy of Relu is being kept alive during its final year. Importantly, individuals will carry their Relu insights with them; for example, Katy Wilkinson has begun a 9-month fellowship working with Defra's animal health and welfare team, following her involvement in various Relu KE activities, she will promote the use of social science evidence in Defra's policymaking and provide advice regarding socio-economic impacts of disease outbreaks. A new joint Defra and DECC Social Science Expert Panel has been established to support social science and its role in development of policies; three Relu individuals are included. At the invitation of the Government Chief Scientific Advisor Sir John Beddington, Phillipson presented on partnership-building between natural and social sciences at a meeting of the Departmental Chief Scientific Advisors and senior scientists.

Some issues were brought up in regard to a Relu legacy. One stakeholder interviewee was shocked to hear that Relu was ending:

"I don't see why they're ending. Keep it alive and do more good stuff. We have no shortage of things we need people to solve, the next Ecosystem Assessment, Foresight, lots of tricky questions we need researchers' help with. ... We have a community, are starting to interact. ... Relationships are set up, it's easy to know who to go to ... almost like a think tank...the people I've met I entirely trust".

Although not all agree, many overview interviewees express concern over the future for interdisciplinary research or researchers, as developed by Relu, given the disciplinary differentiations, or even "rifts" among funders.

"There is considerable concern over the disappearance of Relu...it for almost decade has provided an outlet for interdisciplinary research in the land use area. There is a real concern as to what will happen to this community when people put a grant application in to just one

Research Council. Will it be able to fly? I have my doubts. This is time when land use is a critical area. What will be the legacy?"

Another issue related to the Research Councils was reflected upon by a different overview interviewee, very senior in the academic sector, who was concerned about the degree to which understanding would last to keep Relu-style research going:

"Where will the learning from Relu go? Well, the collective folk memory is held in Research Councils (but) there is regular turnover from chief execs to program officers ... so there is a bit of an issue there. Particularly in these hard financial times will there continue to be recognition and support for the overhead that needs to be carried to ensure that Knowledge Exchange and interdisciplinarity are (pursued)?"

Yet, for those who see Relu's issues as topical, hopes exist for a legacy. As one overview stakeholder interviewee close to the policymaking world put it:

"In a way, Relu is finishing at an ideal time. Environmental strategies in the UK have just changed quite radically, new land use strategies (or related work) exist in Scotland, Wales, Ireland ... biodiversity is part of the Environmental White Paper---all are radically different from predecessors, moving toward a wider interdisciplinary landscape scale, a multipurpose and multifunctional environment. The fact that Relu research has finished is even better – it is there to use".

5. CONTRIBUTION OF INDIVIDUAL RESEARCH PROJECTS AND OTHER INVESTMENTS

5.1 Sectors and Domains Reached by Projects

Relu reached a variety of sectors and domains through its projects. Relu used its Stakeholder Impact Analysis Matrix (SIAM) to illustrate this by distribution across sector in 2008, when 21 projects involved over 1000 stakeholders: 37% public sector; 36% private sector; 15% members of the public (e.g. consumers); 12% third sector⁶. We looked at distribution through asking Researcher and Project Stakeholder respondents for all the sectors they saw as reached by their project, allowing individuals to choose multiple sectors. Two sectors were mentioned most often by both: Private Sector and National/UK Policymaking. Relu projects reached various non-academic domains, in particular the Environment, followed by Land Use and Agriculture.

5.2 A Diversified Portfolio of Impacts from Relu Projects

5.2a View of Project Portfolio

Non-academic impacts generated by Relu projects have taken various forms. A number of these are captured here (Figures 2a-d), as seen through two lenses: this evaluation's surveys – of both researchers and project stakeholders – and also profiles published in the briefing note [Changing Landscapes](#) (2011) by the Relu Directorate based primarily (13 of 15) on self-nominated bids for awards in an end of programme competition. Since a) Relu Directorate staff intimated to us that [Changing Landscapes](#) included all the projects with significant impact stories and b) we found additional impacts through our surveys; we feel confident that the portfolio captured below is a reasonably complete picture (without of course claiming that it is completely comprehensive). Entries are condensed but otherwise draw directly and solely on researcher ("SR") or stakeholder ("SS") survey respondents' free text input (on the societal, environmental or economic impact or impact-in-progress they saw as most important) and/or researcher input ("CL") as captured by the Relu Directorate in [Changing Landscapes](#). At times, stakeholder input on a particular project's impacts provides

⁶ Relu. [Telling Stories: Accounting for Knowledge Exchange](#).

some degree of “triangulation”, but otherwise these impacts represent the views of single individuals. In contrast, Case Studies for this report draw on multiple perspectives. (We also experimented with a different approach, developing a matrix of impacts from clues in highly variable materials we subjected to document analysis, with only suggestive results; **ANNEX E** summarises.)

While some caveats must be borne in mind here – input is based on individuals’ (or individuals’ and Relu’s) views; categorisation by impacts is based on judgement and so on – nonetheless, at a broad-brush level, several observations can be made from examples below.

- 1) *Relu has clearly generated numerous impacts, and impacts-in-progress.* (These two approaches, without Call 4 projects, show thirty-two, with many entries actually encompassing multiple impacts.)
- 2) *Nearly two thirds (nineteen) of the thirty Call 1-3 projects were cited.* (Five of these were found by surveys alone.)
- 3) Stakeholder surveys made it possible to “ground” views of impacts. In fact, half (sixteen) of the impacts and half (ten) of the projects were cited by stakeholders, confirming that *impacts are seen by others apart from optimistic researchers or enthusiastic Relu staff.*
- 4) *Half of the impacts listed (sixteen) are from Call 2 (2006-2010),* with the others split nearly evenly (seven and nine, respectively) between Call 1 (2004-2008) and Call 3 (2007-2010).
- 5) Within Relu’s “portfolio of impacts”, *over 70% of the projects with impacts listed are Instrumental or Conceptual* (see table). Enduring Connectivity and Attitude/Cultural Change are more subtle process-based impacts, likely to be captured in other ways (such as interviews) and a fifth type, Capacity-building, did not appear through these lenses.

Distribution of Types of Project Impacts

Instrumental	13
Conceptual	10
Enduring Connectivity	6
Attitude/Culture Change	3

- 6) *Relu had impacts on a range of stakeholders.* Using necessarily rough approximation based on brief entries, this listing suggests that Relu projects had impacts on:

Indicative Range of Stakeholders by Number of Projects

Policymakers (UK/national)	15
Other Policymakers	9
Practitioners/Farmers	6
Practitioners/Other	13

- 7) *Surveys proved a powerful tool in gathering impacts.* Of the impacts listed, nearly half were captured by survey text alone:

Modes for gathering impact stories

Captured by Survey text alone	15
Captured by both Survey text & <u>Changing Landscapes</u>	11
Captured by <u>Changing Landscapes</u> alone	6

5.2b Highlights, Examples of Different Types of Impacts

Instrumental impacts of Relu projects were made in a variety of spheres, from local flood mitigation measures in a particular river catchment through to UK and EU policymaking in areas such as biopesticide regulation or the National Ecosystem Assessment. Stakeholders included, for example, “down to earth” users such as beef farmers, tilapia hatchery owners, and those involved in conservation of freshwater pearl mussels, as well as local citizens or groups of various types, such as a Rivers Trust or a local flood research group. Other stakeholders included regulators (e.g. those involved in the Biopesticides Scheme or the REBECA (Regulation of Biological Control Agents) which in turn influenced EU policy). Some of the policymakers and related organisations affected were exploring new areas (e.g. Natural England, Defra and Department of Energy and Climate Change regarding energy crops) or long-standing issues of growing importance (e.g. the Environment Agency, Defra, OECD, Foresight and the National Ecosystem Assessment regarding integrated land and water management to address flooding and protection of water resources). Indeed, many of the projects leading to instrumental impacts had to do with integrated management of land and/or water.

Conceptual impacts infiltrated localised or individual thinking, as in encouragement of farmers’ seeing links with biodiversity stewardship or rural residents looking in new ways at inequality issues. Some affected devolved governments, as in explorations of collaborative management of land conservation management, or even global thinking, as with the World Bank’s consideration of carbon labelling schemes related to food produced in developing countries. Often conceptual impacts involved helping stakeholders to think through complexity, as with the Royal Parks’ use of a project’s framework to help with Lyme disease risk communication.

In terms of **enduring connectivity**, some projects helped to forge connections between researchers and stakeholders, and sometimes also between different stakeholders. “Social ties”, ongoing meetings, co-option onto stakeholder organisations and consultation with government policymakers, water companies and River Trusts are examples of enduring connectivity generated by Relu projects. When projects help to build lasting relationships, they may be paving the way for other future impacts, as well.

Impacts in terms of **changes in attitude or culture** are subtle, and thus more readily picked up through interviews or even surveys than through document analysis. However, even a few examples illustrate changes in researcher attitudes, toward more involvement of stakeholders, and sometimes also an increased appreciation of stakeholders for research.

Figure 2a Instrumental Impact Examples

INSTRUMENTAL IMPACTS feeding into Policy and Practice

Warmwater Fish Production as a Diversification Strategy for Arable Farmers, Call 1

Relu’s project on warmwater fish production played a significant role in helping to set up, advise and develop the UK’s first commercial warmwater tilapia hatchery. Close and prolonged communication with the stakeholder was complemented by opening up other overseas tilapia contacts and networks to help the stakeholder develop his initial business.
SR

Realising the Links between Quality Food Production and Biodiversity Protection, Call 1

Research into the possibility of addressing the goals of both biodiversity and quality food production has led to at a specialist beef production chain being developed by a farmer’s group.
CL

The Role of Regulation in Developing Biological Alternatives to Pesticides, Call 1

The Relu project on the role of regulation in developing biological alternatives to pesticides

facilitated the introduction of more effective regulations for biopesticides in the context of Integrated Pest Management; the project also contributed to the REBECA (Regulation of Biological Control Agents) policy action which has had an impact on EU policy.

SR

The project team: developed a good relationship with the then-Pesticides Safety Directorate; helped the implementation of the Biopesticides Scheme (which has helped to increase the registration rate of biological products and also retailer awareness); provided training for regulatory staff; communicated about biocontrol to growers for supermarkets; and took part in the REBECA policy action informing debate and legislation.

CL

Impacts of Increasing Land Use under Energy Crops, Call 2

The project generated a scientific framework for sustainability appraisal of implications of conversion of land to energy crops (such as willow and *miscanthus* – Asian grass) in the medium and long term. Project results have been used: in revision of the Energy Crops Scheme; as advice to Natural England and Defra regarding strategies for planting energy crops; and as evidence for the National Farmer's Union's inclusion of willow in the Campaign for the Farmed Environment. GIS mapping results on relative suitability of different areas of the country to growing energy crops have been used by: Department of Energy and Climate Change; National Centre for Biorenewable Energy, Fuels and Materials; East Midlands Regional Assembly; Thames Gateway Sustainability Development Team; Rural Development Initiatives Ltd. and Devon Wildlife Trust.

CL

Improving the Success of Agri-Environment Schemes, Call 2

Focussed on agri-environmental policy and practice, in the English Environmental Stewardship Scheme, the research underscored issues related to recognition of the critical role of farmer knowledge and attitudes. This work was cited in "Environmental Stewardship Review of Progress", in which Natural England and Defra accepted that tailored guidance for farmers is needed for best practice to spread, with Natural England improving its guidance through the Entry Level Stewardship Training and Information Programme for farmers.

CL

Integrated Land & Water Management in Floodplains, Call 2

Research assessed impacts of past floods and developed data and methods for integrating flood risk management, agriculture and conservation to support multi-purpose land use. Research outputs contributed to: flood risk management protocols adopted by EA/Defra for agricultural benefit assessment; OECD Policy review on the role of agriculture in mitigating floods linked to climate change; Foresight Land Use Futures Project; and Freshwater Chapter of the UK National Ecosystem Assessment 2011.

SR

The project contributed learning about the 2007 floods in England to the Environment Agency and the Pitt Review, as well as feeding results into relevant work by the OECD, the Foresight Land Use Futures Project and the National Ecosystem Assessment.

CL

Modelling the Impacts of the Water Framework Directive, Call 2

Research modelling impacts of the Water Framework Directive contributed to the National Ecosystem Assessment.

SR

The Principal Investigator fed both the project's mode of interdisciplinary collaboration and its environmental economic methodology into his co-authorship of the conceptual framework underlying the National Ecosystem Assessment. In turn, the NEA is being used by Defra and the Natural Environment White Paper has adopted many of its recommendations.

CL

Sustainable Uplands: Learning to Manage Future Change, Call 2

Winner of the Relu Impact Award and captured in a filmed case study, the project on learning to manage future change in sustainable uplands had numerous impacts, including, for example: contributing material to a review for Defra on challenges and opportunities re: Payments for Ecosystem Services that fed into the development of their Natural Environment White Paper in 2011, with the project mentioned in Defra's Uplands Policy Review and a project researcher taking part in a RELU Work Shadowing scheme in Defra to help prepare a related workshop. The team have now been commissioned with others to develop best practice guidance for Defra on Payments for Ecosystem Services and they are working with a partnership of NGOs and agencies to develop a UK Peatland Carbon Code for consideration by Defra.

SR SS

This project's researchers have contributed to multiple policy reviews, for example carrying out work for the International Union for the Conservation of Nature on policy options, sustainable peatland management and for Foresight Land Use Futures on the future of uplands. In addition to the Defra Natural Environment White Paper, they have also contributed to the Commission for Rural Communities Uplands Inquiry. They have provided advice in the business sphere, e.g. Yorkshire Water, Premier Waste PLC, United Utilities.

CL

Knowledge Controversies in Rural Land Management, Call 2

Selected as a Defra Demonstration project, the Relu research exploring knowledge controversies in rural land management has led to: new forms of flood mitigation intervention/a flood alleviation scheme for Pickering and other parts of Ryedale such as actual changes (e.g. wooden bunds and woody debris dams) in the Ryedale forest; a national profile (e.g. awareness in Parliament and Select Committee enquiries) of an experiment in flood risk management; engagement with statutory bodies such as EA, NE; a post funded by the Wildlife Trust and others to research the Relu project's findings.

SR SS

The Ryedale Flood Research Group developed a new model to test solutions, publicised their proposal on bund storage, secured nomination of Pickering as a Defra Demonstration Project (led by the Forestry Commission); and helped bring together the Environment Agency and the community, with a potentially generally applicable new approach to flood risk science.

CL

Angling in the Rural Environment, Call 2

Research on angling in the rural environment led to: the development of relationships; a foundation to long-term work in the Yorkshire Dales taken forward via a Rivers Trust; and active involvement in the development of projects by government departments, regulatory institutions and research consultants.

SR SS

The project's research on fine silts in the river Esk has contributed to landscape management and to collaborative efforts to help salmon and freshwater pearl mussels. Defra's Catchment Sensitive Farming team and the National Farmers' Union have used ecological findings, and the team has contributed to discussions on the National Priorities for Conservation of the Freshwater Pearl Mussel in England and Wales.

CL

Reducing E Coli 0157 Risk in Rural Communities, Call 3

Under the framework of risk research, interdisciplinary research including social science research on reducing *E. coli* 0157 risk in rural communities informed the Independent Investigation on the Godstone Farm *E. coli* 0157 outbreak and may inform efforts related to other infectious diseases.

SR SS

With the project's written and oral evidence strongly reflected in the investigation's final

report, its recommendation that more should be done to improve public awareness was endorsed as an important health protection objective.

CL

Catchment Management for Protection of Water Resources Call 3

Outputs of the Relu project research on catchment management for protection of water resources, including guidelines, Report Card and modelling approach, have become established parts of the evidence informing national water and environmental policy, and were influential in the launch of the 'catchment management approach' by Defra in March 2011. At a regional level the project's recommendations have been cited as guidance by local authorities and non-governmental bodies engaged in catchment management and there is a sense that the role of stakeholder groups in the operation of widespread water source protection zones has been strengthened.

SR SS

The Ecosystem Health Report Card developed by the project has been used to communicate information by the Environment Agency; this and the modelling tool developed through the project's interdisciplinary, participatory approach are used in policy and the catchment management approach of Defra and the Environment Agency. The Somerset Water Management Partnership's review of its objectives has made use of the project's template and recommendations.

CL

Testing a Community Approach to Catchment Management, Call 3

A RELU project experimented with a new participatory community approach to catchment management, to address land-use and lake pollution issues in a small catchment in the Lake District. This contributed to: farmers' adjusting their practices due to better understanding activities' impact on the environment; improved relations and even some specific collaborations between farmers and agency representatives; broadening out of environmental problems leading to new connections and understandings; and a still-extant, now community-led group.

SR

On a practical level, changes stemming from the project included modified farming practices, improved septic tank management, vegetation-clearing initiatives –and on another level, relations were improved between farmers and National Trust. Written evidence fed into Government consultation documents, including the Environment Agency's consultation on the EU Water Framework Directive and the Commission for Rural Communities' Uplands Inquiry.

CL

Figure 2b Conceptual Impact Examples

CONCEPTUAL IMPACTS on Policy and Practice

Comparative Merits of Consuming Vegetables Produced Locally and Overseas, Call 1

Runner up in the Relu Impact Award competition, a project comparing the merits of consuming vegetables produced locally and overseas helped to change current ideas about food miles. The World Bank commissioned a paper to make recommendations on how carbon labelling schemes could be made fair for developing countries. Two trade organisations also requested help on carbon footprinting.

CL

Implications of a Nutrition Driven Food Policy for the Countryside, Call 1

In considering variations on food policy for the countryside, "some of the more important impacts occur in discussions where the common basis of understanding has been enhanced

by Relu work.”

SS

The research raised awareness through media attention (local, farming, national and European media); also the findings were featured at a workshop run by the UK Committee on Climate Change.

CL

Realising the links between Quality Food Production and Biodiversity Protection, Call 1

The Relu research exploring ways to link food production and stewardship of biodiversity has “provided farmers with encouragement and evidence that this can be done and a feeling that such activities are both viable and societally relevant”.

SR

Rural Impacts of Increasing the Growth of Energy Crops, Call 2

Stakeholder agreement was achieved as to framing sustainability appraisals related to biomass crop planting.

SR

Sustainable Uplands: Learning to Manage Future Change, Call 2

The Sustainable Uplands project focussed on managing future change has shown that societal, environmental and economic impact are highly inter-related.

SS

Collaboration in Land Management of Deer Call 2

The project increased knowledge of potential impacts of deer on the environment in the deer sector while it improved understanding of the economic and social value of the deer industry in government bodies and researchers.

SS

Lessons from Dutch Elm Disease in Assessing the Threat from Sudden Oak Death Call 3

In a stakeholder’s view, the Relu project using lessons from Dutch Elm disease in assessing the threat from Sudden Oak Death exposed weaknesses in how society and government advisors respond to plant health crises in the natural environment, which can lead to long-term environmental degradation. “It probably also highlighted a general lack of awareness in the public about plant diseases.”

SS

Social and Environmental Inequalities in Rural Areas, Call 3

When a Relu project worked with rural residents across England to investigate whether inequalities in rural conditions had elements of injustice, a number of participants felt it had made them look at issues and understand their implications for other rural residents in a new way.

SR

Assessing and Communicating Animal Disease Risks for Countryside Users, Call 3

A Relu project on animal disease risks led to a wider appreciation amongst stakeholders, practitioners and experts of “the multi-faceted nature of risk communication, and specifically that the information deficit model of framing health advice should be challenged”, along with understanding of how to influence people’s behaviour to help manage the issues. The Royal Parks used the project’s framework to think through management of a particular animal health problem. The project also created an opportunity to pass on information about Lyme disease to woodland owners and managers, for example regarding environmentally sound management. National forest estate managers could inform users on practical measures to protect themselves while enjoying the countryside.

SR, SR, SS, SS

Catchment Management for Protection of Water Resources Call 3

A project on catchment management “allowed a wide range of environmental impacts from land use on water bodies to be impartially evaluated and compared. It’s been the first time all the different interests could discuss their relative impacts and envisage through the model the options to make improvements. We were also all able to see just how high the Good Status standards are for Water Framework Directive achievement, and whether all the dischargers and wider society can afford to implement the changes needed.” Also, a model demonstrating the impact of different policies was seen by a stakeholder as a very useful interactive tool for demonstrating to local people how policy instruments would work.

SS

Flood Management in Borderlands, Call 4

Building on participatory approaches to doing research with stakeholder partners, a Relu project engaging with flood managers is in the process of helping them “to think about doing every day practice slightly differently”.

SR

Co-operative Management of the Agricultural Environment, Call 4

Considering collaborations across farmers and non-farmers, as in Dutch collectives, this project’s presentations were followed by commissions for work from: the Land Use Policy Group, the Welsh Assembly Government and Scottish Natural Heritage. Current policy developments seem in line with the project’s findings that UK land managers should not confront significant barriers in collaborative conservation management.

CL

Figure 2c Enduring Connectivity Examples

ENDURING CONNECTIVITY, Relationship-building Impacts

The Role of Regulation in Developing Biological Alternatives to Pesticides, Call 1

The Principal Investigator of the project examining the role of regulation in the development of biopesticides serves on the Chemicals Regulation Directorate’s Availabilities and Alternatives Plan Implementation Group.

CL

Sustainable Uplands: Learning to Manage Future Change, Call 2

Research on sustainable uplands brought together people “who normally wouldn’t have the opportunity to interact with one another ... a really important (and often undervalued) societal impact as it has created lasting social ties that are particularly valuable for stakeholders,” as described by a researcher, and confirmed by a stakeholder: “Overall the close networking and collaboration has fuelled continuous learning and fruitful follow-on projects.”

SR SS

Knowledge Controversies in Rural Land Management, Call 2

Following a project on rural land management, there will be ongoing meetings of the members who participated in the research group with EA and various councils.

SS

Angling in the Rural Environment, Call 2

Two project team members have been co-opted onto the Esk Pearl Mussel and Salmon Recovery Project, as have individuals from Natural England, the Environment Agency and the North York Moors National Park.

CL

Catchment Management for Protection of Water Resources, Call 3

Maintaining linkages, project researchers are consulted by individuals in Defra, the Environment Agency, Natural England, water companies and River Trusts. A team member has a NERC Knowledge Exchange Fellowship to extend applications of the modelling approach, working with Defra, the Broads Authority and the Westcountry Rivers Trust.

CL

Testing a Community Approach to Catchment Management, Call 3

The forum resulting from the Relu project's innovative and inclusive approach, the Loweswater Care Project, continues to work with relevant environmental institutions and researchers; since early 2011 it has been run by a small local group of farmers and residents to improve sustainability of the local environment.

CL

Sustainable Cultivation of Upland Environments, Call 4

A fourth wave project has "improved communications and commonalities between practitioners and researchers, which should lead to more informed practical strategies" in National Park management as well as greater relevance of research.

SS

Figure 2d Attitude/Culture Change Examples

ATTITUDE/CULTURE CHANGE IMPACTS

Knowledge Controversies in Rural Land Management, Call 2

A project on rural land management has led to "doing better science as a result of working closely with people who live with the environmental being investigated, producing new solutions and enhancing the democratisation of expertise."

SR

Collaboration in Land Management of Deer, Call 2

The project on collaboration in land management of deer led to an "understanding that practitioners need to be involved in and have the capacity to measure change and adapt management to mitigate negative impacts".

SS

Sustainable Uplands: Learning to Manage Future Change, Call 2

A researcher in a sustainable uplands project described an impact on attitudes: "personally, I was very happy each time to hear from stakeholders how much they enjoyed being part of the process or when they pointed out how they learned something that they weren't aware of before and to observe the learning and change in attitudes." A stakeholder confirmed attitude change: "In general the openness towards research and willingness to engage has increased with many stakeholders - research in my organisations is now seen as integral and not as add-on". Researchers too were seen to change: "I can see evidence of learning between social scientists and natural scientists which has been of mutual benefit and which can only improve the way that academics engage with practitioners around challenges rooted in the natural and social environment."

SR SS SS

Sustainable Uplands: Transforming Knowledge for Upland Change, Call 4

A fourth wave project capturing learning on Knowledge Exchange is "feeding into the LWEC KE guidelines, therefore shaping the best practices that the programme is adopting and sharing."

SR

5.3 Involvement in Knowledge Exchange

Because Relu expected projects to engage in Knowledge Exchange throughout the course of their work, we asked both Researchers and Project Stakeholders about their views of five types/stages of involvement of non-academics in projects. Interestingly, while half or more (52.7%-81.8%) of the Project Stakeholder respondents saw each of the types, their percentages were usually each 25-30% lower than the corresponding percentages of Researcher respondents (77.8-97.4%). Highest percentages of both saw non-academics as engaged “during the course of the research – as research subjects and/or participants in interactive dialogues/events”.

Figure 3 Ways in which Project engaged Non-academics

In what ways if any did the Project engage non-academics? (S is percentages response from 57 Project Stakeholders; R from 38 Researchers)			
	Yes	No	Not sure
Did the Project engage non-academics early on, in question-framing or research design?	54.5% S 78.9% R	1.8% S 15.8% R	43.6% S 5.3% R
Did the Project engage non-academics during the course of the research—as research collaborators/ advisors?	67.3% S 97.3% R	0.0% S 0.0% R	32.7% S 2.7% R
Did the Project engage non-academics during the course of the research—as research subjects and/or participants in interactive dialogues/events?	81.8% S 97.4% R	0.0% S 2.6% R	18.2% S 0.0% R
Did the Project engage non-academics near/at the end of the research—as champions, knowledge intermediaries or contributors to dissemination of research findings?	52.7% S 77.8% R	5.5% S 11.1% R	41.8% S 11.1% R
Did the Project contribute to accessible non-academic outputs (e.g. website, briefing notes, articles in stakeholder journals, presentations in stakeholder conferences)?	66.7% S 94.6% R	5.3% S 0.0% R	28.1% S 5.4% R

5.4 Transfer of Individuals into Non-Academic Settings

Only a few Relu academics were identifiable as having actually transferred into non-academic settings (as distinct from temporary work-shadowing visits, a deliberately employed Knowledge Exchange mechanism discussed in Section 6.2). The impression that such a permanent career move is relatively uncommon appeared was substantiated when only four researchers responded to a specific survey question, with some of even these destinations just a step away from universities. However, when movement into non-academic settings does occur, not only can “real-world” efforts benefit from previous exposure to Relu but also foundations for Knowledge Exchange of the future can be laid down; such individuals may well become Knowledge Intermediaries. One rich example of human vectors helping the outward spread of influences through non-academic sectors is provided here, suggesting that future initiatives should track such inter-sector movements.

Vignette: The ripple effects of RELU research in the private sector

Three examples of the outwardly spreading influence (“ripple effect”) of one RELU research project, *Comparative Merits of Consuming Vegetables Produced Locally and Overseas*, on private sector policies and practices, demonstrate the importance of interaction among ‘human vectors’ of research understanding.

Dr Llorenç Mila i Canals is an environmental scientist specialising in the life cycle assessment (LCA) of biotic systems, particularly impacts on climate change (carbon footprint) and water scarcity (water footprint). He has published extensively on LCA methodological development and applications. Following completion of his PhD at Barcelona University, from 2004 to 2007 he was a Senior Research Fellow at the University of Surrey, Centre for Environmental Strategy, as part of the team working on the RELU project *Comparative Merits of Consuming Vegetables Produced Locally and Overseas*. He then moved to his present job with Unilever UK’s Safety and Environmental Assurance

Centre near Milton Keynes, where he is an Environmental Sustainability Scientist, supporting the work on LCA for Unilever's food, household and personal care businesses.

"The job is tailor-made for me because the research focus is strong and rigorous and I can participate actively in the academic community. At the same time I was really attracted by the possibility of 'making a difference' and 'having an impact' on the environmental impact of food production systems much more rapidly than through academic research. This has worked out exactly as I hoped, and is an important contributor to my satisfaction with the job. The RELU project was a good platform and offered a great network to improve the contacts in the area; I continued to collaborate with Prof Edwards-Jones once I was at Unilever, as he became an important reference in the arena of the role of carbon footprints in international trade."

This ripple effect illustrates a 'human vector' as a form of knowledge exchange: the researcher takes from his Relu experience (a) scientific and social scientific knowledge, (b) interdisciplinary capacity, (c) engagement capacity, and (d) an enhanced worldview. In addition, the researcher who has moved into the private sector can become a 'knowledge intermediary', helping knowledge exchange from the other side of the equation.

Dr Sarah Sim worked on her EngD degree at Surrey from 2002 to 2006, supervised by Dr Sarah McLaren (née Cowell) and Professor Roland Clift. Although Sim was not sponsored by Relu, her supervisor Cowell led the RELU research team at Surrey that Mila i Canals joined. During her EngD work, Sim was based at Marks & Spencer's Head Office, investigating the environmental and socio-economic impacts of M&S food supply chains and sourcing strategies. Sim moved to a post at Unilever straight after completing her EngD, as an Environmental Sustainability Scientist; she provides sustainability expertise and life cycle thinking for supply chain management, product innovation and brand development; this global role covers Unilever's food, home and personal care products and brands. Building on her pioneering doctoral research, Sim is developing meaningful, holistic ways to bring the qualitative social factors in environmental impact together with existing (more quantitative) measures in LCA. She has co-authored papers on interdisciplinary topics addressing developments in LCA with her academic and M&S supervisors and with Unilever colleagues, including Mila i Canals (whom she knew at Surrey and subsequently encouraged to apply for his present post).

Sim's co-authorship with some Relu project's team members at the time and subsequently illustrates a further ripple effect of the project, connecting researchers in the academic and commercial sectors.

Footprints4Food is a spinout company from Bangor University providing carbon and water footprinting services to the food industry. Its genesis was enabled by the RELU research project *Comparative Merits of Consuming Vegetables Produced Locally and Overseas*, which Prof Gareth Edwards-Jones led at Bangor. Dr Ed Moorhouse, Group Technical Director at salads and vegetables producer G's Fresh and a food production consultant, knew of Edwards-Jones's research into carbon footprinting and that his RELU project was extending the research for specific products. The technical team at Waitrose asked Ed Moorhouse and Ian Finlayson, a food industry consultant with Practical Solutions International (PSI), to advise them how they could improve their scientific understanding of their supply chain. Moorhouse brought them together with Edwards-Jones.

The Bangor researchers undertook a project for Waitrose to extend carbon footprinting into specific areas of interest to Waitrose, such as glasshouse crops, air freight legumes and tropical fruit, and a total of 50 of fruit, vegetable and horticultural products were evaluated. This project encouraged Edwards-Jones, Moorhouse and Finlayson to consider providing similar rigorous bespoke footprinting services to other growers and suppliers and the wider food industry.

Bangor University launched Footprints4Food as a limited company in 2010; its shareholders are Bangor University, Edwards-Jones, G's Fresh, Moorhouse, Finlayson and PSI. Until his death in 2011, Edwards-Jones was providing an essential and ongoing research drive for Footprints4Food, a role that it is hoped his successor will take on.

A ripple effect of the Relu project was to encourage the collaboration with G's and PSI, which resulted in a spinout company that serves the food production sector and at the same time advance commercial and consumer understanding about the food supply chain's effects on the environment. The issue of the environmental impact of food production is here to stay, even though the recession has temporarily shifted footprinting down the business agenda.

5.5 Case Studies

Three Case studies (**Part Two**) detail impacts generated by Relu at the project level and the routes through which they were generated, providing opportunities for learning. The Case studies present a range of Knowledge Exchange mechanisms, subjects and contextual issues.

Figure 4: Project Case Study Foci

Project	Types of Impacts	KE Mechanisms
“Warm water fish production as a niche production and market diversification strategy for arable farmers with implications for sustainability and public health.” (Dr David Little, Institute of Aquaculture, University of Stirling)	Instrumental Capacity-building Conceptual	Focused engagement Training Website
Catchment Management for Protection of Water Resources (Laurence Smith, SOAS, University of London)	Instrumental Conceptual Capacity-building	Engagement KE Report Card
Comparative assessment of environmental, community and nutritional impacts of consuming fruit and vegetables produced locally and overseas. (Professor Gareth Edwards-Jones, School of Agriculture and Forest Sciences, University of Wales, Bangor)	Instrumental Conceptual Capacity-building Attitude Change	Engagement with corporate technical directors, World Bank and others

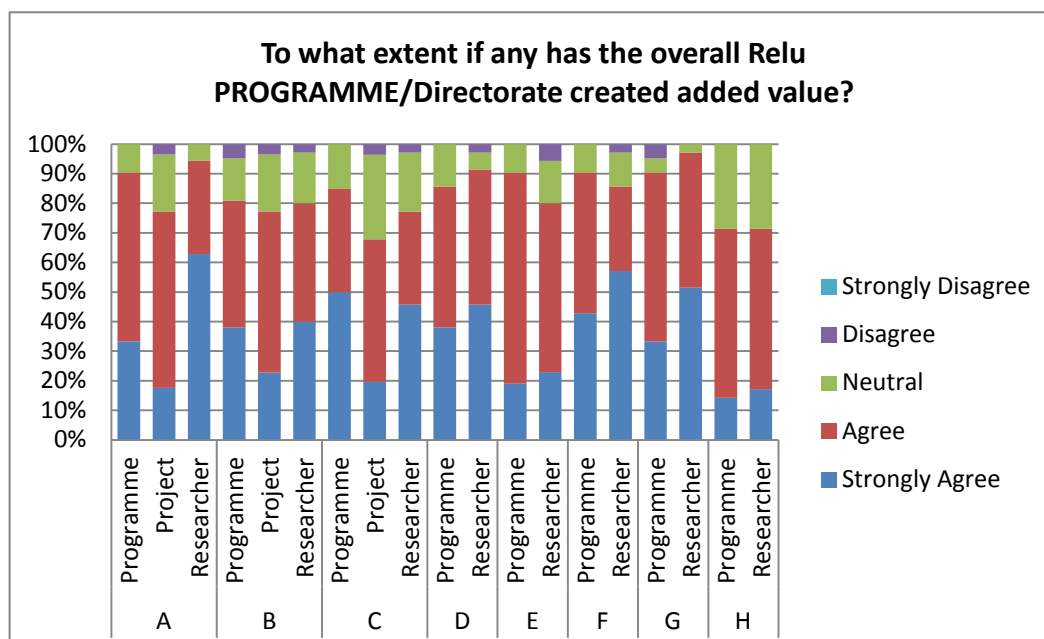
6. CONTRIBUTION OF THE PROGRAMME ORGANIZATION AND ITS MANAGEMENT

6.1 Value Added by Overall Relu Programme/Directorate

Relu’s Directorate was unusual and we explored the nature and extent of its “value added”, particularly for the generation of impacts. Interviewees involved with Relu at the programme level, e.g. as Strategic Advisory Committee members, Stakeholder Forum members or individuals with an overview of relevant investment, saw real value-added. Furthermore, respondents were asked to what extent, if any, the Relu Programme added value in any of a list of eight possible ways (see Figure 5). The majority of Researcher respondents (between 70% and 97.1%) and Programme Stakeholders (between 81% and 91%) selected all eight ways. As less likely to know about the overall Programme, Project Stakeholders were only asked about three types; over two thirds agreed with each. Interestingly, one way of adding value received the second highest percentage of *Strongly Agree* rankings from both Researcher (57.1%) and Programme Stakeholder (42.9%) respondents: “Relu’s leadership and management structure have enhanced the non-academic impacts generated”.

Figure 5 Value Added by Overall Relu Programme

(21 Programme Stakeholders , 57 Project Stakeholders (offered just three), 35 Researchers)



Survey statement key	
A	Policymakers and practitioners are aware of Relu and its work; the Programme has visibility.
B	Academics and non-academics in projects would not otherwise have come together
C	Relu's portfolio of communications and print/electronic outputs has heightened the likelihood of non-academic impacts
D	Through Relu, a cohort of individuals has built skills in interdisciplinary working that will contribute to future work
E	Through Relu, a cohort of individuals has built skills in knowledge exchange that will contribute to development of impacts from other work undertaken in the future
F	Relu's leadership and management structure have enhanced the non-academic impacts generated
G	The overall Relu Programme has been successful in engaging non-academics.
H	Non-academic stakeholders have shown interest in continuing to work with networks and initiatives established or promoted by the Relu Programme

6.1a Relu Programme Mechanisms/Incentives/Efforts adding value to projects' generation of impacts

In addition to possible direct value-added of the Relu Programme, we considered possible "interactive value-added" --- the extent to which and how the Programme may have enhanced impacts of individual projects. Views of Researcher respondents were explored as to all roles that the Programme may have played in helping their own projects develop various impacts. On average each respondent ticked between three and four possible roles.

Figure 6 Programme roles helping Projects develop impacts

What specific role(s) if any did the Relu Programme play in helping Project develop various impacts? Please tick ALL that apply.	Response Percent
Help in identifying potential non-academic collaborators	33.3%
Help in ongoing networking with non-academics	61.1%
Help in framing or developing collaborative projects with stakeholders	16.7%
Help with logistical, contractual or other components of growing/maintaining relationships with non-academics	36.1%
Help in providing credibility with home institution, non-academics or funders	47.2%

Help in projects' sharing their learning about knowledge exchange	66.7%
Help in distilling/communicating research findings to stakeholders	88.9%
None	0.0%
Responses	36

Corroborating this view of Programme helpfulness, when offered the statement, "The Relu Programme should have done more to help individual projects generate impacts", half (50%) Disagreed or Strongly Disagreed, with 41.7% neutral; just three agreed.

Nine Programme stakeholder respondents described in free text mechanisms/incentives or efforts they thought particularly effective in adding value to the generation of impacts, particularly mentioning policy briefings and conferences/events. One expressed the wish that there had been more involvement of local government; another that there had been more engagement with ground-level agriculture and horticulture "economic reality".

6.1b Leadership

Multi-faceted Role

In addition to the extremely positive views of researcher and Programme stakeholder respondents, overview interviewees were eager to praise an underpinning dimension of Relu -- the leadership shown by Director Philip Lowe, and the Assistant Director, Jeremy Phillipson. The consensus was that leadership made a hugely important, perhaps critical, difference to the success of Relu and its generation of impacts. It was clear both from interviewing the Relu Director, Duke of Northumberland Professor of Rural Economy, Philip Lowe, and from the way in which other interviewees spoke of him, that he has taken a deliberately pro-active, 'entrepreneurial' approach. This includes thinking about the big picture of Knowledge Exchange, even to the extent of helping to stimulate policymaker/practitioner "demand" for Relu work by fostering receptive niches among stakeholders. In a Vignette (**Part Two**) Lowe reflects on multiple facets of leadership:

- Self-definition of novel leadership role
- Role in relation to commissioning of projects
- Directorate responsibilities
- Building "both sides" of Knowledge Exchange
- Building KE networks
- Pro-active positioning
- Leveraging power of a directorate budget.

Several facets of leadership will be described here, some of which could be considered tactically by funders selecting programme leaders and by leaders themselves.

Modelling engagement, the Directorate set up mechanisms to encourage two-way dialogue at the Programme level, for instance via the Animal and Plant Disease Forum, Food Chain Forum, People and the Rural Environment Forum, each consisting of key stakeholder individuals acting as conduits for Knowledge Exchange with the private sector, central and local government or the voluntary sector. Lowe was seen as "acting as a champion for the Programme, seeking out money and recognition and engagement of all sorts of people". Relu's influence was extended by strategic positioning (often abetted by Relu leadership) of Relu researchers on key policy committees or boards.

Another aspect of leadership was inward-facing, working with researchers to bring about interdisciplinarity and Knowledge Exchange. One overview stakeholder commented:

“there is absolutely no doubt in my mind that Philip Lowe had thought about this; interdisciplinary research was so much something he believed in and thought about, that he had unique insight into how to make it happen. He had to fight for a communication budget—without it, it wouldn’t have worked. His leadership was absolutely (critical)—he knew what was needed and went about it ... and he instilled the same sort of leadership style in his project leaders. ... Another point where Lowe led was in *demanding* interdisciplinarity, he wouldn’t let it (just) appear to be interdisciplinary on paper when he knew it wouldn’t be in practice. He forced it, no matter how eminent the proposer—that requires tough leadership. And he exercised strong leadership in assessment of project proposals, in not letting single disciplines assess and trash --- he closed the door on that.”

Beyond creating “a sense of momentum and volume of activity that gave people confidence”, a role of the Secretariat was synthesis. Seen by an overview interviewee in the science policy arena as “almost unique” among Research Council programmes, Relu:

“tried very hard to synthesise learning coming from across different projects. Bringing out messages from the whole programme, not just individual projects...it is not in the nature of academics, no one spends much time in synthesising messages for society. ... (But) maybe Philip and Jeremy (acted as) a resource at the centre who seemed to take that on board, they put in a lot of time, and there was money available to do that joining up.... I haven’t seen that since. ...They are the people who knit it all together.”

Relu as a Knowledge Intermediary

It might be useful to conceptualise Relu itself as being a highly effective “Knowledge Intermediary” at the interface between academics and non-academics, encouraging interaction, sharing of problems/questions and building of relationships. One overview stakeholder observed: “Where Relu was useful was getting everyone to see things from everyone else’s perspective; that is quite a challenge”. A government stakeholder interviewee reflected on researchers and policymakers: “Both species don’t understand what the other is doing and why. Relu does a lot to bridge that gap, confident enough that they know both the science and the policy agenda.”

6.1c Structure and Funding

Strategic Advisory Committee (SAC)

Particularly given the pioneering cross-Council interdisciplinary nature of Relu, as well as the scale and longevity of the investment, a critical dimension of management was provided by the Strategic Advisory Committee (SAC) responsible for advising Research Councils on Relu’s strategic direction and scientific content. Along with Research Council representatives, members included representatives from other organisations including Defra, Scottish Government, the Countryside Council for Wales and the Joint Nature Conservation Committee. SAC tasks included: ensuring Programme added value through effective collaboration across scientific communities; agreeing the scope and focus of calls for proposals, and the balance and emphasis of resources across Relu; and evaluating Relu’s progress and achievements. The SAC performed roles of accountability, sounding board and liaison to various constituencies. One example was the support it gave Relu’s request to Research Councils for a larger secretariat budget than originally envisioned, to pursue two-way Knowledge Exchange. A Management Advisory Group was established as a forum in 2005 to raise management issues not requiring full SAC involvement, enabling the SAC to be more strategic. Between 2004 and 2011, the SAC met fifteen times, with the last meeting at the final Relu Gateshead Conference. Observing that final meeting, the evaluator could see firsthand a very high degree of respect for the Programme and regard for its leadership; a key theme was Relu’s legacy.

Funding

Relu was unusual in having new money, coming from different funders into a common pot. While we do not have access to funding details, information from the 2010 and 2011 Annual Reports shows that some 94 projects (including small projects, fellowships, etc. as well as the principal

research projects forming the bulk of expenditures) were funded with an overall budget for the Programme of £26,644,434. (This includes ESRC, NERC, BBSRC, Defra and Scottish Government funds but excludes additional funding from NERC and £100K from Scottish Government for Relu Phase IV.) Also, there was additional co-funding (2004-2011) of £4,243,272, as well as Director's Awards, including any supplements, of £2,510,649.

Commissioning Processes

Managing the Programme was of course a key responsibility of the Director's (and Assistant Director's), while the Research Councils handled the commissioning processes. For any programme, this division of roles could be a source of dissonance. For Relu in the early days, the perennial problem of interdisciplinary evaluation reared its head at the commissioning stage, with proposals being reviewed primarily by mono-disciplinary academics and review panels representing discipline-based Research Councils. An overview stakeholder government interviewee reflected:

"Within Relu, projects were selected by commissioning panels. Philip's role was the champion of interdisciplinarity. He's done a really good job of working within the limitations of that process while still arguing for and managing to achieve the focus of the programme. And once projects were selected, engaging people so they knew what was expected of them ... Despite the fact that he wasn't personally selecting projects, Philip with his team have been having a big impact on coherence of the programme."

Secretariat

Relu's organisational management consisted of Director Philip Lowe and Assistant Director Jeremy Phillipson, aided in the Directorate by a Communications manager and a secretary in producing a range of small-scale investments, activities/events and publications. In addition to project funding, the Director had argued successfully for a funded Directorate to carry out central Secretariat activity including events and communications. The 2011 Relu Annual Report shows expenditure of £1,846,232 in the Director's Office Budget by 31/12/11.

Relu was often spoken of as a pioneer. An overview senior academic interviewee reflected:

"I have a strong view that Philip showed Research Councils that putting money into a supported directorate created added value. ... The Secretariat had substantial impacts; it (Relu) would not have worked without a Secretariat who could spend time thinking about what would be needed ... That's why the pot that Relu had was so important -- where everyone puts in something to a central resource, so there is a sense of investment. The common pot was really important."

An interesting approach was experimented with in Relu's early years: the granting of seed corn funding to allow mixed-discipline proto-groups to meet together and spend time developing common questions and problem definitions, preparing themselves for later full-proposal calls. An external evaluation conducted for Relu found that this seed corn mechanism was effective in helping to build genuinely interdisciplinary teams.⁷

6.1d Communications

A key role played by the Relu Directorate was that of Communications, a very well-regarded dimension. For example, over three-quarters of researcher respondents (77.1%) and of Programme stakeholders (80.9%) think that "Relu's portfolio of communications and print/electronic outputs has heightened the likelihood of non-academic impacts". Of course, Relu Communications also includes other elements such as events and media/public outreach. An analysis of Communications has been developed as part of this evaluation (in **Part Two**), but one story here will illustrate how publications and events helped engagement. A government stakeholder interviewee reminisced, "I was probably aware of

⁷ Meagher, L.R. & Lyall, C. (2007) Review of the RELU Programme's Seed-Corn Funding Mechanisms <http://www.Relu.ac.uk/news/Evaluation.htm>

Relu first through a Policy briefing on WFD (Water Framework Directive) — I thought it was a clear and concise note that really gets to the heart of a lot of issues---it seemed very aware of policy, so that made me think more about Relu. ... (I got involved) through talking to people at conferences, hearing presentations – ‘these people sound like they can help me solve what I need to do’.” After one meeting this stakeholder talked informally at the pub with two Relu researchers who set up a workshop to discuss findings; another Relu researcher met at a conference responded to an invitation to come and talk with policy people, and a project was set up on the back of that, with, eventually, involvement on committees and input into two White Papers. “To be honest, if this happened more in policy, there would be a lot better policy.”

6.1e Programme-level Case study and Analysis

Because the Relu Directorate was such a distinctive feature, we have developed a Programme-level case study (**Part Two**) to illustrate ways in which the Programme itself led toward various types of impacts and also ways in which the Programme enhanced the ability of its constituent projects to lead to various types of impacts. We have also provided an Analysis of the Relu Communications effort (**Part Two**). At least two caveats must be borne in mind: 1) neither study can be (nor is it trying to be) exhaustive in providing a comprehensive view of large-scale dimensions of Relu –*foci* have been selected within each and 2) knowledge exchange processes and impacts at a Programme level may be even less readily visible than those of specific projects. Nonetheless, teasing out Programme-level subtleties may be useful to funders and leaders of other large-scale, multi-project initiatives in the future.

Figure 7 Programme Study Foci

Case Study	Types of Impacts	KE Mechanisms
Impact of Relu’s programme-level activities on thinking and policy making about land use	Instrumental Conceptual	Research Calls Great Land Use Debate & media Knowledge brokers Positioning of researchers
Analysis		
Communications Strategy & Implementation	Conceptual Enduring Connectivity	Policy & Practice Briefings Events Branding

6.2 Contributing Factors/Impact Determinants

6.2a Culture

Organisational culture can be important relative to impacts. Replying to a question about the culture of Relu, nearly all (94.5%) Researcher respondents felt “Relu leadership was effective in fostering a culture conducive to knowledge exchange and impact generation”. Overview interviewees agreed, for example:

“My view is that Philip and his team—a really good team, really led by Philip---has done really well at instilling key themes of the Programme: interdisciplinarity, stakeholder engagement, policy relevance down through the projects...”

A government stakeholder interviewee commented “There must be a strong ethos in Relu to cross that policy interface. That is hugely important.”

A Directorate member noted that the Programme “did use some mechanisms that were designed to raise the culture of Knowledge Exchange, like work-shadowing and visiting fellows –it was the aim to bring that about”. (Relu produced short evaluative reports on these two mechanisms in their beginning years.)

6.2b Interdisciplinarity & Knowledge Exchange

Interdisciplinarity and Knowledge Exchange can be closely aligned, as noted by multiple overview interviewees. All (100%) Programme Stakeholder, 91.7% Researcher and 76.4% Project Stakeholder respondents agreed that Relu's emphasis on interdisciplinarity has enhanced the capacity of Relu researchers to deliver usefully integrated understanding relevant to stakeholder problems. Nearly all (94.5%) Researcher respondents also agreed that "Relu's emphasis on interdisciplinarity has enhanced the capacity of Relu researchers to engage with stakeholders having different perspectives".

6.2c Knowledge Exchange

In documents, interviews and survey responses, Knowledge Exchange emerges as a key theme within Relu. For example, nearly all (90.5%) of the Programme stakeholder respondents were confident that the processes in the Relu Programme have helped lead to effective Knowledge Exchange. At the project level, fewer but still about three quarters of both Researcher and Project Stakeholder respondents were confident. Noting that "the critical thing about running a programme is the interweaving of the projects in the collective and trying to get impacts at both levels (programme and project) constantly interweaving", a Directorate member offered as an example the third funding wave, in which the Directorate deliberately built a new community bringing key stakeholders together across animal and plant diseases. The Directorate: introduced this core stakeholder group to researchers giving brief project presentations; organised a calendar of events to give stakeholders an idea of how a project was developing; held policy briefings, work-shadowing, visiting fellows; rounded up the experience with a creative workshop (described in the Communications analysis); and distilled researcher and stakeholder input (across five projects) into a policy briefing, Growing Concerns: Animal and plant disease policy for the 21st century.

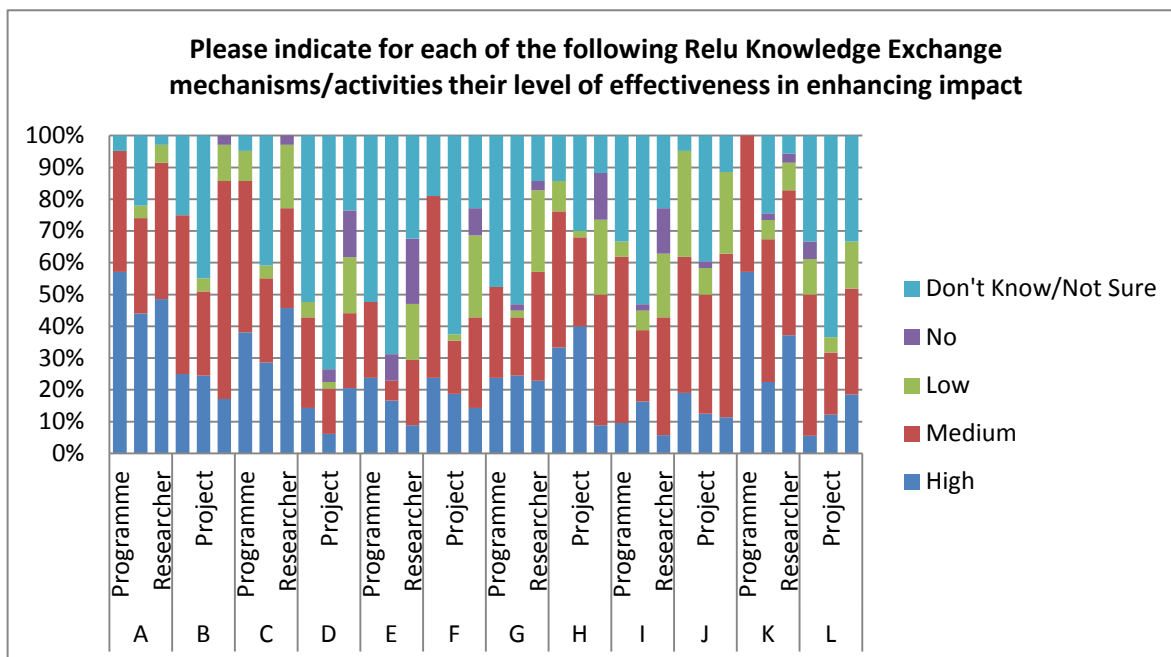
6.2d Knowledge Intermediary Roles

Knowledge Intermediaries can be heterogeneous. Interviews with individuals having various overview perspectives brought out the existence of several different types of Knowledge Intermediaries. Relu itself was seen as playing this role and some individuals working on Relu projects played this role when engaging stakeholders or even co-producing knowledge with them. What emerged strongly in addition, however, was the importance of recognising and collaborating with Knowledge Intermediary organisations or individuals working in non-academic settings -- where they may be 'undervalued'. Two thirds of each set of respondents felt that Knowledge Intermediaries -- individuals translating/facilitating across the academic/non-academic 'boundary' --- have played important roles at the Programme and/or Project level.

6.2e Effectiveness of Relu Knowledge Exchange Mechanism/Activities

Relu experimented with a range of mechanisms and activities to promote Knowledge Exchange, including those listed in Figure 8 below. To triangulate perceived relative usefulness, all three types of respondents were asked to rate the level of effectiveness of twelve different Relu Knowledge Exchange mechanisms or activities in enhancing impact. For all three types of respondents, the two mechanisms regarded as among the highest ranked when High and Medium effectiveness are considered together are: the Relu programme's requirement that proposals/projects show stakeholder engagement and the Briefing Notes produced by the Programme Directorate.

Figure 8 Effectiveness of Relu Knowledge Exchange Mechanisms in Enhancing Impact
(21 Programme Stakeholders, 52 Project Stakeholders, 35 Researchers)



Survey category key	
A	Requirement that proposals/projects show stakeholder engagement
B	Cross-project theme meetings
C	Major Relu events
D	Work Shadowing
E	Visiting Fellowships
F	Relu Programme's Stakeholder Forums or Strategic Advisory Comm.
G	National/international networking by Relu leadership
H	Introductions of researchers to stakeholders
I	Placement of Relu researchers on key committees, panels, inquiries etc.
J	Website
K	Briefing Notes
L	Other Communications

Researcher's views of obstacles and issues limiting Knowledge Exchange are captured in **Part Two**. Overview Interviewees did not offer much detail on specific mechanisms. However, Work-shadowing and Visiting Fellowships received positive comments ("a very good way of understanding others' points of view, and what they need"), as did the Relu requirement for Knowledge Exchange at the project level. Events received more of a mixed review; most mentioning them found them enjoyable and likely to help build a Relu community, but there was some ambivalence as to whether the events would be most productive if they were: aiming to include all researchers involved in Relu, reaching out to stakeholders, promoting the best science and/or bringing people together across projects. The table below provides a one-year snapshot of the scale and scope of two mechanisms; work-shadowing and visiting fellowships; a Vignette follows.

Figure 9: Examples of Mechanisms (2009)

Work Shadowing		
Host	Shadower	Project
Forestry Commission	Darren Moseley and Mariella Marzano	Assessing and Communicating Animal Disease Risks and Countryside Users
Environment Agency Wales	Catharina Landstrom	Understanding Environmental Knowledge Controversies
Defra	Wyn Grant	The Governance of Livestock Disease

Commission for Rural Communities	Annemarieke De Bruin	Social and Environmental Inequalities in Rural Areas
Defra	Abigail Woods	Reinventing the Wheel? Farm health planning 1942-2006
Food Standards Agency (Scotland) and New Zealand Food Safety Authority	Norval Strachan	Reducing E Coli 0157 Risk in Rural Communities
Visiting Fellowships		
<i>Fellow Organisation</i>	<i>Fellow</i>	<i>Host Research Project</i>
Environment Agency Wales	Kathryn Monk	Understanding Environmental Knowledge Controversies
North East Rural Affairs Forum	David Stewart	Angling and the Rural Environment
One North East Regional Development Agency	Frances Rowe	Land Use Projects

Vignette: One Visiting Fellow's Story of Programme-level Engagement

The story of one person's engagement in Relu illustrates pro-active engagement of stakeholders, leading to Programme-level interactions and influences while at the same time "modelling" engagement for project-level researchers. Stephen Hunter was head of Plant Health at DEFRA (and with previous involvement in Foot and Mouth disease operations, issues of badgers and TB, etc.) when Director Lowe contacted him in 2006 as he (Lowe) was working out the scope of upcoming Animal and Plant Disease Management calls for projects, asking if he could come to talk with Hunter about Relu. (Hunter had only heard vaguely if at all about Relu before this contact by the Director.) Open to Hunter's perspective during their conversation, Director Lowe decided to include plant health in the upcoming call for projects, especially as Hunter had pointed out ways in which animal and plant disease issues 'chimed' with each other, as well as some interesting differences. Hunter was invited to act as an external policy advisor to the peer reviewing process for proposals in the subsequent call; he was then invited onto the Animal and Plant Disease Stakeholders' Forum. Commenting on that experience, Hunter said: "It was a very useful mix of backgrounds: industry, civil servants and proper academics. That mix, which reinforces the Relu approach to things, made it helpful... we started to bounce ideas around...and I think that helped....I certainly found it useful." A project PI also invited him to be on a project-level steering group.

One outcome of interaction with Relu was that DEFRA co-funded with Relu a review into the governance and management of the UK Inter-Departmental Phytophthora Programme, on an increasingly important plant disease. More generally, through two-way engagement with Hunter, Relu had an impact on approaches taken by DEFRA. "I was looking seriously at Relu to help me in my day job in plant health at DEFRA. ... It helped me understand what I already knew but hadn't thought enough about in detail –how to bring socioeconomic elements into play. Plant health can be very much dominated by scientific risk assessment ... very little is grounded in the life of people who are then asked to do things. I was already trying to feel my way to improving the effectiveness of our stakeholder engagement and Relu helped me put flesh on that. And Relu helped me sell this to the wider world of my department and staff. Partly Philip, when he came and talked re Relu, I felt it was just the right way to go which I hadn't thought of in research terms I suspect Plant Health at DEFRA would not be doing what it is now, if I hadn't had that talk with Philip Lowe. ... My view –and I've talked with others—is that using all the evidence base, not just the biological evidence base, is now more embedded in the way we approach using evidence. Just bio is not seen as the way to go...there is now much greater acceptance that we need to consider socioeconomics and stakeholder engagement; that is a serious step forward."

When, in April 2010, Hunter took early retirement from DEFRA, Director Lowe immediately appointed him as a Relu Visiting Fellow; this allowed him to go round and visit various project meetings and stakeholder events, sharing his policy perspective related to animal and plant health, governance and

biosecurity. He is viewed by the Relu directorate as “epitomising” the role of “ambassador” for the programme, “taking the approaches and messages out into policy and practice”. Hunter has also contributed to written Relu outputs, including as a co-author of Relu’s special issue of the Royal Society Philosophical Transactions on Animal Plant Diseases, as well as the Relu Briefing Paper “Growing Concerns” and the framing of its predecessor Relu workshop “New Horizons for Animal and Plant Disease from the Relu Programme”, May 2011. Reflecting that he would recommend the Visiting Fellow mechanism to other initiatives, he comments “It seems to me a very clever mechanism for bringing a bit of expertise into the system without tying it down too much as to what it would do.” This flexibility within Relu allowed for the continued engagement of a Knowledge Intermediary with a mixture of policy and science background; Hunter “tries to be the interface between policymakers and scientists --- and act as a communicator and interpreter between the two”.

6.2f Directorate Monitoring and Celebration of Knowledge Exchange

Overview

Reflecting critically on the challenge of capturing impacts, Directorate members noted that it is difficult and that “We try to pick up all the bits of impact that we can – it’s a lot of work.... Without a Director’s Office, none of that would happen. Those little bits of serendipity that you see, see what comes out of it – you just want to catch that. It all takes time.” As part of “constantly trying to pick up bits of impact”, they found input offered to Annual Reports and the newsletters both useful, in addition to the SIAM database and Awards efforts noted below.

SIAM

An innovative feature of Relu was its explicit attempt to track information relative to pathways toward impact, “the myriad ways in which research findings ripple outwards into policy and practice”, in particular through SIAM (Stakeholder Impact Analysis Matrix) as a tool with which to identify stakeholders, brokers and areas that are involved (or not). This sort of tool might be useful for others; for example, the Assistant Director reports receiving ‘a great deal of follow-up interest’ after making a presentation on SIAM to the G8 Research Assessment Group. “Real-time” data are collected through routine annual reports from PIs in which they are asked about stakeholders, engagement, impacts of stakeholders on research and PIs’ views as to impacts of research on stakeholders.

Beyond monitoring, the Directorate sees SIAM as an “analytical tool” for exploring questions about Knowledge Exchange. For instance, one insight of particular interest to the Relu leadership –and others-- (as captured in Relu’s Briefing Note *Telling Stories: Accounting for Knowledge Exchange* and academic writing⁸) was the finding that Relu researchers felt that engagement was a benefit to science quality, perhaps counter to conventional thinking.

It should be noted that SIAM primarily captured (important) information as to what sorts of stakeholders participated in which sorts of project activities, in this way primarily describing Knowledge Exchange rather than demonstrating impacts. SIAM also gathered *researchers’* perceptions as to the two-way effects of their interactions with stakeholders. Towards this latter end, the creative approach to gathering self-nominations for Impact and Innovation Awards was a complementary attempt to elicit more impact stories from researchers. Ideally, initiatives of the future will strive to capture information from stakeholders as well (without overburdening them). One approach might be to do so for just a selected set of projects from their beginning, thus generating longitudinal case studies as they unfold and engaging some stakeholders in reflection on impact-generation throughout the process.

⁸ E.g. Phillipson, Jeremy, Lowe, Philip, Proctor, Amy, Ruto, Eric. 2012. Stakeholder engagement and knowledge exchange in environmental research. *Journal of Environmental Management* 95: 56-65.

Final Impact & Innovation Awards

In preparation for the closing Relu programme conference in November 2011, a competition was organised to find the 'Best Example of Relu Impact' and the 'Best Example of Interdisciplinary Methodology or Scientific Innovation'. Project leaders were asked for expressions of interest in the form of short, one-page statements on 'Impact' and 'Innovation'. In the case of 'Impact', it was stipulated that the statement should cover what the problem was/is; what the researchers did and found; what changed as a result, including evidence of impact. It was pointed out that taking part in the competition would help promote the impact of their projects as there would be a prize for winners and nominated case studies would feature in a special Relu publication (Changing Landscapes). The thirteen entries were judged by two panels which included selected stakeholders who had been supporters of, and active participants in, the Relu programme. Four of the highest scored entries were made into short videos and the winners and runners up were chosen in X-Factor style by the delegates to the conference. Overall the competition was not a very scientific method of evaluating the impact of individual projects but it was an effective way of publicising the Relu programme as a whole and of demonstrating its own impact.

Contributing to Understanding about Knowledge Exchange (and Interdisciplinarity)

The Relu Director and Assistant Director have contributed to understanding of Knowledge Exchange and of Interdisciplinarity through numerous presentations, as well as contributing advice through less formal discussions. In 2011, as just two examples, the Assistant Director gave a presentation on Relu insights to an LWEC meeting on Knowledge Exchange and on SIAM to the G8 Research Assessment Group. Relu publications have distilled such learning explicitly, with Knowledge Exchange and pathways to impacts captured in, in particular: *Telling Stories*, *Common Knowledge? An Exploration of Knowledge Transfer* and *Changing Landscapes*. Relu's learning about these two innovative processes has also been captured and disseminated through academic routes, including but not limited to articles in Special Issues put together by Relu.⁹

⁹ For example, Phillipson, J. and Lowe, P. (eds) (2006) *Rural Economy and Land Use: The Scoping of an Interdisciplinary Research Agenda* Special Issue of the *Journal of Agricultural Economics* 57 (2) Pages 163–336

7. LESSONS LEARNED BY PARTICIPANTS FOR ENHANCING IMPACTS

7.1 Recommendations to Funders (and Leaders) from Relu Participants

We captured lessons learned and messages commended by Relu Researchers, Programme Stakeholders and Project Stakeholders (**Part Two**). Although framed primarily as messages to funders hoping to promote interdisciplinarity and impacts, the recommendations' content should also be useful to leaders of complex initiatives of the future. Lessons learned include:

- the practical challenges facing complex initiatives;
- the importance of interdisciplinarity and of requiring early engagement of stakeholders;
- the critical importance of leadership;
- the importance of a central pot of 'discretionary money' and
- the importance of collaboration across *funders* in the future.

Just a few highlights here convey some of the recommendations offered for funders' consideration. *Practical challenges* for funders included peer review and associated pitfalls for proposals involving interdisciplinarity and/or Knowledge Exchange. Comments included, for example: "Knowledge Exchange needs to play a more central role in the research peer review process" and "Throw out normal approaches to peer review and avoid trying to straitjacket interdisciplinary research into 'normal approaches'" and also, when expecting Knowledge Exchange and interdisciplinarity, "Research Councils must therefore be more flexible in their assessment processes of proposals and revise their peer review processes accordingly". Innovation in funders' approaches to structuring support is seen as particularly important in light of the emphasis many placed on the importance of *interdisciplinarity* and of *---early--- engagement of stakeholders*, for example: "Create more flexible vehicles/mechanisms for funding a diversity of types of scientific research project" and "License and support experienced researchers to take risks – to experiment with new working practices in terms of interdisciplinarity and public engagement not all of which will be 'successful'". Comments encourage support of these processes, e.g. "maintain cross-disciplinary focus" and "Include Knowledge Exchange at the start; it is absolutely crucial to force projects to come up with plans on how to interact with users".

Some recommendations suggested components of initiatives thought to be important for success. The *critical importance of leadership* was emphasised; for example selecting "someone who could communicate with different communities, wouldn't push (their) own disciplinary agenda, and could have a dialogue with some end users". Some *central funding* and staff support were also recommended for an initiative, for instance: "Interdisciplinary projects should have a support activity like the Relu secretariat. Because they're interdisciplinary, they need special skills involved. ... Relu also showed you really get people to work together when there is a common pot (of money)". "Relu had quite a useful combination --- a dedicated budget and a dedicated programme director."

And *collaboration across funders* was encouraged, so that they would effectively model interdisciplinary working. For example: "Much more strongly sign up to the interdisciplinary agenda and be much more prepared to collaborate in cross-agency funding initiatives" and "That's why the pot that Relu had was so important --- where everyone puts in something to a central resource so there is a sense of investment. The common pot was really important". Many individuals commended Relu, and hope was expressed that learning from it would last, for the benefit of funders themselves ("There is much of value for ... Councils to learn from how Relu has operated") and for mentoring of future researchers ("Provision of appropriate training drawing on lessons learned from Relu and other work").

8. CONCLUSIONS AND RECOMMENDATIONS

8.1 Reflections on Impact Evaluation Approaches and Methods

In **Part Two** we gather our own critical reflections, deliberations at an expert Focus Group and, unusually, the reflections of stakeholders as to Impact Evaluation methodology. Drawing upon the distinctive learning opportunity afforded by Relu, we have in particular considered insights arising from considering initiative-level contributions to impact-generation.

8.2 Key Findings Summary

1. **Impacts:** Relu was successful in generating a portfolio of a significant number and a diversified range of types of impacts and impacts-in-progress, in a variety of contexts. Through qualitative findings and surveys, this evaluation's "snapshot in time" found significant development of various types of impact, including as highlights:

- **Instrumental Impacts:** even the famously elusive Instrumental Impacts, although in the lowest percentages, were recognised by a third of Project Stakeholder respondents and nearly half of Researcher respondents as having been generated by *projects* and by over half of Programme Stakeholders and well over three-quarters of Researcher respondents as having been generated by the *Programme*.
- **Conceptual Impacts:** Conceptual Impacts were seen by the highest percentages - as arising from *projects* by more than two-thirds of Project Stakeholder respondents and almost all Researcher respondents, and as arising from the *Programme* by nearly all Programme Stakeholder and Researcher respondents.

2. **Knowledge Exchange:** Relu has built a solid base for future Knowledge Exchange, within and beyond the specific researcher/stakeholder relationships forged.

3. **Legacy:** Significant legacies created by Relu include:

- Enhanced conceptual and practical understanding of 'land use'
- Influence in the research and science policy arenas, particularly in growth of acceptance of interdisciplinarity in policy-relevant research and in a shift from a model of "Knowledge Transfer" to two-way "Knowledge Exchange"
- Evidence of a set of approaches that can deliver research impacts.

8.3 Evaluator's Conclusions

8.3a Detailed Conclusions about Knowledge Exchange

Relu researchers and stakeholders believe that effective Knowledge Exchange has been achieved by Relu, a perception in line with the array of impacts or impacts-in-progress achieved. Robust attitudes toward Knowledge Exchange and individuals' expectations of cross-sector collaboration bode well for future ripple effects spreading outward from Relu, such as follow-on interaction that may enhance the likelihood of additional impacts.

The Relu Directorate utilised a set of Knowledge Exchange mechanisms (including but not limited to: a requirement that projects pursue Knowledge Exchange; researcher/ stakeholder events; Work-shadowing; Visiting Fellowships; Stakeholder Advisory Forums, publication of accessible policy and practice briefing notes).

In a distinctive example of pro-active influencing, the Director worked to improve the viability of "both sides" of the Knowledge Exchange equation, seeking to catalyse communities of willing policy partners for new areas of research.

Knowledge Exchange was defined, encouraged and exemplified by the Relu Directorate, which “grew” this emphasis so that it became a central theme of the Relu culture and also promulgated the concept of two-way Knowledge Exchange beyond the programme. Relu’s other emphasis, on interdisciplinarity, appears to have bolstered capacity for both working with individuals having different perspectives and generating usefully integrated findings.

Beyond Relu, the programme has been used as a learning opportunity by other research and science policy/funding bodies hoping to encourage Knowledge Exchange and impacts. The Relu leadership (Director and Assistant Director) have demonstrated cordial willingness to share lessons learned with others, including acting as advisors or reviewers. Individual researchers have also shared understanding, for example through 4th call projects such as the development of a KE toolkit.

8.3b Detailed Conclusions about Value-Added by the Overall Relu Programme (Directorate)

Without doubt, this is a programme that is more than the sum of its parts. Although there is no counter-factual available, it is improbable that the projects acting individually would have interacted so much with stakeholders, joined up results or penetrated in as many ways into diverse stakeholders’ realms, leading to so many impacts.

Through formal and informal communication and behaviour, the programme has achieved a significant level of recognition and credibility as “genuinely” seeking two-way interaction between researchers and stakeholders in order to contribute to important issues --- thus helping to pave the way for impact-generation.

Much of the “value-added” of the Programme can be traced to its entrepreneurial leadership (Director and complementary Assistant Director) constantly and pro-actively encouraging stakeholders as well as researchers to participate fully in Relu. This pro-active stance combined with a budget for a centralised directorate allowed experiments to be conducted in ways to foster Knowledge Exchange and related impact-generation. Naturally, not all experimental mechanisms or indeed all projects led to effective Knowledge Exchange or impact-generation. However, the portfolio of impacts is robust. Relu’s legacy also includes influences on the science policy arena; a cadre of individuals oriented to and capable in Knowledge Exchange; and numerous stakeholders aware of the potential usefulness of research.

8.3c Overview Conclusions

- 1) Relu has significantly helped to change policies and practices concerning rural economy and land use.
 - 2) Relu has generated an exemplary volume and distribution of impacts and impacts-in-progress across types of impacts: Conceptual, Instrumental, Capacity-building, Enduring Connectivity and Attitude/Culture Change. Conceptual Impacts are the most common, but Relu also led to some significant Instrumental Impacts and other types of Impacts.
 - 3) At the programme level, Relu’s pro-active leadership, Strategic Advisory Committee, effective and resourced central directorate, culture and innovative Knowledge Exchange mechanisms combined to add significant value to impact generation, both directly and through enhancing the impacts that individual projects were able to generate.
 - 4) This evaluation has elicited unusually extensive and informative input from stakeholders. This has validated and enriched the findings, while also underscoring the effectiveness of Relu’s engagement.
 - 5) This evaluation offers lessons for future complex large-scale initiatives as well as illuminating impact-generating and impact-evaluation processes.
- We have examined in detail: a) Relu’s collection of approaches toward Knowledge Exchange and impact generation, including but not limited to leadership, culture, and specific activity and communication mechanisms and b) Relu’s portfolio of impacts and impacts-in-progress achieved at the Programme and the project level, as well as c) researcher and stakeholder

perceptions of both. Taking all this into account, we conclude that **Relu's impact generation is substantial and significant**. At least two-thirds of the first three waves of projects have generated some sort of impact; this represents a strong return on investment, even if all do not lead to tangible impacts. (Conventionally, venture capitalists hope that ten per cent of investments will become successful companies, for example.)

The Relu programme constitutes a benchmark, a new 'standard' in impact-generation from which others in the future can learn and toward which they can strive. Despite issues inherent in a pioneering and risk-taking experiment, Relu has had everything going for it – multiple funders, an entrepreneurial leader and an able assistant director with complementary strengths, a discretionary budget for centralised activity, topical subject matter, and reach and longevity across a significant number of projects over close to a decade. This does not imply that Relu was perfect, or that future initiatives should aim to copy it slavishly or be limited by its achievements. However, it does offer what may be a usefully realistic picture as to what sorts of non-academic impacts and impacts-in-progress can reasonably be expected (or not) from a research initiative at the moment, if it is provided with the advantages enjoyed by Relu.

8.4 Evaluator's Recommendations

1. Continue to collaborate across funding bodies to support interdisciplinary research initiatives with a strong theme of Knowledge Exchange and development of integrated solutions for complex problems. Take deliberate steps to ensure "organisational learning" and retention of lessons learned, to the benefit of funders and, perhaps via mentoring, individuals establishing initiatives in the future.

2. View large-scale, multi-project initiatives of this sort as worthwhile conduits toward an array of impacts. Expect such initiatives to take informed risks.

3. For any one initiative, view research projects, efforts/activities and impacts as a set of inter-related 'portfolios'— encourage diversification in each but do not expect all projects or activities to be equally successful, or that all impacts will manifest at the same time or be neatly identifiable and attributable (even stakeholders make this last point!).

4. Provide an array of "design features" as factors that can help an initiative achieve goals of integration, Knowledge Exchange and impact-generation:

- Select leaders who are entrepreneurial and can encourage innovative approaches both internally and externally, recognising that these individuals are quite unlikely to be conventional senior mono-disciplinary academics
- Set out aspirations through the design of project application criteria (e.g. interdisciplinarity and working in partnership with users from the start); employ appropriate processes for evaluation of project proposals
- Allocate a discretionary budget for a central directorate with the right leaders and staff to drive pro-active mechanisms toward Knowledge Exchange and related interdisciplinarity
- Provide an informed, committed oversight and sounding board through a group such as a Strategic Advisory Committee consisting of funder representatives, researchers who understand the subtleties of objectives, and other stakeholders; expect the roles of this group to evolve over time. One role could be to plan ahead for the initiative's legacy/succession
- Consider both sides of the Knowledge Exchange equation; include stakeholders in question-framing, events and publications and even when necessary help to catalyse new stakeholder communities
- Encourage formative evaluation – encourage reflection (and subsequent ownership) by all involved, including stakeholders. This complements

entrepreneurial momentum and can improve initiatives as they progress, heighten chances for impact-generation, and learn/share useful lessons

- In addition to formative evaluation and an end-of-award evaluation of non-academic impacts, fund a 3-5 year-out follow-on evaluation, to capture a complementary set of impacts that may take time to emerge (even if impacts identified earlier may no longer be as visible).