



## **LINKING AGRICULTURAL RESEARCH TO INNOVATION: AN INTRODUCTION TO RIU'S RESEARCH DESIGN**

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### **1. Introduction**

RIU is a research and development programme designed to put agricultural research into use for developmental purposes and to conduct research on how to do this. The programme is funded by the UK's Department for International Development (DFID). It follows earlier investments by DFID in agricultural and natural resources research, supported through its renewable natural resources research strategy (RRNRRS). While this strategy delivered high-quality research, the uptake of this research and its impact on social and economic progress was modest.

RIU seeks to address this both by supporting activities that put RRNRRS research products into use, but also by investigating the wider question of the relationship between agricultural research and innovation. This wider investigation of the topic responds to extensive evidence that suggests that agricultural innovation is very often not the result of simply transferring research products to farmers, entrepreneurs and policymakers. More usually, research promotes innovation only when it is embedded in the wide set of relationships and processes involved in diffusing, combining and adapting ideas and putting them into use.

Understanding the configurations of actors, policies and institutions that allow agricultural research to contribute to innovation and development in different circumstance is the central research task of RIU. The programme's research design is largely inductive, seeking to learn from an analysis of RIU's own experiments in putting research into use. This will be coupled with contrasting comparator case studies as well as case studies of other promising research-into-use type approaches not covered by RIU.

### **2. Exploring the Link between Research and Innovation**

The critique of agricultural research failing to lead to innovation and impact is not a new one. There is now a broad consensus that recognises that it is not the research products or technologies, *per se*, that are ineffective, but rather the process by which these products are developed. This builds on four observations about the nature of the innovation process.

- a) Successful innovation involves a high degree of user input. This means that innovation involves the blending of tacit and codified knowledge from different sources including but not limited to research.

- b) Knowledge use is an embedded process, highly context-specific and rarely amenable to simple transfer to different locations without adaptation and reworking.
- c) Innovation is a social process of learning, whereby strategies, approaches and capacities develop over time through experience and other forms of knowledge accumulation, leading to recognisable path-dependent innovation trajectories.
- d) The political economy of knowledge and knowledge-related process skews innovation trajectories in certain directions and purposeful institutional arrangements are required to specifically target public and social goals such as poverty reduction or sustainability.

Where there is less agreement is on the question of the sorts of organisational configurations (networks, partnerships and alliances) institutional settings (routines, norms and ways of working) and policy environments that are required to operationalise these observations in agricultural research and innovation planning. Instead, there are a series of overlapping innovation narratives competing for policy attention, all implying different roles and configurations of research within the innovation process. These narratives cover the spectrum, from farmer-led innovation to research-led innovation, and assign various roles to public, private and civil society organisations and individuals.

It is increasingly argued that instead of viewing these as competing innovation narratives, what is actually required and needed is innovation diversity. So, for example, under some circumstances research-led innovation may be necessary. At other times farmer participatory research may be required. Public-private sector partnerships could promote certain types of innovation process. Sometimes innovation will require dense networks of diverse actors. At other times only relatively few actors will be critical. Different institutional arrangements will be required to achieve social and environmental goals. Similarly, as an innovation trajectory unfolds over time research will be embedded in the innovation process in different ways, reflecting different roles that it plays.

The key research question for RIU is, therefore, not to find the *best* way of putting research into use. Instead the key research question concerns understanding which sorts of configurations are relevant under what circumstances and at which stages in different innovation trajectories.

### **3. RIU Research Design**

In order to address this broad research question RIU has selected 6 innovation narratives to organise its research around. These represent commonly-found innovation narratives that are currently competing for attention in development policy. Each of these narratives has implicit hypotheses and specific questions. Understanding when and under what circumstance these narratives have relevance will make a major contribution to development research planning.

- a) **Poor User-Led Innovation.** Poor farmers and consumers should be at the centre of the innovation process as they have superior knowledge of their production and social context. The role of research varies, but is usually peripheral or of a backstopping nature. Key questions include: How to strengthen decentralised innovation capacities of this sort and what are the institutional and policy regimes needed to promote products that emerge in this way, particularly seed varieties? How can the governance of innovation ensure that the voice of the poor is heard in agricultural science and technology planning and implementation?

- b) **Public-Private Partnership-Led Innovation.** The private sector has not played an adequate role in public agricultural research and allied activities. It sometimes has research expertise of its own. It also has incentives, structures and mechanisms to deliver demanded technologies to consumers (farmers and others in the value chain). Key research questions include: What types of innovation and innovation process are helped by involvement of the private sector? When does the private sector's involvement help the poor and what sort of incentives and institutional arrangements are needed to allow this to happen? How can social capital be developed between companies and other elements of the innovation system?
- c) **Capacity Development-Led Innovation.** The rate limiting step in technical change is not technology development or promotion, *per se*, but the level of innovation capacity. This capacity is viewed in a systems sense as the behaviours of loose networks of innovation-related players and the institutional and policy settings that shape their behaviour and evolution. Key research questions: What interventions can facilitate institutional and policy change? How can innovation capacities be made more responsive to changing social, economic and environmental conditions? How can learning-based change be stimulated and accelerated? What is the role of intermediation and innovation brokering services?
- d) **Opportunity-Led Innovation.** Opportunities presented by large markets of poor people are leading the emergence of new types of innovation processes and products. Also emerging are innovation process that are invisible to research and corporate communities due to alternative professional views of excellence and success. These are described alternatively as Bottom-of-the-Pyramid Innovation and Below-the-Radar Innovation. Innovation along value chains is a key feature of these developments. Key research question include: What are the new modes of innovation that are emerging? Do these genuinely present opportunities for developmentally-relevant innovation? How can largely invisible processes be identified and supported? Do innovations along value chains allow poor producers and consumers to benefit from new market opportunities?
- e) **Investment-Led Innovation.** Financial resources are a key incentive for innovation and are increasingly used to help encourage the development of new partnership configurations around specific problem areas and research products. Innovation prize funds, public buy-back for private development products, challenge funds and venture capital type arrangements are examples of this. Key research questions include: How effective are such mechanisms in enabling innovation processes that are developmentally relevant? How useful are these mechanisms in building new capacities for innovation?
- f) **Research Communication-Led Innovation.** Research products need to be processed into forms suited to different audiences and made accessible through databases. This is particularly important for policy-orientated research, where concise and timely information can play a critical role in decision-making. Key research questions include: What are the circumstances under which information limits decision-making? What are the most appropriate communication tools to fill this gap? What patterns of networking between researchers, decision-makers and others complement communication?

To explore these different innovation narratives RIU will investigate its own experiments in putting research into use. The RIU portfolio of activities contains the following elements.

- **Best Bets.** Up to ten large-scale technology promotion activities that are anticipated to have significant private sector involvement. Currently two have been selected: (1) A cluster of activities building on Client-Orientated Breed programmes in South Asia that is developing ways to establish both seed delivery systems and new capacities for Client-Orientated Breeding. (2) An initiative in East Africa that is building research and development activities around the eradication of sleeping sickness.
- **Innovation Challenge Fund.** A portfolio of projects in South Asia aimed at developing new partnerships to take advantage of clusters of research products from the RNRRS. There are two thematic groups of these projects. The first is around innovation in value chains. The second concerns scaling up of natural resource management research products.
- **Africa Country Programme.** RIU has established 6 Africa country programmes in Sierra Leone, Tanzania, Malawi, Rwanda, Zambia and Nigeria. The rationale of these programmes is that currently mechanisms to articulate the demand for research and other information are poorly developed. The country programmes are, therefore, experimenting with a variety of networking devices to establish links between research, entrepreneurial, policy and farming communities with a view to strengthening innovation capacity.
- **Innovation Development Fund.** RIU will establish a social venture capital fund to investigate whether this mode of investment can stimulate development-oriented innovation.

The approach to putting research into use adopted by RIU is an evolving one that will develop incrementally by learning throughout the programme's life. Direct comparison of the added value of the programme's approach will, however, be conceptually problematic. The programme, nevertheless, wishes to explore comparator cases where more traditional approaches to agricultural research and innovation have dominated. This will be achieved by investigating a limited number of cases through histories of selected research and innovation trajectories.