

1 Lessons for out-scaling and up-scaling from *Innovation systems: concepts, approaches and lessons from RNRRS*

Background

By 'innovation' we mean "the use of new ideas, new technologies or new ways of doing things in a place or by people where they have not been used before"¹. Innovation mainly involves "working and reworking the stock of knowledge" rather than creating new knowledge. For out-scaling and up-scaling the research results of the Renewable Natural Resources Research Strategy, an innovations systems approach involves strengthening the capacity of in-country networks of institutions working on a common theme or commodity towards a first commercial or significant non-commercial use. Box 1.1 shows a simplified diagram of an innovations system.

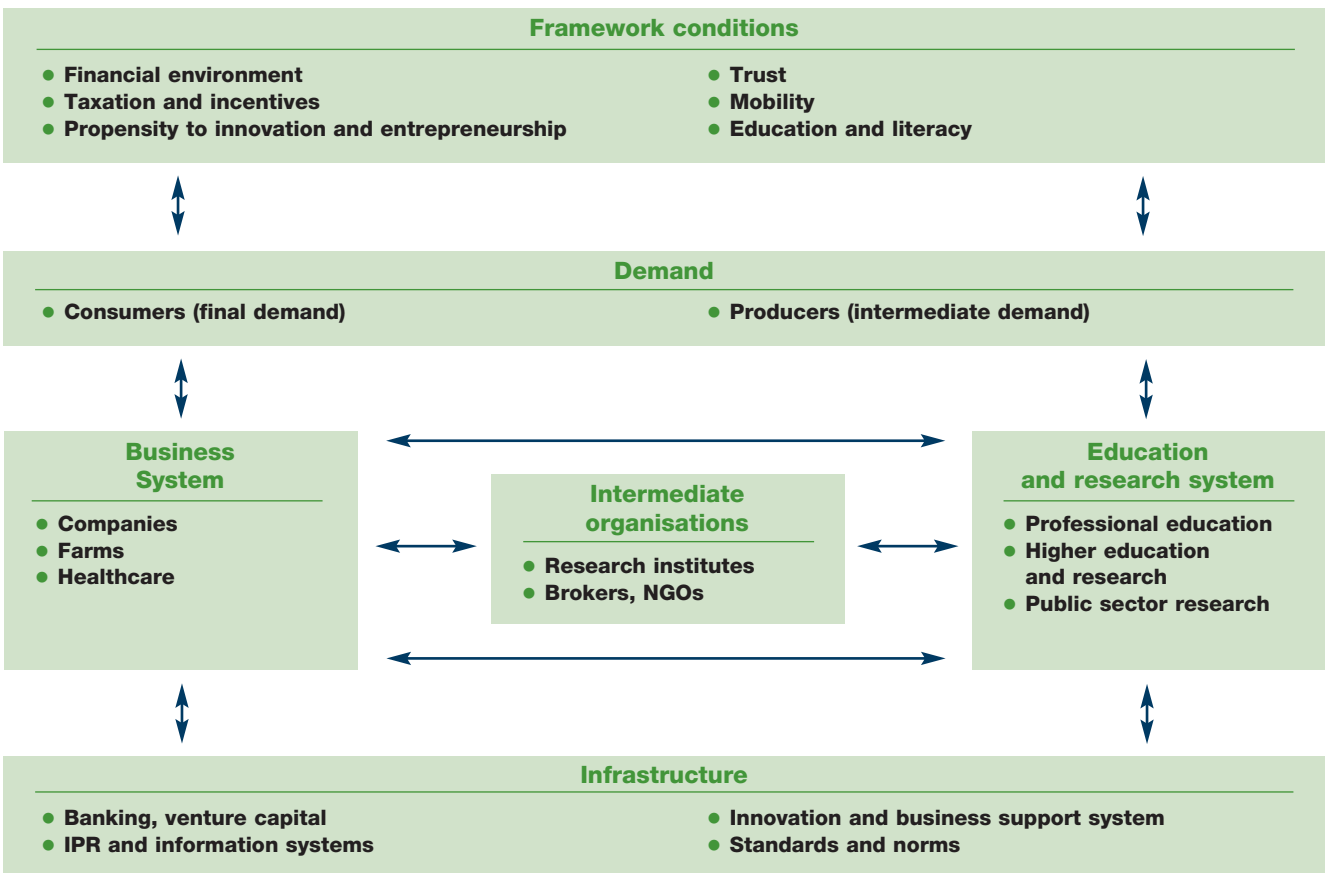
¹ P 24 Innovations systems: concepts, approaches and lessons from RNRRS 2005 Amitav Rath and Andrew Barnett.
² Erik Arnold and Martin Bell. 2001. Some new ideas about research for development in Danish Ministry of Foreign affairs: Partnership at the leading edge: A Danish vision for knowledge, research and development. http://www.um.dk/NR/rdonlyres/7CD8C2BC-9E5B-4920-929C-D7AA978FEEB7/0/CMI_New_Ideas_R_for_D.pdf

Key points

- Poverty impact is most likely to be achieved through adopting an innovation systems approach.
- Six process indicators and three outcome indicators characterise national systems of innovation.
- Innovation in developing countries where innovation frameworks and infrastructure are weak is challenging to achieve.
- The innovations system approach cannot be applied routinely and in an identical manner to all problems.
- The initial identification of a tentative innovation system is crucial.
- Determine methods for measuring the impact of out-scaling and up-scaling in national innovations systems.
- The approach to finance and management needs to be flexible.

Box 1.1

Major elements of an innovation system (Arnold and Bell)²



Lessons learned

Poverty impact is most likely to be achieved through innovation systems. There is already a lot of experience in the innovations system approach. Based on this experience the approach has recently emerged as the main driver of research funding in most Organisation for Economic Co-operation and Development countries and the New Partnership for Africa's Development. This means that work to reduce poverty is likely to be through coalitions of donors and partners working in national innovations systems. The effort to out-scale and up-scale research results will need to be part of these collaborations.

The beginning of the eleven-year Renewable Natural Resources Research Strategy pre-dated the emergence of the innovations systems concept. Users and suppliers of research did not work together from the beginning because researchers at that time had a clear mandate just to deliver research results, not to become involved in innovation systems.

About half way through the strategy, the mandate changed. Researchers were tasked with doing research that reduced poverty. This led some programmes to begin to work with users—building capacity, communicating research results to users, getting users to participate in research and action research (Box 1.2). Some of the ways programmes worked with users are standard processes in the innovations systems approach. But there was no overall formal innovations system mandate.

Box 1.2

How Renewable Natural Resources Research Strategy programmes shifted their approach

Programmes strengthened linkages with users, mainly in the form of stronger dissemination and new promotion strategies and targeting new audiences, such as policy makers and poor communities. They sought partnerships, alliances and coalitions, especially with local research and development institutions and user groups. They expanded the nature and scope of partnerships. Partnerships went beyond other researchers to more diverse and inclusive audiences, and became more equal and transparent with respect to budgets, accountability and equality.

For example, the Forest Research Programme in a shift to research that would have direct benefits for the poor, went from research on different types of trees to community forest management, and the Livestock Production Programme refocused its research efforts on the keepers of livestock (eg pastoralists and small stock keepers) rather than on livestock commodities.

The Crop Protection Programme in turn pruned a very diverse and widespread portfolio of projects and focused on core problems in specific regions. It moved out of disciplinary research to interdisciplinary research and focused on integrated pest management in Eastern and Southern Africa, working with other RNRRS programmes and directly with farmers.

Although some programmes learned valuable lessons about the innovations systems approach (Box 1.3), at the end of the strategy, many new technologies and much new knowledge were yet to be introduced into innovation systems to reduce poverty.

Box 1.3

Lessons learned from the Crop Post Harvest Programme's explicit innovations systems approach³

The impact of the Crop Post Harvest Programme's innovations systems approach could not be measured so it is not possible to say that this approach had more impact than other approaches. But the experience provided valuable lessons.

Researchers in developing countries felt the approach was significantly better and had more advantages than the previous way of doing research. The types of partners grew. The programme found that it needed to be proactive, particularly in getting institutions together in coalitions and in building capacity in developing and monitoring projects. Ideas about the nature of the problem evolved as the needs and views of the partners emerged. For example, the involvement of a poultry feed manufacturer in a sorghum project in Hyderabad meant research results had to be produced quickly as easy-to-use recipes.

For out-scaling and up-scaling, working and reworking research results, users of knowledge and suppliers of knowledge need to work together from the start to ensure that innovation takes place.

Six process indicators and three outcome indicators characterise national systems of innovation and could be the basis for setting baselines, monitoring and evaluating progress and assessing impact.

The process indicators are: i) suppliers and users of knowledge involved; ii) a common understanding of the needs of users; iii) investments made in the parts of the system that need it; iv) intermediaries help bridge the communication gap between those who supply knowledge and those who use it; v) a financially viable system to deliver the innovation; and vi) a monitoring and evaluation system so that the system learns from experience and takes corrective action.

The outcome indicators are: i) use of new technologies or new ways of doing things that improve the lives of poor people; ii) the system learns and changes the rules; and iii) the infrastructure that the system needs to be effective becomes stronger.

In out-scaling and up-scaling research results, these indicators could be the basis for setting baselines, monitoring and evaluating progress and assessing impact.

³ Journeying from research to innovation: Lessons from the DFID Crop Post-Harvest Research Programme's Partnerships for Innovation Final Report 2006 Andrew Barnett

Innovation in developing countries where innovation frameworks and infrastructure are weak is going to be challenging. For innovations to take off, the elements of the innovation system—the poor, manufacturers and suppliers, retailers, banks, government, consulting companies, non-government organisations etc—need to work together in partnerships, coalitions and networks. Ways of working, culture and customs, values placed on entrepreneurs and enterprise, financial and banking systems etc often differ between countries that innovate and those that do not. In developing countries weak infrastructure is often the major limitation to innovation.

The innovations system approach cannot be applied routinely and in the same way to all problems. There is no evidence that the innovations system approach is more suited to certain problems than others. Points of entry are many and varied and an innovation may take many possible paths in out-scaling and up-scaling. There may be cases when a strategy proves to be a dead end and needs to be abandoned.

The initial determination of an innovation system is crucial. A map of the system makes it possible to measure progress and impact. When the boundaries are large the system will be difficult to measure and the impacts weak.

Determine methods of measuring the impact of out-scaling and up-scaling. There are not enough indicators of uptake of research from the Renewable Natural Resources Research Strategy to measure impact. So, it is not possible to show that the innovations system approaches that some programmes embraced had more impact on reducing poverty than other approaches. Methods of assessing the impacts of new ways of driving innovations will need to be determined (Box 1.4).

Box 1.4

Methods of assessing impacts of new ways of driving innovations will need to be determined.

The Animal Health Programme invested in setting up a Global Alliance for Livestock Vaccines. It did this because it realised that it could not drive forward the innovations that were needed to control and eradicate livestock diseases on its own. The programme did not have the resources. So rather than pursue a course that was going to be non-productive it brought together scientists, policy makers and NGOs to voice their different perceptions of the problem and best approaches to solving it. The outcome was agreement that a combined approach, varied to suit local conditions and resources was the best way forward.

The impacts of the Global Alliance for Livestock Vaccines will depend on resources allocated to the problem and the actions of many people—both outside the control of the programme. Methods of assessing the impacts of such new ways of driving innovations will need to be determined.

The approach to finance and management needs to be flexible. Innovation systems will evolve and adapt and some will result in impact more quickly and more effectively than others. An innovations systems approach should expect this and have a flexible approach to finance and management (Box 1.5).

Programmes went through three stages as they evolved and adapted to meet new demands and new opportunities: business as usual, search and change, and a focus on outcomes and active engagement with users. But they evolved at different speeds, to differing degrees and with differing effectiveness.

This suggests that organisations and institutions may go through similar changes as they work to out-scale and up-scale research results effectively in innovations systems. Those required to change will do so to different extents and at different paces depending on their history, perspectives and where they started from.

Box 1.5

To take advantage of opportunities that may arise, innovations systems approaches need flexible finance and management

In an example of a demand-driven innovation process, the Fruits of the Nile Company asked Natural Resources International Ltd to help improve its process for drying fruit for export. They asked the Company because of the research it had done on fruit drying processes. This was one of several requests for help to enable the company to break into the UK export market.

This illustrates the kind of opportunity that may arise during out-scaling or up-scaling and the flexibility that is needed to be able to respond.

This synopsis of lessons learned for up-scaling and out-scaling research into use is drawn from 'Innovations systems: concepts, approaches and lessons from RNRRS' 2005 Amitav Rath and Andrew Barnett.

See

http://www.research4development.info/pdf/ThematicSummaries/INNOVATIONS_SYSTEMS_CONCEPTS_APPROACHES_AND_LESSONS_FROM_RNRRS_P1.pdf