Research Into Use

RIU Practice Note:

Lessons for Out-scaling and Up-scaling from DFID's RNRRS Studies and Research

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Contents

Foreword

Lessons learned from RNRRS[i] synthesis studies and summaries of various DFID[ii] research themes

Research Into Use (RIU) is interested in learning lessons from previous investments in DFID's natural resources research and related research activities because we believe it will help us respond appropriately to demand from our in-country counterparts. We've therefore commissioned a science-communications company (Scriptoria) to scan the information available on DFID's R4D website[iii] and identify potentially useful documents that might help us in our work to up-scale and out-scale new technologies, practices and policies, and to summarise them with practitioners in mind.

Preliminary analysis showed that 19 themes, synthesis studies and summaries commissioned under the RNRRS seemed to be directly relevant to RIU's work. Many of these original documents were too long and technical for a practitioner audience and did not focus specifically on issues relevant to getting research into use. The science writers, therefore, produced 3-4 page synopses of the documents, which have now been checked either by the authors of the source materials or by RIU staff. They also summarised the findings into very useful Practice Notes in the introductory section.

The documents available here contain key lessons potentially relevant to up- and out-scaling; also, you will find reviews of relevant findings, and illustrative 'case-studies' or 'success stories'.

For those who need to delve deeper into a particular topic, each document also provides references for and internet links to the sources. We trust you will find these documents useful for your work. Clearly, we will build on this foundation over the next few years and ultimately produce more consolidated guidance to enable in-country institutions to more effectively transform research into practice.

Dr Wyn Richards
Director of Communications
DFID Research Into Use Programme
NR International Ltd

[i] DFID's Renewable Natural Resources Research Strategy (1995-2006)
[ii] UK Department for International Development
[iii] http://www.research4development.info

Introduction

Why lessons learned from RNRRS research are important for out-scaling and up-scaling

Research Into Use (RIU) believes that to help RIU practitioners to up-scale and out-scale new technologies, practices and policies it is vital to reflect on what worked and what did not work in previous DFID natural resources research and related activities.

RIU's user-oriented, innovation systems approach aims to stimulate the uptake of research findings among the poor and to create new opportunities for research and service providers to help them do this. The purpose of this Practice Note is to bring together and highlight some of the key lessons RNRRS has learned from its many years of research and to feed them into this process. An understanding of 'lessons learned' may benefit judgements and decisions that may have to be made in out-scaling and up-scaling research into use.

Out-scaling and up-scaling

The innovation systems approach taken by RIU stresses the importance of mapping out how technologies will spread geographically—*out-scaling*—from farmers to families, villages, communities, districts and regions, nationally and internationally.

Vertical integration (top-down and bottom-up) of processes and policies into economic and social systems—*up-scaling*—is equally important. This means new ways of doing business in local, regional, national and international institutions and involves policymakers, donors and development institutions.

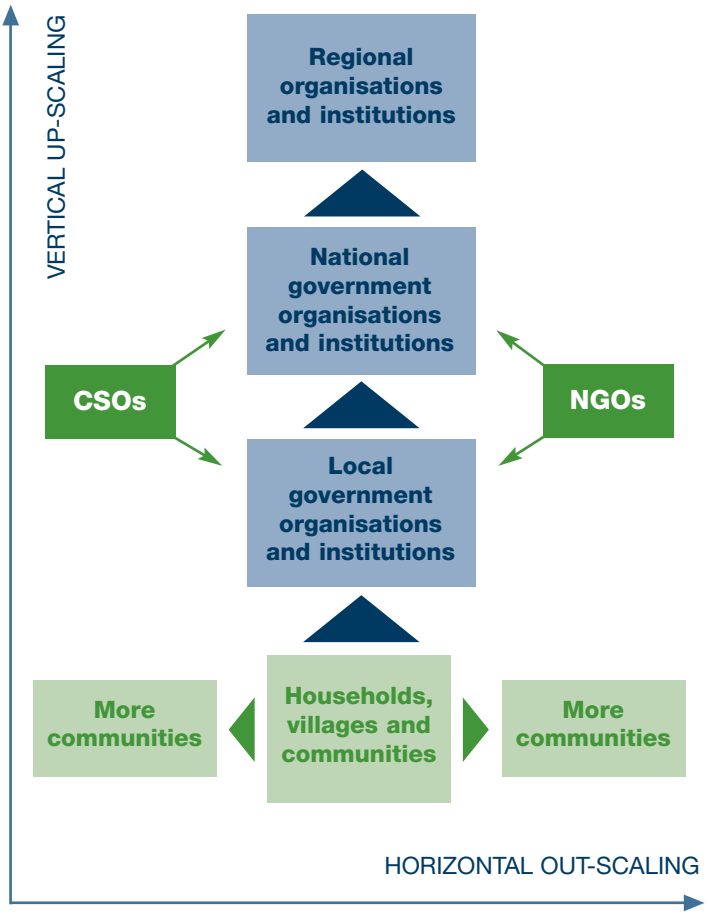
Up-scaling can be bottom-up or top-down and means engaging groups in institutional relationships in the vertical pathway.

The key lessons for up-scaling and out-scaling research into use come from 19 significant reviews, syntheses and reports on the R4D website. From each topic, we have drawn out the background, key points and lessons learned and illustrated them with examples and case studies to make the lessons 'real'. For those who wish to learn more, references and internet links to the source documents are provided.

This Practice Note is not a comprehensive listing of all lessons learned from RNRRS research. Neither is it a

Introduction *continued...*

'how to' guide to out-scaling and up-scaling research findings. The lessons show that although we have learned a lot there are significant gaps in our understanding of how to out-scale and up-scale research. This Practice Note is just a beginning for what we hope will be a continuous process of actively sharing lessons learned and making learning part of everything we do.



Horizontal out-scaling and vertical up-scaling
(after J. Ellis-Jones, Silsoe Research Institute)

Key Lessons

Probably the most important lesson we have learned about out-scaling and up-scaling research into use from RNRRS experiences is that we still have an awful lot to learn. There are significant gaps in our knowledge, particularly in how we feed research findings into policy processes, and how we learn from our experiences and share this learning with others. Nevertheless, what we have learned is of real value and this Practice Note aims to share these lessons with practitioners to guide them in their efforts to put more research into use.

Rather than try to categorise the lessons learned we have chosen to highlight five key themes which emerge from experiences of putting research into practice.

- Start from what's on the ground
- Understand the key players and build relationships
- Be realistic about what can be achieved
- Partner, communicate, advocate and build capacity strategically
- Capture your own learning and learn from others

Start from what's on the ground

Most successes in spreading the uptake of research findings came about when the people involved understood what was happening on the ground, including indigenous knowledge on practices and processes, and worked with it. This is true at the local level, in communities, and at administrative and government levels.

Assess the influences that will affect putting research into use: do your homework

The interactions between social, political, local, national and international development agendas are complex. One of the key lessons for out-scaling and up-scaling research findings is that we must start by figuring out these interactions and how they may affect putting particular research results or baskets of research findings to use. Unfortunately best practices cannot just be collected and transferred from one setting to another. They need to be adapted to what is already happening in any specific situation.

Any attempts to out-scale and up-scale research findings need to acknowledge and consider the history, points of view and where people are coming from in any particular situation. It's important to assess these influences and how they may shape people's reactions to research findings at the outset.

Find and use existing channels: go with the flow

Points of entry for out-scaling and up-scaling are many and varied, and the adoption of research findings may take many possible paths. Looking at ways that have been previously been successful in speeding the uptake of research findings can provide useful lessons for out-scaling and up-scaling. Many used existing channels that end users know and trust.

For out-scaling in particular, researchers have worked with NGOs and CSOs that penetrate deep into target communities and have well established relationships with different sectors of the poor. Local suppliers and farmers who own local supply networks are other ways of reaching targets and can speed up the spread of new crops and varieties. This does mean that researchers need to be willing to step outside the research sphere and work with those who already have the connections and systems in place.

For up-scaling, it's very important to find out how, and with whom, target groups communicate and use these channels and people to inform, persuade and influence.

The responsibility for up-scaling and out-scaling falls on our shoulders

In an ideal world, public and private extension-oriented institutions would have the skills and resources to promote and market emerging technologies, practices and policies to potential users and, in turn, would relay the demands of users for information, and problems in need of resolution, to research organisations. In practice, these skills and resources are grossly lacking and, so, the responsibility has by necessity fallen on the shoulders of the CSO, commercial and researcher communities.

Understand and link to development agendas: join forces

Out-scaling and up-scaling research findings are most likely to have an impact when they are aligned with national, regional and global development agendas. These agendas—poverty reduction strategies and national development plans—present openings for development agencies and national organisations to join forces and work together to reduce poverty.

Many development agencies now believe that the best way to reduce poverty is by addressing the needs of all institutions involved in the farmer to consumer network through so-called innovation systems. They are directing more and more of their funding through coalitions of donors and partners rather than through individual programmes or projects. So, those aiming to out-scale and up-scale research findings need to find ways to be part of discussions on development issues. There are many events on development schedules and networks at regional and national levels that provide openings.

Understand the key players and build relationships

Starting from what is on the ground leads to an understanding of who the key players and local champions are, and how they operate. This mapping of institutions and understanding of their roles in a network are pre-requisites for deciding who we need to invite to join 'coalitions', as we call the groups of people and organisations who get together to out-scale or up-scale research findings. Understanding what they want and where they are coming from also helps build trust and relationships with them.

Understand the key players

Any effort to make changes—to out-scale or up-scale research findings—needs a detailed understanding of the formal and informal relationships among stakeholders. This is a major shift in emphasis from a focus on the research itself, the 'what', to a focus on 'who' will get the research out there and 'how' they will go about it.

The shift from 'what' to 'who' and 'how' is important for both out-scaling and up-scaling research findings. As mentioned earlier, experience in most developing countries shows that NGOs and CSOs are often the key players in out-scaling.

In policy making, dealing with the 'who' involves engaging deeply with the key decision makers. But policymaking processes are political and by no means rational or purely based on research evidence. This means thinking and operating politically.

What has been learned is that researchers were most successful in engaging with policy makers when they engaged them in the research process and engendered ownership; they explained in plain words what their research was about, what the research did and did not show, how they thought it could be used, and what the research did not and could not take into account. In these cases, researchers' willingness to explain, to listen and to clarify built trust and meant that policy makers listened to them and took what they put forward into account in the policy making process.

Involve the key players

Understanding who the key players are and what they want is one thing. Involving them is another. Ideally, all key players should be involved and be represented. Experience shows that in nearly all cases of out-scaling or up-scaling research findings some form of participation of all key players—and we need to remember that participation takes many different forms—is going to be essential. But there are considerable hurdles to be overcome in getting full and representative participation. To date, most participation has been at the grass-roots level and ways of getting full and representative participation at higher levels still have to be found.

Plus, processes that depend on the involvement of many people or groups have often proved quite challenging to manage. They have needed to be flexible to achieve goals within usually limited timeframes. They have also needed to be soundly costed as working with a wide range of stakeholders is seldom quick and cheap.

Often, what seems to have worked well is when ways of getting participants to 'own' decision-making throughout were found. The most successful participatory approaches were those where groups were shown ways to express their needs and do something about them. By learning to collect, analyse and share information, they themselves became the driving force in making decisions that affected them.

Forge relationships

Significant long-term commitments are needed to build and nurture relationships that pave the way for major out-scaling and up-scaling. Research was most successful in creating local impacts and working outwards and upwards where local partners—and by local we mean groups both at the community and national levels—come to 'own' the agenda and influence policy. Many years of sustained funding gave relationships time to develop and bear fruit.

Persistent face-to-face communication also helps build trust and gets results. This is particularly true at the grass roots (farmer field schools and community workers for example) and at what might be considered high levels (meetings with ministry officials, round tables, national and regional dialogues). Building relationships, whether with ministers, officials in ministries and national institutions or community groups and farmers, takes commitment and perseverance.

Shaping policies is a long-term undertaking. Changes build on each other over time. This means taking a strategic view when feeding research findings into policy processes. Advocacy and activities aimed at shaping policy must go far beyond the project cycle.

Be realistic about what can be achieved

Sometimes we have to face up to the fact that the conditions for uptake of research findings just aren't conducive. For example, experience shows that any innovation in developing countries where innovation frameworks and infrastructure are weak is tough. Out-scaling and up-scaling research findings have a better chance of success where governments have encouraged adoption of new technologies by, for example, supporting producer prices, subsidising inputs and credit for new technologies, and investing in irrigation, roads and marketing systems.

The reality is that certain conditions need to be in place for uptake of research. Intersectoral approaches are gaining ground as the realisation that successfully resolving the problems of, or benefiting from opportunities faced by, poor communities requires more than narrow disciplinary approaches. Such an inclusive approach is also part of the global move towards integrated natural resource

management. But, because governments generally haven't adopted integrated governance structures (and this is reflected in their educational and research infrastructures) a lot of integrated natural resource management research hasn't been put to widespread use.

Assess and acknowledge critical factors for uptake

Many project reports end by saying that for research findings to be taken up certain policies, or systems such as credit facilities, need to be in place. For example, in many developing countries, laws that do not recognise the informal seed sector are barriers to out-scaling.

The lesson we draw from this is that for putting research into use there must be clear pathways for innovation with no barriers for end-users to benefit from uptake. When out-scaling or up-scaling depends on changes outside the scope of the programme or project there is no way of predicting when these might happen. So, we need to consider what important factors for out-scaling or up-scaling must be present if feeding in new technologies is to result in out-scaling or up-scaling.

Education systems in developing countries seldom equip people with the skills and knowledge they need to lift themselves out of poverty. Any capacity building in programmes and projects can only address the tip of the iceberg. Education systems need to change radically. For example, the skills base in fisheries management is generally low. Unless fisheries authorities are suitably staffed, tools and methods that researchers have developed for understanding and managing fisheries will not be used. Training and capacity development in projects may only make a small difference to overall capacity, so, targeting support to strategic areas makes best use of resources.

Assess and acknowledge your own limitations

Few projects realistically estimate the amount of time, effort, money, expertise and degree of flexibility that they need, for example to communicate effectively or advocate for change. Sometimes researchers do not even factor in the time and effort to document successful findings in sufficient technical detail for others to apply them. This is a tragedy as then the research findings are lost for ever.

Partner, communicate, advocate and build capacity strategically

An understanding of the local context, the key players and what can realistically be achieved will help develop clear strategies for 'how'—partnering, communicating, advocating and building skills—out-scaling and up-scaling will be achieved.

Partner strategically

For out-scaling and up-scaling research results, users of knowledge and suppliers of knowledge will need to work together from the start. This means deliberately seeking out strategic partners among the key players.

RNRRS researchers found that they needed to draw on the perspectives of many different partners when drawing up plans to improve uptake of research results. People make choices based on their own experience. Promising options are less likely to get overlooked when people with different perspectives get involved in drawing up plans to improve the uptake of research results. RNRRS researchers found that they partnered with, among others, consumers, purchasers of grain, millers and other processors, government extension agencies, farmers and 'farmer' groups, community-based groups, the private-sector, suppliers of goods and services, civil society, government organisations and donor-supported development projects.

Partnering with farmers in participatory research that built on earlier strategic research, for example client oriented plant breeding, was particularly successful. Such methods are also likely to work well for out-scaling research findings in marginal areas, to produce varieties to meet the particular needs of resource-poor farmers.

In the context of the innovation systems approach, the lessons learned about partnerships are that they will be a key strategy in getting uptake of research findings. Giving a diversity of partners in a network control of the work to adapt and apply research findings is more likely to result in successful uptake as it allows them to draw on local experience and preferences to adapt new knowledge to their needs.

Communicate strategically

Communication is also more likely to be effective if tackled strategically. But, experience shows that researchers seldom have the communication expertise to develop and implement effective communication strategies for out-scaling and up-scaling research results.

Messages and communications need to be customised for specific audiences. And to implement communication strategies, teams with a mix of skills will be needed to interpret and communicate the results of research different target groups (farmers, policy makers etc.).

A strategy is also essential in focusing efforts because communication takes lots of work, time and money. Working to a strategy also means that important factors, such as the fact that men and women make decisions based on different priorities and get information from different sources, are kept in mind. Appropriate strategies can narrow the information gap between genders by feeding information targeted to women into their natural communication channels.

Advocate strategically

One size does not fit all—campaigns for change must be carefully targeted, tailored and delivered. There are always overlapping and competing agendas, as well as diverging views among stakeholders as to what the important problems are. Facts are tangled up with value judgements, which play a major role. So a strategic approach to advocacy is paramount.

Research projects have found that this usually means helping people become better policy advocates themselves, especially in out-scaling.

At policy levels, appropriate advocates, such as natural and political scientists with knowledge of how the local scene works, have helped find ways to deal with cultural and sectoral dynamics. Here again, it is important to have an integrated strategy for targeting policy shapers and makers—whether individuals or groups—to build relationships with them over time. Then advocates can seize opportunities to make approaches when conditions are ripe for success.

Strengthen capacity strategically

In simple terms, 'capacity' means the ability—knowledge and skills—to do a given task or change the way things are done. So, capacity development cannot be an add-on, it must be approached strategically and built in. Research projects have found that

capacity strengthening works best when the focus is on stakeholder participation and ownership, and on building abilities to turn information into innovation. Demand-driven, action-oriented, integrated approaches show the most promise. Research also shows that male and female roles in any particular context affect poverty. This has significant lessons for capacity development to out-scale and up-scale research results.

One clear lesson from the Renewable Natural Resources Research Strategy is that investment in capacity development pays off over the long term rather than the short term. Unless there is a long-term strategy at the outset, capacity building initiatives most often die at the end of programmes and projects.

Demand driven Capacity development needs to be targeted and customised: specific skills for specific groups are critical to uptake of research. Not only do the sets of skills and knowledge for out-scaling and up-scaling differ from those needed for research—there will be a shift from technical skills to the soft skills needed to strengthen institutions and change policy, legal and economic processes—they also need to be learned in different ways.

This means that different kinds of people will be needed to help people learn and acquire new skills—in other words, the range and type of providers of capacity development will expand. They will tend to be from non-government, civil society, the private sector and southern research organizations.

Action oriented Learning by doing, action oriented research, is a quick and effective way of helping communities learn to use and apply research findings. Local institutions rarely have the skills and knowledge to use, for example ways of resolving conflict, managing common pool resources and engaging with national policy makers. Research projects have found that although they came up with techniques that worked, communities did not find these easy to apply on the ground. Action research, learning by doing, proved very effective in helping them come to grips with the new methods to manage common pool resources.

Gender and capacity development Gender roles have deep roots in tradition, culture and religious law and will be slow to change. This means that any work to out-scale or up-scale research outputs needs to, at the outset, take gender roles as they stand and work from there. 'Women only' projects to build capacity may be destructive to gender relationships in the long term. The consequences of empowering women have to be thought through to make a positive difference to gender relations. The role that men play in allowing and helping women to change is integral to success.

There is often a clear split between what men do and what women do. A gender analysis before starting can help set out exactly who will benefit. Gender does make a difference as, for example, if farmers are men, their priorities for spending any extra income might be different and have a different impact on poverty than if farmers are women.

Capture your own learning and learn from others

The key lesson here is that it is essential to capture opportunities to learn and share learning with others. Learning what works and what does not is going to be vital in out-scaling and up-scaling. A good way to capture lessons learned is through a formal system of monitoring and evaluation that emphasises learning rather than accountability.

Capture learning: Monitor and evaluate

Lessons learned on what worked and did not work in previous programmes and projects have been lost because experiences were not recorded and shared. Ways of doing this—monitoring and evaluating, setting up knowledge systems, arranging events where people can meet and discuss their experiences and making sure networks feed regular updates and information—need to be central rather than peripheral processes and adequate budgets need to be allocated.

A telling experience is that it has not been possible to assess whether the Renewable Natural Resources Research Strategy achieved what it set out to do because a formal framework and baseline were not established at the outset. From this it's clear that monitoring and evaluation cannot be an add-on but must be an integral part of how work is done. No up-scaling or out-scaling should begin without a baseline, a monitoring and evaluation plan, and a budget to carry out that plan.

Adoption of the innovation system framework for out-scaling and up-scaling research findings means that the people involved will need to find appropriate ways of monitoring and evaluation. The log frame, a tried and tested tool in research programmes and projects, may be useful although it is likely that more attention will need to be paid to processes rather than outputs.

Because work in out-scaling and up-scaling is likely to involve coalitions of donors, there are opportunities to harmonise monitoring and evaluation. This could lessen the work load, reduce labour costs and provide a valuable opportunity for partners to learn and take corrective action.

Some initial work has identified six process indicators and three outcome indicators for characterising national systems of innovation. These could be the basis for setting baselines, monitoring and evaluating progress and assessing impact in out-scaling and up-scaling research results.

Learn from others

There is a lot to learn from others. NGOs and other agencies that implement development projects may have experiences more relevant to out-scaling and up-scaling than those of the research-oriented projects of the Renewable Natural Resources Research Strategy.

Finally, we need to listen more to the users of research—not only to understand the problems they face and the approaches they already use to tackle them, but also to understand the context and social structures in which they operate. Wide-scale adoption will, in the end, depend on changes in mind-sets and the willingness of users to want to adopt new approaches. It is worth noting that farmers worldwide favour traditional conservative approaches rather than radical change for good reason. This is particularly true in the developing world.

Putting lessons learned into practice

One size doesn't fit all. The lessons we have learned will be worked, reworked and adapted by practitioners to different situations. The following sections provide much to reflect on and many case studies that describe what has worked and what has not worked so well in out-scaling and up-scaling research results.

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.

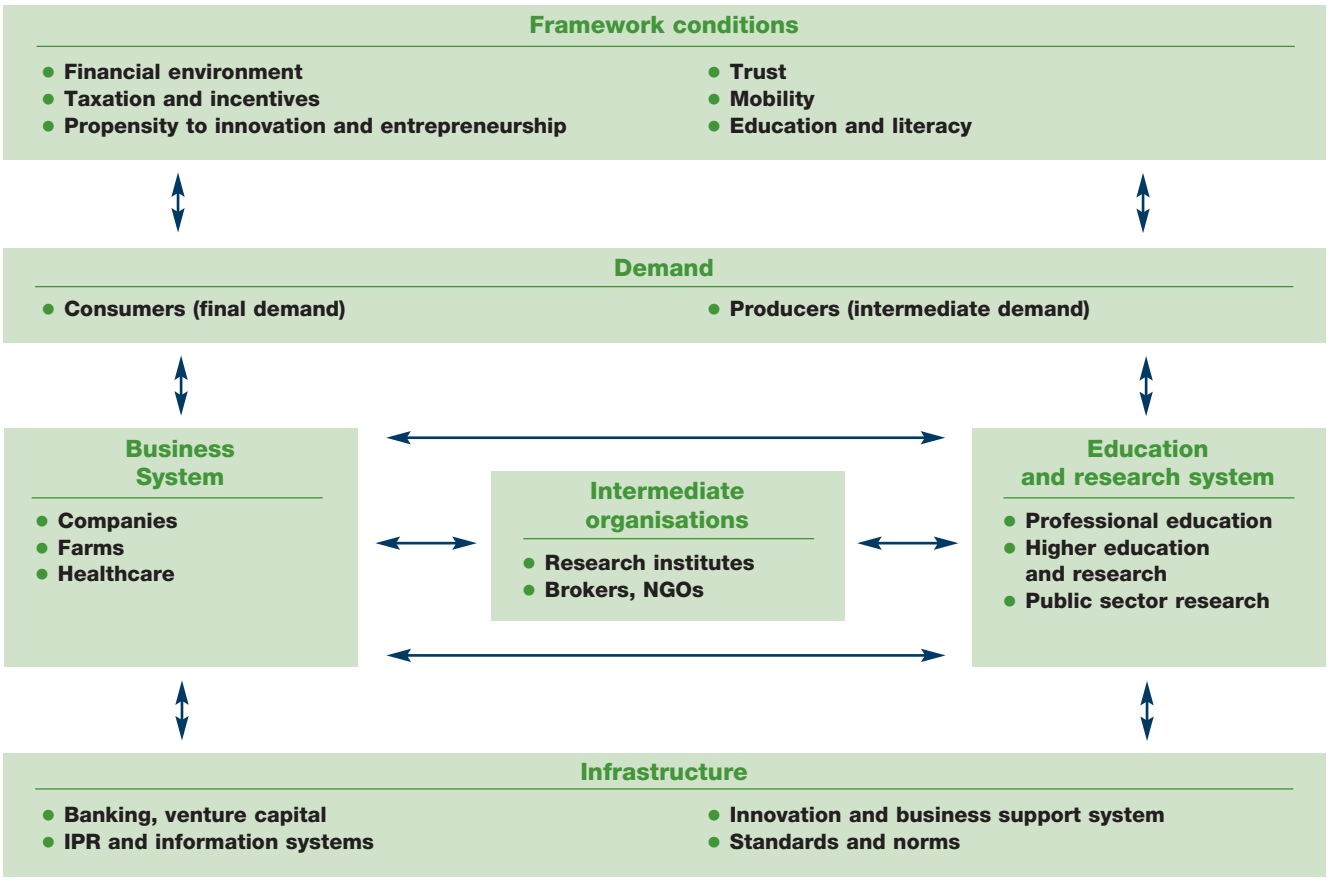
[2] Erik Arnold and Martin Bell. 2001. Some new ideas about research for development in Danish Ministry of Foreign affairs: Partnership at the leading edge: A Danish vision for knowledge, research and development. http://www.um.dk/NR/rdonlyres/7CD8C2BC-9E5B-4920-929C-D7AA978FEEB7/0/CMI_New_Ideas_R_for_D.pdf

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 approach[3]

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

2 Lessons for out-scaling and up-scaling from *Managing agricultural research for poverty alleviation*

Background

During the eleven-year Department for International Development (DFID) Renewable Natural Resources Research Strategy (RNRRS) Programme (1995-2006) managers had to manage a movement away from strategic research on commodities and towards 'demand-led' applied research on production systems designed to meet the Millennium Development Goals. DFID's current (2008) re-orientation towards the out-scaling and up-scaling of research findings will mean that the managers of new programmes will need to manage further changes.

Key points

The experiences of the Plant Sciences Research Programme (PRSP) provide some lessons that may be helpful in the task of out-scaling and up-scaling research findings. The following key points were identified by the research.

- A key factor in out-scaling and up-scaling research findings will be to determine 'demand'.
- People need to be trained in new approaches to research.
- What research strategy is most effective will depend on circumstances. An example would be choosing between a research strategy focused on demand, as opposed to one focused on a production system or a scientific discipline.
- Participatory research, building on earlier strategic research, produced the greatest benefits to farmers.
- Networks help out-scale and up-scale research outputs.
- Action research validates research outputs and increases uptake.

Lessons learned

In the final stages of the RNRRS, the research undertaken through the Plant Sciences Research Programme was described as 'firmly demand driven'[4]. Much of the research was being done in developing countries and farmers there were benefiting from it, with the outputs of decades of strategic research being applied in practical plant breeding and participatory crop improvement programmes (see Box 2.1 for one of the many examples available).

This situation was in sharp contrast to the situation in the early 1990s, when little attention was paid to linking strategic research in UK institutions to location-specific adaptive research in developing country organisations. In the early 1990s, there were therefore few useful research findings that could be adopted by end users because research at that time was designed to be strategic, and was not designed to meet end user demands.

Box 2.1

From strategic to applied research - a long process

Over 15 years, researchers solved the problem of preventing epidemics of downy mildew in the most popular pearl millet grown in India and also created new tools for breeding pearl millet. This research looked at the genes in a pearl millet hybrid released in 1989 that was grown in nearly three quarters of pearl millet growing areas in some states. This hybrid was particularly vulnerable to downy mildew.

The research resulted in the release of an improved version of the hybrid resistant to downy mildew in 2005. To do this, research managers linked together research groups with complementary interests and expertise in the UK and India.

During the transition from commodity focus to demand led research, much research shifted from UK institutions to developing countries. The balance is likely to change still further in the work of out-scaling and up-scaling research findings. And, as the current emphasis in DFID shifts to adapting and applying existing research findings, research managers in UK research institutions may play a less central and less research-oriented role in DFID-funded activities. Their main role in this may be advising and supporting take-up processes for research findings.

A key factor in out-scaling and up-scaling research findings will be to determine 'demand'. The definition of 'demand-led' as applied to research projects at the beginning of the Renewable Natural Resources Research Strategy Programme was *'an identifiable constraint to development with quantified benefits that could be achieved and an identifiable community of beneficiaries'*[5].

This meant that representatives of the beneficiaries were to participate in defining their needs for research.

In fact, however, because beneficiaries were defined in very general terms, end-users were often not consulted. What happened was that DFID staff in developing countries were asked to identify researchable problems in production systems in the countries for which they were responsible. The principle of establishing demand was sound, but a broader perspective for establishing it would have been better.

[4] Stirling, C. M., Harris, D. and Witcombe, J. R. 2006. 'Managing an agricultural research programme for poverty alleviation in developing countries: an institute without walls'. Expl. Agric. volume 42, pp. 127-146.

[5] Research Task Group, 1994, p. 22.

Research projects also had to identify 'uptake pathways', meaning that they had to identify those in developing countries who would transfer the research findings—that is package and promote them—to end-users. In many cases it was assumed that research findings would be taken up by DFID projects in developing countries, thus linking research with development. In fact this rarely happened.

The lessons learned from these experiences suggest that for out-scaling and up-scaling research findings, all those involved will need to have a much clearer common understanding of (i) 'demand' for research, (ii) the extent of uptake to be achieved, and (iii) the pathways for uptake than was the case in the RNRRS Programme.

The way researchers define the terms 'demand-led' and 'uptake pathways', and the processes of determining them, may differ significantly from those of other stakeholders. The Plant Sciences Programme for example, determined 'demand-led research' by commissioning experts to further refine the demand initially identified by DFID.

This led to a number or options being identified. One was for cotton research in Africa, though the expert group involved concluded that even though there might be demand there was no point in funding further research until 'institutional deficiencies' were sorted out. Another was a study on pearl millet which concluded that applying new technologies in pearl millet could make a big difference (i.e., they concluded that in this case that there was a significant 'demand'). And, yet another study used remote sensing to show that 15 million hectares in India, Nepal and Bangladesh could be used to grow crops instead of being left fallow after the rice harvest. In some cases, high demand was clearly established but the only technically feasible way of meeting that demand has not yet been found to be acceptable (Box 2.2).

Learning how to meet the objectives of any new strategy may take some time. In the PSRP there was a time lag before the programme fully reoriented to the new Renewable Natural Resources Research Strategy Programme, for example. It took some time to change what and how things were done. Three major research areas that were funded before 1995 carried over into the new RNRRS Programme, which began in 1995. Subsequently, two of the research areas were discontinued and the third evolved into a more demand-led project. Over the eleven-year period, research did become more sensitive to client needs and the participation of farmers helped promote uptake of research results.

People need to be trained in new approaches. When DFID adopted the use of a logical framework (often known as the 'log frame' approach) as a method for managing research, scientists were unfamiliar with the methodology and had to be trained. Adoption of the innovation system framework for out-scaling and up-scaling research findings is also likely to mean that the people involved will need to be trained in the new methodology.

The logical framework did not always work for research because it was designed to manage projects where the relationship between the delivery of inputs and the achievement of outputs was clear (which isn't always the case). Nevertheless the 'log frame' served as a useful project management tool. The logical framework may also be a useful management tool in an innovation systems approach, although it is likely that more attention will need to be paid to processes rather than outputs.

Box 2.2

Research findings with nowhere to go—yet.
The following are examples of successful research that developed pest and disease resistant transgenic crops. However, these research findings have not yet been taken up because, for example, developing countries where a technology could be used do not have the appropriate legislation. This said, it seems likely that, as more developing countries cultivate transgenic crops and as more data emerge on their environmental and financial benefits, transgenic technology will be widely adapted by developing countries.

Nematode resistance. Nematodes lower the yields of potato, banana and rice by up to a fifth and are difficult to control without using expensive chemicals that harm users and the environment. Taking safe nematode-resistant genes from maize and rice and transferring them to other crops is an effective method of developing nematode-resistant plants.

Research on nematode resistance in potatoes was very successful in the UK and led to transgenic nematode-resistant rice, for example. However, the absence of biosafety regulations in countries that would benefit prevented research findings from being used.

Transgenic rice resistant to rice yellow mottle virus.
By 1999, UK researchers had developed transgenic rice resistant to rice yellow mottle virus. But none of the developing countries in Africa where rice yellow mottle virus was a problem had biosafety regulations in place that would allow the resistant rice to be tested in the field.

The most effective research strategy will depend on circumstances. Shifts in strategy and focus do not always translate promptly and readily into action on the ground, for a variety of reasons.

For example, the RNRRS shifted from a commodity focus to a focus on production systems—semi-arid, high potential, hillside, tropical moist forest, forest-agriculture interface, land-water interface and peri-urban interface. The Plant Sciences Programme projects did not fit easily into these production systems and managers found that they could more usefully organise research around 'research themes'.

This suggests that whether the focus of out-scaling or up-scaling is, for example, thematic, geographical, commodity-based or technology-based, will depend on the particular circumstances of the innovation system and the history of the institution charged with the task of out-scaling or up-scaling. In the case of the PRSP,

the three research themes that had evolved by the end of the eleven-year strategy were defined by a technical approach—molecular marker technology in plant breeding, transgenic crops and participatory technology development—not by production systems. The first two research themes evolved from research programmes that were already in place before the Renewable Natural Resources Research Strategy. The third emerged during the strategy as concern for greater uptake of research findings grew and meant that closer links with applied plant breeding and extension programmes in developing countries were important.

Participatory research, building on earlier strategic research, produced the greatest benefits to farmers. In farmer-participatory selection and breeding in Nepal, Bangladesh and India, researchers used participatory methods to identify farmers' biggest problems. Then they prioritised those that were most likely to be solved by research. Using 'participatory technology development' methods, they developed drought-tolerant varieties of rice and low-risk methods of growing an additional crop each year during the time when land is normally left fallow. This participatory research built on earlier strategic research on drought tolerance, molecular marker technologies and seed priming.

The 'client orientation' of this participatory research meant that farmers readily adopted new varieties and low-risk methods. Rates of adoption were particularly high in marginal areas. This was because conventional plant breeding programmes target major production areas and varieties produced for these areas often fail in marginal environments. Client oriented rice and maize breeding, on the other hand, produced varieties specifically selected to meet the particular needs of resource-poor farmers. The livelihoods of poor farmers are improving because the new varieties of maize and rice yield more grain and more straw. So, it seems that participatory methods are also likely to work well for out-scaling research findings in marginal areas.

Networks help out-scale and up-scale research outputs. A strong international network is a mechanism for spreading client-oriented approaches to plant breeding. Such networks help people exchange germplasm and ideas across countries and organisations (Box 2.3).

Box 2.3

Networks help up-scale research outputs

More than 30 international organisations, non-government organisations, government institutions, universities and community organisations belong, formally or informally, to the network for participatory crop research in south Asia.

This network helps spread client approaches to plant breeding and selecting varieties to institutions throughout south Asia. The rice breeding programme in Nepal, for example, has linked up with non-government organisations and government organisations in Nepal, Bangladesh, India and Pakistan.

Action research validates research outputs and increases uptake. Researchers in the PRSP found that a participatory way of working could give them a much better understanding of how farmers take up research findings and adopt and adapt them to their own needs. Action research on seed systems and seed supply helps spread research outputs.

But to do this, researchers had to step outside the research sphere and, for example, produce quantities of seed of new crops and new varieties to distribute through the local seed supply channels normally used by farmers. By doing this they could speed uptake of new varieties. Looking at the ways that have been used to speed the uptake of research findings provides useful lessons for out-scaling and up-scaling.

This synopsis of lessons learned for up-scaling and out-scaling research into use is drawn from:

Stirling, C. M., Harris, D. and Witcombe, J. R. 2006. 'Managing an agricultural research programme for poverty alleviation in developing countries: an institute without walls', Expl. Agric., volume 42, pp. 127-146.

3 Lessons for out-scaling and up-scaling from *Rates of return to research*

Background

DFID commissioned a literature review and critique[6] to investigate what is known about the rates of return on research. In the context of the paper, 'agricultural research' included both agricultural research and extension. The authors of the paper suggest that the jury is still out on the rates of return to agricultural research and extension in developing countries. So, although research studies on the rates of return to research broaden our understanding, we cannot draw clear conclusions from the results so far. The authors of the document drew mainly on two key papers on public investment (Box 3.1).

Box 3.1

Rates of return: China and India

Two case studies[7] modelled Chinese and Indian growth in the 1970s and 1980s and isolated and ranked the effects of different types of public investment.

For **China**, the study examined investments in agricultural R&D, irrigation, roads, education, electricity and telephone. Public investment in education had the most impact on reducing rural poverty. Agricultural R&D had the most impact on the growth of rural income.

For **India**, investments in agricultural R&D, roads, education, irrigation, power, soil and water, rural development and health were assessed. Public investment in roads had the most impact on reducing poverty. Public investment in research and development had the most impact on growth of productivity. Spending on power, irrigation and health had little impact on reducing poverty or productivity.

The broad conclusion was that if governments want the maximum impact for public expenditures aimed at a growth in productivity and a reduction in poverty in rural areas, they should spend it on agricultural research, education and building roads.

But, this finding cannot necessarily be applied to other developing countries. The economies of China and India grew rapidly in the 1980s and 1990s. The quality of institutions in China and India is well above the average for developing countries. So, the rates of return to research for economic growth and poverty reduction in these two fast growing economies may not be applicable to countries where institutional capacity is weak and agro-climatic factors are unfavourable.

Key points

- Studies show that there is a robust positive relationship between spending on research and development and economic growth.
- The relative merits of targeting agricultural research to low-potential areas compared to increasing investment in research in general are not yet clear.
- The conclusions from studies of rates of return on public investment in China, India and East Africa are of limited use in practice.
- The results of the study in Uganda suggest that agricultural R&D (extension) has a high payoff.
- The evidence for payoff on investment in agricultural research in fragile states is contradictory.
- Up-scaling research findings means understanding and managing the diverse interfaces between researchers and the wider environment.

Lessons learned

Studies show that there is a robust positive relationship between spending on research and development and economic growth. Studies show that the rate of return on research is many times the rate of return on other comparable investments. But, in order to maximise the benefits of agricultural research, national governments need to put rural infrastructure in place, make sure farmers have access to credit, stabilise output prices, and ensure ready supplies of seed and fertilisers.

Agricultural research in developing countries is considerably under-funded. Donor and multilateral agencies need to coordinate their support for research targeted to the poor in low-income developing countries.

Donors also need to support national agricultural research systems in developing countries. At least 5% of the funding for the agricultural sector should be ear-marked to support local agricultural research and strengthen capacity for research. Here, it should be remembered that 'agricultural research' in this context includes extension. This means that significant support needs to be given to strengthening the services that will be out-scaling and up-scaling research findings.

[6] Kunal, S. and G. Hoare. 2005. Rates of return to research. Final report. DFID. The paper also dealt with rates of return to health research. The findings related to health are not directly included in this synopsis. However, this synopsis briefly mentions a model from health research that may be useful for out-scaling and up-scaling.

[7] S. Fan, L. Zhang and X. Zhang. 2002. Growth and poverty in rural China: the Role of Public Investment. IFPRI Research Report 125. Washington DC. 'Government spending, growth and poverty in Rural India'. S. Fan, P. Hazell and S. Throat. 2000. American Journal of Agricultural Economics 82 No 4.

The relative merits of targeting agricultural research to low-potential areas compared to increasing investment in research in general are not yet clear. Further studies in China and India found that returns to research in low-potential (unfavourable agro-climatic) regions were significantly higher than for high-potential regions (Box 3.2). At first glance, this suggests that it would be beneficial to target low-potential areas for investments in research relative to high-potential areas as the payoffs from investment will be higher.

Box 3.2

Payoffs from agricultural research in low-potential regions are greater than in high-potential regions

In **China**, the returns yuan-for-yuan on investment for production in the low-potential western region were around 13 yuan as compared to around 9 yuan in the high-potential coastal region. In the low-potential western region, 33 people were lifted out of poverty for every 10,000 yuan spent, but in the high-potential coastal region this was true of only two people.

In **India**, the returns on investment for production were about around 688 rupees in the low-potential rainfed areas as compared to about 63 rupees in the high-potential irrigated areas and 243 in the high-potential high rainfall areas. In the low-potential rainfed areas 0.05 people were lifted out of poverty compared to none in the irrigated and 0.02 in the high rainfall high-potential areas.

But, studies in East Africa[8] found no clear distinction between the returns to research in high- and low-potential areas. These studies found that returns to investment in high-potential areas were still high and that there were no signs of diminishing marginal returns. This suggests that an overall increase in investment in research can pay large dividends, rather than investment in research that specifically targets low-potential regions.

The conclusions from studies of rates of return on public investment in China, India and East Africa are of limited use in practice. In considering the conclusions of the studies we need to be aware that the source data is poor, and that the particular mathematical and statistical techniques used in the studies, like all such techniques, have limitations. The studies on China and India did not factor in the effect of research spilling over from neighbouring states, provinces or international agricultural research programmes (e.g. new seed varieties). These spillovers could distort the estimated rate of return for agricultural research. The studies also could not factor in specific differences between provinces or states, such as quality of governance. Because of this the rates of return could be over-estimated.

Nevertheless, these studies are helpful in understanding the effectiveness (or otherwise) of research in stimulating economic growth and reducing poverty.

The results of the study in Uganda suggest that agricultural R&D (extension) has a high payoff. In Uganda, data on agricultural research at the national level was not available. So, the study made the assumption that allocations to agricultural research were proportional to allocations to agricultural extension. Thus the study essentially estimates the return to agricultural extension rather than to agricultural research. Although this means the results are not comparable to the results of the studies in China and India, the implication for out-scaling research findings is that agricultural extension (putting research findings into use) has a high payoff. In Uganda, the benefit-cost ratio for agricultural extension is 12.38, as compared to 2.72 for education and 7.16 for roads. The number of poor people lifted out of poverty for every million shillings invested in agricultural R&D (agricultural extension) is 58.39 as compared to 12.81 for investments in education and 4.6 for investments in health.

The evidence for payoff on investment in agricultural research in fragile states is contradictory. The conditions that complement investment in agricultural research do not exist in fragile states (Box 3.3). For research investments to payoff (research findings to be taken up and lead to economic benefits) various conditions need to be met—the agro-climatic environment and infrastructure have to be favourable, markets have to be accessible, prices for outputs have to be stable, the costs of inputs such as seeds and fertilisers have to be reasonable, markets for credit have to be functioning, and people need to have good access to information. In fragile states, these conditions are absent.

Box 3.3

Payoffs from agricultural research in fragile states—the evidence is contradictory

Studies of rates of return from agricultural research to African countries show, for example 75% for maize in Burkina Faso and Ghana, 66-83% for rice in Senegal, and 66% for millet in Mali. Studies on poverty reduction in Sub-Saharan Africa find a close positive relationship between a reduction in poverty and a growth in agricultural productivity. And, these studies show that one of the most important factors in growth in agricultural productivity is investment in agricultural research and development.

However, there is some doubt as to the reliability of these estimates. The estimates seem to contradict the hard evidence of slow agricultural growth and an increase in poverty rates for much of Sub-Saharan Africa. There is no verification that the rate of return on agricultural extension is higher than the return on investment in other critical areas in fragile states—education, infrastructure and health.

[8] Public expenditure, growth and poverty reduction in rural Uganda. Fan, S., X. Zhang and N. Rao. 2004. DSG Discussion Paper No 4. IFPRI Development Strategy and Governance Division. Public investment and poverty reduction in Tanzania: evidence from household survey data. Fan, S., D. Nyange and N. Rao. 2005. IFPRI Development and Governance Division, mimeo.

But, there are some ways that governments in fragile states have helped adoption of new technologies. These include support for producer prices, subsidies for inputs, subsidised credit for new technologies, and public investments in irrigation, roads and marketing systems. This suggests that out-scaling and up-scaling research findings is more likely to be successful in fragile states where such steps are being taken.

Up-scaling research findings means understanding and managing the diverse interfaces between researchers and the wider environment—political, professional and social. The way in which research has an influence is much more complex than the linear 'research leads to knowledge and then to action' model[9]. External influences are all-important. Research findings are seldom used directly. Often, they are used as a political tool to defer tough decisions. Change only occurs as a result of a gradual accumulation of evidence and weight of opinion. Any attempts to up-scale research findings need to acknowledge and account for these factors.

A model developed by Buxton and Hannay (1996) for health research is useful for thinking about how to involve stakeholders, particularly policy makers and planners, and get them to own processes of uptake of research findings. Networks and linkages between researchers and various stakeholders are very important. So is better dissemination of research results customised and targeted to specific audiences-policy makers, practitioners and academics.

This synopsis of lessons learned for up-scaling and out-scaling research into use is drawn from:
Kunal, S., Hoare, G. 2005. 'Rates of return to research. Final report'. DFID.
See
http://www.research4development.info/pdf/ThematicSummaries/Returns%20to%20Research%20Final%20Report.pdf

[9] Buxton, M. and S. Hannay. 1996. The review gives no citation for this paper on the payback from health research.

4 Lessons for out-scaling and up-scaling from *Monitoring and evaluation*

Background

The lessons on out-scaling and up-scaling presented here are drawn from a synthesis that mainly considered monitoring and evaluation at the level of the Renewable Natural Resources Research Strategy projects. Although these projects and programmes did develop methods and tools for monitoring and evaluating inputs, outputs and outcomes[10], only a very few tackled aspects of out-scaling and up-scaling. Generally it was felt that up-scaling and out-scaling to reduce poverty were outside the immediate project area and timeframe because they depended on factors beyond the control of researchers (such as policies or ready markets). All this means that simple methods still need to be developed for tracking processes that transform new knowledge and technologies into development outcomes. These methods will become '*the principal mechanism for strengthening social learning processes that allow organisations to accomplish new tasks and mandates—such as achieving impact or becoming more poverty-relevant.*'[11]

Key points

- We need to study monitoring and evaluation systems outside DFID and adapt those relevant to out-scaling and up-scaling.
- Pathway mapping is theoretically promising for out-scaling and up-scaling but unproven. Methods of monitoring and evaluating pathway processes would need to be developed.
- Monitoring and evaluating how organisations learn and change is going to be critical to out-scaling and up-scaling.
- We need to make sure that any opportunities for learning turned up by monitoring and evaluation are not lost because of poor documentation and communication.
- We should not start up-scaling or out-scaling without a baseline, a monitoring and evaluation plan, and a budget to carry out that plan.
- Incentives and rewards for reflection and learning need to be provided.

[10] *Monitoring* is mainly descriptive. Usually it means regular financial and activity reports giving details of progress against plans (inputs and activities). *Evaluation* is more analytical and looks at how the work is done and what has happened because of it (outputs and outcomes). *Impact assessment* looks at the longer-term effects of the work on reducing poverty and how external factors help or hinder (impact).

[11] P 232 in Hall, A, Sulaiman, V. R. Clark, N. and Yoganand B. 2003. 'From measuring impact to learning institutional lessons: an innovation systems perspective on improving the management of international agricultural research', Agricultural Systems, volume 78, pp 213-241.

Lessons learned

Study how others handle monitoring and evaluation. Those involved in work to up-scale and out-scale research results will need a set of practical guidelines for monitoring and evaluation. This is especially important because most of the work will be done collaboratively by regional institutions, all of which will need to march to the same drum. However, the experiences of the Renewable Natural Resources Research Strategy are limited with regard to monitoring and evaluation in out-scaling and up-scaling.

It should be recognised, therefore, that agencies that implement development projects may have experiences more relevant to out-scaling and up-scaling than those of the research-oriented projects of the Renewable Natural Resources Research Strategy. It would be worthwhile examining these when developing guidelines.

Some of the Renewable Natural Resources Research Strategy programmes did develop systems for assessing the impact of research on reducing poverty. Finding the log frame approach limiting, they looked at participatory approaches and the use of the more holistic 'livelihoods framework'. However, these did not necessarily give insights into the chains of influence, power and knowledge related to out-scaling and up-scaling.

Other programmes explored frameworks such as pathway analysis, national systems of innovation, significant change stories and balanced scorecards[12]. Although promising, these frameworks are new and unproven. Their key strength is that they measure several aspects in an attempt to see the bigger picture rather than just a single aspect, such as an economic benefit. They do, however, also demonstrate the value of looking to other sectors (such as industry and the service sector, development advocacy NGOs and agencies that implement large development projects) for relevant methods and tools that can be adapted.

Various ways of pathway mapping are theoretically promising. New technologies that aim to make a difference to poor people but that only look at one narrow aspect of why they are poor often fail to take off (Box 4.1). And, although risks and assumptions were part of log frames, there was a tendency in the RNRRS not to monitor these factors.

When out-scaling or up-scaling depends on other changes, such as new policies or new credit facilities being available, there is no way of predicting when these conditions for uptake might happen. So, there has been a shift to looking for systems where feeding in new technologies is most likely to result in out-scaling or up-scaling.

[12] Table 8 page 32 in Pasteur, K. and Turrall, S. 2006. 'A synthesis of monitoring and evaluation experience in the Renewable Natural Resources Research Strategy (RNRRS)'

Box 4.1

A mid-term impact assessment found that important factors for out-scaling were absent

The Crop Protection Programme interviewed chickpea farmers in Nepal halfway through a project to improve management of pests and diseases. They found that literacy and location were important factors preventing farmers taking part in extension projects[13].

Case studies of uptake and adoption of new technologies in banana, maize, yam, rice and vegetables in sub-Saharan Africa and south Asia showed that even when farmers know about them, there are many complicated reasons why they do not take them up.

A project can be highly successful in producing the outputs it proposed; however, this does not guarantee that the research will be taken up. Programmes to out-scale new technologies need to identify such factors and find practical ways of overcoming them that countries can afford.

In theory, mapping out the paths that new technologies take to become widespread should mean that following these paths will result in widespread out-scaling or up-scaling. Pathway methods try to construct sequences of events that will lead from inputs, to outputs, outcomes and impact. That is, they put research in local and national social and political contexts. However, the pathways are likely to be many and varied and how these could be monitored is wide open.

There have been some initial attempts to map these paths. But there is no proof that new technologies introduced in this way would reduce poverty. Plus, there are no practical guidelines as to how to do it successfully, for example, how to identify the various actors in an innovation system, then bring them together and get them to work together. In a complex system with many parts, the links between the parts may be weak and there may be many steps along the pathway.

So, if such systems are to be used, simple methods and tools for monitoring and evaluating multiple parameters and relationships will be needed. Plus, monitoring and evaluating such systems will involve many organisations, individuals and relationships. The Crop Post Harvest Programme in East Africa developed a monitoring and evaluation system for their Partnerships for Innovation Approach which may be a starting point for efforts to undertake monitoring and evaluation in innovation systems[14] (Box 4.2).

Get up to speed in how organisations learn and change.

To up-scale and out-scale research results, people and institutions will have to change. In general, research programmes have little practical experience in how to develop cultures of learning, how to bring about organisational change and how to track progress, although some tools have been developed (see Box 4.3).

Learning can be fast-tracked, however. Much can be gleaned from organisations that have already set out to learn and change through

[13] Stevenson, P. Borai, V., Misra, M. and Neupane, R. 2002. 'Mid-term Livelihood Impact Assessment: IPM-chickpea production on farms in Nepal (R7885') December 2002. Submitted to Crop Protection Programme DFID.)'

[14] DFID CPHP East Africa 2005. 'User manual: participatory monitoring and evaluation for coalition projects' (Draft)

Box 4.2

Monitoring and evaluation in partnerships for innovation

The Crop Post-Harvest Programme developed a monitoring and evaluation system aimed at helping partners learn lessons as part of its Partnerships for Innovation approach. This system did help to identify who were the key players in innovation and work out ways to move forward.

They did this by having three sets of stakeholders (management, beneficiaries and partners) monitor five aspects of projects:

- progress in carrying out activities
- outputs of the activities
- benefits and negative effects of the outputs
- changes in relationships and partnerships between key stakeholders
- changes in how the partnership was working

Measurement of outputs needs to be relevant and can include, for example, capacity building workshops and briefing papers targeted to specific audiences. This is a shift from journal articles, manuals, workshops and policy advice as measures of outputs. Evaluation needs to track how systems change towards innovation systems that will have impacts on poor people.

Box 4.3

Monitoring changes in institutions?

The Crop Post Harvest Programme worked with national institutions to convert research into successful innovation. They created tools to monitor changes in the institutions-providing institutional histories, maps linking actors and matrices.

The public and private sectors and civil society were instrumental in breeding improved rice in Nepal from 1996-2005. Institutional changes were the most important factor in contributing to long-lasting changes in crop research and development. But because these were not foreseen in the original project proposal, they were not monitored and evaluated[15]. This factor was only discovered in a later review of the programme.

[15] Joshi, K. D., Biggs, S., Gauchan, D., Devkota, K. P., Devkots, C. K., Shrestha, P. K., Sthapit, B. R. 2005. 'The evolution and spread of socially responsible technical and institutional innovations in a rice improvement system in Nepal'. Unpublished.

formal programmes, such as the Consultative Group on International Agricultural Research's Institutional Learning and Change programme (ILAC), for example.

Good documentation and communication. Lessons learned on what worked and did not work in monitoring and evaluation have been lost because experiences were not recorded and shared. Plus, lessons learned from failures that could lead to valuable innovations tend not to be reported[16].

Opportunities for cross-fertilisation of ideas and experiences help people learn (build capacity). This means that cross-fertilisation should not be left to chance. It must be planned for and made to happen. Many ways of doing this—setting up knowledge systems, arranging events where people can meet and discuss their experiences and making sure networks feed regular updates and information—have already been tried, tested and put in place. But, these need to be central rather than peripheral processes and adequate budgets need to be allocated. This will be especially important given devolution to the regions and the move towards South-South cross-fertilisation.

Experience shows that preparing monitoring and evaluation reports for different donors who each have a different system is a lot of work. But, because work in out-scaling and up-scaling will involve coalitions of donors, there are opportunities to harmonise monitoring and evaluation. This could lessen the work load, reduce labour costs and provide a valuable opportunity for partners to learn and take corrective action.

Do not start up-scaling or out-scaling without a baseline, a monitoring and evaluation plan, and a budget to carry out that plan. The most telling lesson perhaps is that it has not been possible to assess the impact of the overall Renewable Natural Resources Research Strategy because a formal framework and baseline were not established at the outset of the strategy.

Monitoring and evaluation are not an add-on but are an integral part of how work will be done. The monitoring and evaluation plan itself has two vital functions. First, it tells people what monitoring and evaluation they are expected to do. Second, it encourages people to learn from their successes and mistakes so that they change what they do to make the plan work better.

There are four key aspects to a plan: first, it clearly states the responsibilities of the various parties; second, it has a schedule for monitoring and evaluation; third, it establishes a baseline against which progress can be measured; and fourth, it sets out guidelines on appropriate methods and processes.

The budget for monitoring and evaluation is also a key issue. Monitoring and evaluation will not be useful unless there are the human and financial resources needed to do it properly. This means resources, for example, to set up information systems or hold regular meetings where people can talk face-to-face.

[16] Hall, A., Sulaiman, V. R., Clark, N. and Yoganand B. (2003) 'From measuring impact to learning institutional lessons: an innovation systems perspective on improving the management of international agricultural research' Agricultural Systems, volume 78, pp. 213-241.

Provide incentives and rewards: motivate, demonstrate, change and invest in people. Providing incentives and rewards is perhaps the greatest challenge for leadership (Box 4.4). Programmes only began to look at evaluation and impact assessment relatively recently (the Natural Resources Systems Programme in 2002 and the Fisheries Management Science Programme in 2005, for example) as impact was not the original goal. Most new methods of assessing impact stemmed from self-motivation at programme level (despite being discouraged by management) and were prompted by the shift to the sustainable livelihoods approach in the late 1990s. The emphasis in monitoring and evaluation was on accountability rather than learning. Clearly, learning is going to be vital in out-scaling and up-scaling processes.

Box 4.4

Motivate, demonstrate, change and invest in people

The most significant resource for up-scaling and out-scaling research is the human resource. Researchers and research systems have certain sets of skills, as do politicians, community leaders, entrepreneurs and other groups of people who at some stage may be part of bringing in an innovation.

Donors and managers need to motivate those who they fund and manage to learn and change—this means setting up a scheme of incentives and rewards. Managers need to demonstrate values, beliefs, norms and traditions that support learning and change—this means 'acting the talk'. The leadership needs to change management systems to encourage and celebrate risk taking, originality and learning. The leadership also needs to invest in people—this means spending time and money to make sure people study to get the knowledge and skills they need, then making sure they build on these through hands-on experience.

This synopsis of lessons learned for up-scaling and out-scaling research into use is drawn from:

Pasteur, K. and Turrall, S. 2006. 'A synthesis of monitoring and evaluation experience in the Renewable Natural Resources Research Strategy (RNRRS)'.
See
http://www.research4development.info/pdf/ThematicSummaries/RNRRS_ME_synthesis_FINAL.pdf

Pasteur, K. and Turrall, S. 'Monitoring and evaluation: pathways for change. A summary of monitoring and evaluation experience from the Renewable Natural Resources Research Strategy (RNRRS)'.
See
http://www.research4development.info/pdf/ThematicSummaries/RNRRS_ME_synthesis_FINAL.pdf

5 Lessons for out-scaling and up-scaling from *Participatory research approaches*

Background

A wide range of participatory research approaches were used during DFID's ten-year Renewable Natural Resources Research Strategy (RNRRS) Programme. However, it should be remembered that participatory research is challenging. And, while they have a lot to offer, participatory methods should not be used simply because they are currently a popular concept—as they will not always be the best approach.

Giving stakeholders control of the work needed to adapt and apply research findings is, however, more likely to result in successful uptake—as it allows them to draw on local experience and preferences to adapt new knowledge to their needs. So although participation may not always be appropriate in some aspects of research, it may work quite well in processes for out-scaling or up-scaling research findings.

Key points

- Participation takes many forms.
- Stakeholder participation does not mean that stakeholder groups are necessarily equitably represented.
- Only use a participatory approach if it is the best way to achieve goals to out-scale or up-scale.
- Participatory approaches can be very challenging to manage.
- Existing set-ups may be channels for out-scaling research findings but may need strengthening.
- Unless attitudes change and new arrangements are made it will be difficult for people to use new knowledge and research findings.
- Participatory approaches still have to be explored.

Lessons learned

Participation takes many forms. Participation can range from arrangements which only pay lip-service to participation to situations where people get together to make changes independently of external influences (Box 5.1). What they are participating in—and who is driving the process—also varies.

In the RNRRS, participatory approaches worked quite well when the aim was to gain a deeper understanding of people's needs and tailor research to meet those needs. In plant breeding, getting more farmers to participate at the 'segregating generations' stage of plant breeding, for example, was more effective in developing appropriate varieties than '"less collaborative research" (see projects R8071 and R8099 Participatory plant breeding). Similarly, researchers succeeded in empowering women who owned small livestock by working with them in a participatory manner (R7164 Indigenous knowledge, participatory appraisal and animal health information systems).

Box 5.1

Different forms and degrees of participation[17]

- *Manipulative participation (co-option)* Community participation is simply pretence; representatives on official boards are not elected and have no power.
- *Passive participation (compliance)* Communities 'participate' by being told what has been decided; the information belongs to external professionals only.
- *Participation by consultation* Communities participate by being consulted or by answering questions. Problems are defined by external agents.
- *Participation for material incentives* Communities participate by contributing resources such as labour, in return for material incentives (e.g. food, cash).
- *Functional participation (cooperation)* Community participation is seen by external agencies as a means to achieve project goals.
- *Interactive participation (co-learning)* People participate in joint analysis, development of action plans and by forming or strengthening local institutions.
- *Self-mobilisation (collective action)* People participate by taking initiatives (independently of external institutions) to change systems.

However, the most successful participatory approaches were those used in the management of natural resources (forests, fisheries, land and water) where the aim was to help communities learn to express their needs and do something about them. Participants learned to collect, analyse and share information, and so became the driving force in making decisions in adaptive learning projects in fisheries (R7335, R8292)[18], farmer field schools (R7986)[19] and forest user groups (R6918)[20].

Participation does not mean that stakeholder groups are necessarily equitably represented. People who do not have resources (time, land, cash, credit and labour) or skills (reading, writing, numeracy) often cannot participate fully, or even at all. Those most likely to fall into this category include women, older

[17] Catley, A and Leyland, T. 2001. 'Community participation and the delivery of veterinary services in Africa'. Preventive Veterinary Medicine, 49, 95-113.
[18] Co-management: a synthesis of the lessons learned from the DFID Fisheries Management Science Programme.
[19] Livestock farmer field schools - guidelines for facilitation and technical manual.
[20] Participatory action and learning: a field worker's guidebook for supporting community forest management planning. R6918.

people, minorities, and the very poor. Power relationships in communities may mean that elites dominate or that only certain people are chosen as representatives. Ways of overcoming barriers to truly representative participation still need to be found (Box 5.2).

Box 5.2

Overcoming barriers to participation, Self Help Groups
Natural Resources Systems Programme projects established Self Help Groups so that the poorest of the poor could get small loans. This meant that even the very poor could participate in the research projects, which they would have been unable to do otherwise because it is very difficult for them to get credit. The Self Help Groups have proved so successful that they are continuing to function well beyond the life of the project.

Only use a participatory approach if it will help meet goals to out-scale or up-scale. It seems obvious to state this, but it is counter-productive to use a participatory approach, or any other approach for that matter, unless it is expected to be the best approach in the particular circumstances. In most cases it seems likely that some form of participation is going to be an essential part of meeting goals to out-scale or up-scale research findings. To date, most participation has been at the grass-roots level. Determining who should participate and how will probably show that participation at all levels will be needed. Nevertheless, the feasibility of a participatory approach should still be examined at the outset. There are considerable hurdles to be overcome in getting full and representative participation.

How the goal itself is decided, whether it is externally set or whether groups take the initiative themselves, is also an issue to be considered.

Participatory approaches can be very challenging to manage. Researchers found that managing the expectations of those who they invited to participate in projects could be challenging. Participants sometimes expected that the ideas they put forward would be put into practice, even though some were technically unworkable and others too costly[21].

But, participatory approaches are likely to help understand which research findings people will find acceptable when put into practice and why. These approaches also provide opportunities to (i) investigate why any particular piece of new knowledge does not appear to be working when applied, (ii) learn why it is not working, and (iii) adapt it so that it works better. This suggests that programmes to out-scale and up-scale research findings will need to be flexible and allow participants to drive decision-making throughout. This means that achieving goals within limited timeframes may be tough. Plus, working with a wide range of stakeholders is likely to be more costly and time-consuming than working with just a few.

Existing set-ups may be channels for out-scaling research findings but may need strengthening. In Nepal and India, forest user groups offered entry points for participatory research on common pool forests in the Himalayas[22]. Such groups are also potential conduits by which research findings could be out-scaled after projects have finished. However, researchers found that some groups worked better than others and that often human resources (such as those in the forest user groups, for example) needed to be strengthened to enable people to manage common resources fairly. Participation was not always equitable as it sometimes reflected power relationships within communities.

Participation is something that can be fostered. Unless attitudes change and new arrangements are made it will be difficult for people to use new knowledge and research findings. Some projects found that to be able to undertake research using participatory approaches they needed to change the ways things were done or set up new arrangements to foster participation (Box 5.3). In doing this, some communities learned skills that lived on long after the projects ended.

This has implications for out-scaling. If the ways of doing things and arrangements are not in place for equitable participation, then changing and putting them in place will be pre-requisites for the uptake of research findings. It will also help develop systems where stakeholders establish voices in managing and making decisions.

Box 5.3

Fostering participation
Changing the way things are done and setting up new arrangements paves the way for uptake of research findings.

Farmer Field Schools
FAO set up Farmer Field Schools in Southeast Asia in the 1980s to help small-scale rice farmers learn about integrated pest management and, through observation, experimentation and discussion, find the best solutions for their farms. Over the years, Farmer Field Schools have been applied in many different environments, such as livestock production systems.

The schools are an entirely different approach to traditional top-down extension. They are about empowerment, not technology. This meant changing the culture of extension. Rather than using trainers, the Farmer Field Schools use facilitators to encourage 'show and tell' interactive co-learning processes. And once farmers have 'learned to learn', they have a lifelong skill that can be applied to broader needs.

[21] Ward, A., Salagrama, V. and Joseph, M. 2001. Participation and post-harvest fisheries: An approach to identifying appropriate interventions. NRI: Chatham.
[22] R6778 Community Forestry in Nepal: Sustainability and Impacts on Common and Private Resources

Participatory approaches still have to be explored.
Participation in research has taken place at very local scales. This means that participation has empowered grass-roots groups and communities, but has rarely involved or influenced policy makers at any level above the local level. As a result, uptake is limited.

In the context of the shift to an innovation systems approach therefore, the lessons learned from participatory approaches in research indicate that exploring ways to fully involve stakeholders at all levels will be a key element in the future uptake of research findings.

This synopsis of lessons learned for up-scaling and out-scaling research into use is drawn from:

Neiland, A., Bennett, E., and Townsley, P. 2006. 'Participatory research approaches - what have we learned? The experience of the DFID Renewable Natural Resources Research Strategy Programme 1995-2005'.
See
http://www.research4development.info/pdf/ThematicSummaries/FMSPParticipationSummary.pdf

Turrall, S. 'Learning from the Renewable Natural Resources Research Strategy. Participatory research approaches'.
See
http://www.research4development.info/pdf/ThematicSummaries/Brief1_Participatory_research_approaches.pdf

6 Lessons for out-scaling and up-scaling from *Fisheries and poverty reduction*

Key points

- Well-managed fisheries bring in government revenues that can be used to provide services to reduce poverty, such as health and education.
- Declining fisheries are seldom the sole cause of poverty in fishing and coastal communities. The root causes need to be addressed.

Lessons learned

Government revenues from industrial-scale fisheries can help to decrease poverty. But to do this, the benefits need to be invested in health and education for the poor. Policy makers must be helped to understand the value of fisheries and should include the development of sustainable fisheries in poverty reduction strategies and national development plans (Box 6.1).

Box 6.1

Licensing foreign fleets provides an opportunity to cut poverty

Governments of less developed countries issue licenses to foreign fleets to fish in their Exclusive Economic Zones. This can bring in significant revenues. However, to reduce poverty these benefits:

- need to be redistributed so that low-income growth is greater than overall growth
- need to be reinvested in public services such as health and education for the poor.

Everything depends on fish stocks. A fishery is likely to collapse if it is over-exploited or its habitat is destroyed. If the fish resource disappears, there is no way it can benefit the poor. This means that ways must be found to make sure plans for fisheries to benefit the poor take into account the information generated by research on how to sustain fish stocks (Box 6.2).

Fisheries stocks cannot be managed at the household or community level where poverty exists. And, it needs to be remembered that unless there is a coherent management structure, actions at different levels have limited impact.

Acknowledge and work with trade offs between costs and benefits. Economic, social and environmental goals for fisheries usually conflict. For example, maximising export revenue from a fishery conflicts with selling fish in the domestic market at local prices. The results of fisheries research can only be taken into account if they are fed into the process of resolving conflicts and setting priorities. This means working with governments to develop coherent policies that recognise and maximise the ways that fisheries can contribute to reducing poverty. Poverty reduction strategies and national development plans present openings to do this.

Box 6.2

Disconnected actions at different levels have little impact

Actions need to be implemented as part of a coherent management structure. Examples of those that can have benefits for fisheries include:

- making sure fishers take part in making decisions on fisheries management and in stock assessment
- putting more fish into inland fisheries by stocking them with fingerlings
- providing tools for assessing stocks appropriate to the people who will use them (fishers, communities, fisheries managers)
- managing water flows for fisheries as part of integrated natural resource management plans (for example the World Summit on Sustainable Development water efficiency plans), so that the fisheries stocks on which poor rely do not suffer

Involve people affected in managing the fishery and train them. Fisheries management is becoming more decentralised and is involving more and more types of stakeholders. At all levels, people need to learn new skills and adapt to new roles. Training people at all levels to adapt and change is a way of putting research on participatory management into use. The education and training systems available in less developed countries currently do not equip citizens with adequate knowledge and skills to take part.

Use-rights and access rights to fisheries are fundamental to reducing poverty. Ownership of fishing rights determines who benefits from a fishery. For example, the poor can be allocated rights, while influential people can be prevented from 'capturing' benefits and excluding the poor[23]. Ways need to be found to put in place systems to allocate rights and apply codes of conduct for the responsible management of fisheries (Box 6.3).

[23] Cunningham, S. and A. Neiland. 2005. Investigating the linkages between fisheries, poverty and growth: policy brief. Portsmouth: IDDRA Ltd.

Box 6.3

Access rights to small fisheries are fundamental to reducing poverty

The Code of Conduct for Responsible Fisheries, if widely adopted by governments, could maximise the contribution that fisheries make to reducing poverty. The Code:

- recognises how important small fisheries are in providing employment, incomes and food security
- recognises the vulnerability of small-scale fisheries
- advocates that small-scale fisheries should receive special assistance and protection so that fishers have a 'secure and just livelihood'

Poverty in fisheries communities often has non-fishery causes. Initiatives to alleviate poverty in fishing communities need to be holistic, rather than just looking at the fisheries aspects of poverty. Addressing fisheries issues in isolation generally does not work. This means efforts need to be part of integrated efforts to deliver better services that tackle the root causes of poverty (Box 6.4).

This synopsis of lessons learned for up-scaling and out-scaling research into use is based on:

MRAG/DFID. 2006. 'Fisheries and poverty reduction', FMSP Policy Brief 1, London: MRAG Ltd.

See

http://www.fmsp.org.uk/Documents/keylessons/FMSPBrief1_Poverty%20Reduction.pdf

Box 6.4

Poverty in fishing communities often has non-fisheries related causes[24]

Poverty among fishers is often likely to be caused by factors other than the state of the fish resources. Research in West Africa found that the factors that keep the people involved in fisheries poor include:

- lack of information, skills and education
- lack of credit
- poor organisation and political representation
- unexpected losses of human or other capital assets
- lack of alternative employment
- lack of infrastructure and access to markets

[24] Bene, C. 2002. 'Poverty in Small-Scale Fisheries: A Review and Some Further Thoughts, Small-Scale Fisheries and the Code of Conduct for Responsible Fisheries', Proceedings of the DFID/FAO/CEMARE SFLP International Workshop, Cotonou (Benin), November 2001.

7 Lessons for out-scaling and up-scaling from *Common pool resources: management for equitable and sustainable use*

Background

The Natural Resources Systems Programme brief *Common pool resources: management for equitable and sustainable use* presents lessons and key messages on equitable and sustainable management of natural resources, such as forests, water, fish stocks and grazing land, that many different groups of people use. These 'common pool resources', as they are known, are managed in different ways—some are open to everyone, others may be communally or privately managed. The pressures on common pool resources (such as over-use, intensification of farming, extraction of timber) are significant, and the poor often lose out when their interests conflict with those of more powerful users.

The projects and programmes of the Renewable Natural Resources Research Strategy developed simple techniques to help common pool resource stakeholders appreciate each others needs and agree how to manage common pool resources equitably and sustainably. Technical changes had significant effects in some social set-ups. Methods of weighing up economic costs and benefits also helped stakeholders to decide how common pool resources could be managed. Project experiences suggest that equitable property rights or use rights are necessary.

However, although simple techniques do now exist for resolving conflicts and managing common pool resources, the application of those techniques tailored to local situations is not at all simple. In very few cases do local institutions already have the skills and knowledge needed to use these techniques and engage with national policy makers, and vice versa. These skills nearly always have to be learned.
This means that for out-scaling and up-scaling research findings, the main thrust needs to be to help groups, communities and institutions at all levels learn to use the methods and tools that exist for managing common pool resources sustainably and equitably.

Key points

- We need to help a vast numbers of stakeholders learn how to influence and deal with policies on common pool resources.
- We need to analyse the economic costs and benefits of different management options for common pool resources.
- We need to tackle property rights, as these determine the extent to which technical changes can be out-scaled and up-scaled.

Lessons learned

Help a vast number of stakeholders learn how to influence and deal with changes to policies on common pool resources. The Tanzanian government's water policy incorporates rainwater harvesting as a way of reducing conflict between agricultural and pastoral communities over access to water. Adoption of such policies by governments paves the way for stakeholders to manage common pool resources (like runoff, rangelands, rivers, and channels) through institutions such as catchment and village committees. But stakeholders at all levels need the skills to handle these institutions effectively. Unless they have such skills, opportunities to make changes for equitable and sustainable management of common pool resources will be lost (see Box 7.1). Developing the skills of vast numbers of people will be a major challenge.

Box 7.1

Examples of efforts to ensure the equitable and sustainable management of common pool resources by helping stakeholders to learn new skills
In all the following cases, the stakeholders involved learned and applied new skills to common pool resource management. The more quickly and effectively people can be helped to learn, the more quickly and effectively research findings on common pool resource management can be applied.

In **Tanzania** (Natural Resources Systems Programme project R8116) stakeholders learned to set up catchment and village committees to manage the implementation of a government policy on rainwater harvesting. Women and young people were fairly represented on these committees. Stakeholders learned about common pool resource tenure systems, the administration of land leases, policies and laws relating to land and how to manage common pool resources.

In **Bangladesh** (Natural Resources Systems Programme projects R7562, PD131 and R8103), the existing legal and institutional frameworks failed to resolve conflicts between different groups of users of floodplain resources. Stakeholders used the Participatory Action Plan Development technique to determine and solve problems. This involved a series of local workshops to scope, plan and implement management plans. This technique recognises the strengths of informal institutions and power relations.

Box 7.1 *continued...*

Since there are 4 million hectares of open water and since 7 million poor live on sand islands in rivers in Bangladesh, the potential for out-scaling seems enormous. But, the number of people who would need to learn new skills to realise this potential is also enormous.

In **Uganda** (Natural Resources Systems Programme project R7856), communities learned to act collectively to deal with soil erosion on steeply sloping hillsides. Farmers developed policy, and implemented and enforced by-laws, by using a five 'INs' approach: strengthening local **INstitutions**; providing **INformation**; linking by-laws to natural resource management **INnovations**; finding and promoting **INcentives**; and building a network of **INfluence**.

In **Mexico**, large plantations of exotic trees for carbon sequestration, although efficient, may eliminate the non-timber resources of native forests on which the poor depend. In a win-win solution, villagers learned how to manage native forests sustainably and how to plan, set up and run appropriate institutions to manage carbon sequestration.

Analyse the economic costs and benefits of management options for common pool resources. A sound analysis of costs and benefits can help stakeholders to agree on priorities for managing common pool resources, although this does mean gathering considerable sets of data on social, environmental and economic parameters. A good example of this kind of work is trade-off analysis of coastal resources run in the Caribbean (Natural Resources Systems Programme project R7408), which brought consensus on long-term management priorities. As yet though, however, there is no evidence to prove that the management option chosen through this process can actually be used to manage common pool resources equitably and sustainably.

Another project in south-eastern Asia (AFGRP project R7917) showed that self-recruiting (wild) species improve productivity in commercial aquaculture. This is a win-win scenario for commercial fish farmers and the poor. Fish farmers improve their profits because maintaining self-recruiting species in their ponds keeps levels of biodiversity high and increases the yield of commercial species. They save the cost of cleaning out these wild species from their ponds. The poor also benefit because they can continue to harvest wild fish, snails, prawns and crabs from privately-owned ponds and rice fields.

Tackle property rights as these determine the extent to which technical changes can be out-scaled and up-scaled. Fish ponds are important for the poor, as fish provide protein and can also be sold. In eastern India, the government changed its policy on leasing ponds to self-help groups. Previously, one-year leases gave little security and no encouragement to improve management. When the poor were given a voice, the government changed to ten-year leases that provide an incentive to groups to invest in pond management. This is but one example of how property rights determine the extent to which technical changes can be implemented.

This synopsis of lessons learned for up-scaling and out-scaling research into use is drawn from:
Lovett, J., Ockwell, D., Quinn, C. and Gregorowski, R. 2006. 'Common pool resources: management for equitable and sustainable use'.
The document can be accessed through the following link:
http://www.research4development.info/pdf/ThematicSummaries/NRSPCPR%20BriefLR.pdf

8 Lessons for out-scaling and up-scaling from *Linking research, policy and livelihoods: challenges and contradictions*

Background

The Natural Resources Systems Programme brief *Linking research, policy and livelihoods: challenges and contradictions: learning from practice* identified "lessons about policy processes for natural resource management, and the relationship between research and policy". Based on a review of 35 projects, the brief drew out lessons relevant to researchers and those who fund research. For the most part, the links between research and policy are presented as background to the research topic. Researchers seldom explore how they could influence the development of policies.

During the timeframe of the Renewable Natural Resources Research Strategy, research for development shifted towards policy issues. However, researchers did not often directly tackle the role that they themselves might play in influencing the shape of policies for natural resource management. They often did not address questions such as the following: how those who had power and influence might (or might not) look at research findings; how the policy processes worked and at what stage or stages research results might be considered in a particular developing country; what research results in the same and other disciplines (social science and economics) other parties might be putting forward; and who, in fact, really decides policies and how they are to be implemented.

Clearly, those concerned with out-scaling or up-scaling existing research findings will need to determine and use policy relationships and processes (which are often very complex) to influence the take-up of new knowledge and technologies in the development and implementation of policies.

For those concerned with out-scaling research results, there are some pointers as to circumstances when changes to policies at the community and grass-roots levels are likely to be more successful. For the most part, simultaneous change in institutions at all policy levels seems to be the most promising. But, for this to happen, large numbers of people at all levels would need to acquire the knowledge and skills needed to understand and apply the changes.

Key points

Those working to up-scale and out-scale results should:

- Become directly involved in policy processes.
- Establish the validity and credibility of the research.
- Build relationships.
- Be aware that decentralisation can be both positive and negative.

Lessons learned

Become directly involved in policy processes. The programmes and projects considered worked primarily with national research institutions as the agents for changing policies. This sometimes proved successful, for example where the objective was to release new varieties, though the process may have been far more protracted than researchers may have initially thought.

For up-scaling research findings, those involved need to clearly understand and directly engage in policy processes. Understanding who the key players are and how they go about developing policies are pre-requisites for developing strategies to feed research findings into policy processes. In many developing countries, DFID is not the only development agency funding research and there are numerous agencies all offering governments their research results and policy advice. In any particular case, it is not really known at present whether or not governments, ministries, politicians and their advisors take note of the research results and advice given and, if they do, how they evaluate and weigh it against that of, for example, lobby groups, private-sector interests, the impact on their economies and budgets, or the concerns of other government sectors.

History shows that policy development, far from being a systematic and rational process, is complex and messy. It also makes clear that policies, when implemented, often have unintended consequences. Policy development is not simple and policies do not always work as intended, even in developed countries that have long-established independent government research bureaus that evaluate research from relevant institutions. Based on their evaluation of research findings and mindful of what research findings can and cannot show, such research bureaus brief government departments and ministers on policy options together with the likely implications—positive and negative—of putting policies in place. Most of these institutions are long-established and nurture their reputations for sound, impartial analysis.

Few developing countries have this capacity for policy analysis and advice. In many of these countries, global lending entities, such as the World Bank and Asian Development Bank, shape policies (through National Poverty Reduction Strategies and National Development Plans) and set conditions that governments must comply with. And sometimes there are donor consortia or round tables that cooperate or advise on particular development issues. To be out-scaled and up-scaled, research results need to be fed into the analyses of the major lending agencies and put on the agendas of fora where development issues are considered (Box 8.1).

Box 8.1

Direct involvement in the policy process is important
"Policy papers were important, but the presence of project members at regional meetings and their lobbying efforts were critical activities to ensuring that the issues were placed on the [CARICOM] agenda." [25]

Tackle policy strategically
"the mandatory communication plan is useful in that it forces one to think about institutional linkages and the actors and institutions one has to address to bring about change. …we have had to address institutional issues, and focus on communicating our results in forms that address institutional issues, and can be understood by those in relevant institutions at the interface with communities and policy communication." [26]

Box 8.2

Build relationships
One project initially brought together a wide range of stakeholders in Tobago to identify the challenges in managing Marine Protected Areas in the Caribbean. The group then looked at how the Marine Protected Areas were managed and what could (and could not) be changed to manage each area sustainably. As relationships and trust between stakeholders developed, they began to see what actions could be taken in reality, where and by whom, and were prompted to take action to make feasible changes to policies.[27]

Establish validity and credibility. The 'quality, accuracy or robustness of research findings' often has little to do with whether or not they are taken up. Research can be disregarded because of where it comes from—particular research organisations, whether from the 'north' or 'south', may have no credibility in policy areas they are trying to influence. The reasons could be many, such as hidden agendas, 'them' and 'us', or prejudice.

Researchers were most successful in engaging with policy makers when they made their objectives clear. They explained in plain words what their research was about, what the research did and did not show, how they thought it could be used, and the dimensions that the research did not and could not take into account. In these cases, researchers' willingness to explain, to listen and to clarify informed the policy-making process. They demonstrated the validity of their findings and established their own credibility. Similar direct engagement will be needed for up-scaling research findings.

Build relationships. Research was most successful in creating local impacts and working upwards and outwards where funding was sustained over many years. In such cases, building relationships helped influence policy and strengthened commitment (Box 8.2). Projects that invested in building and maintaining alliances over many years found that local partners did come to 'own' the agenda. This implies that significant long-term commitments would be needed to establish the relationships that would pave the way for major out-scaling and up-scaling of these kinds of local impacts.

In developing-country policy processes, much can depend on individuals. Whereas in developed countries policies are mediated, for example, by ministries, government departments, the media and the electorate, in many developing countries, individuals and local elites wield much more power. This has both positive and negative aspects. On the one hand, changes can happen very quickly. On the other hand, individuals can block changes, or individuals who are helping change can themselves go elsewhere or be replaced, or policies can be reversed. Elites can capture resources. Any strategy to out-scale or up-scale needs take into account the risks inherent in relationships with individuals and particular interest groups.

Decentralisation can be both positive and negative. Those engaged in initiatives to out-scale research findings need to be aware that decentralisation of responsibilities for managing natural resources can have both positive and negative outcomes. On the positive side, decentralisation of natural resources management improves the chances for communities to have a say in planning and managing natural resources. Communities contribute their knowledge and insights and are less likely to be discounted or ignored.

On the negative side, decentralisation may give the wealthy and powerful opportunities to hijack resources. Those whose powers are being taken away may dig in their heels against change. And, unless decentralisation policies are effectively implemented—meaning that people are trained for their new roles and adequate resources are allocated—decentralisation may be just a paper exercise.

This synopsis of lessons learned for up-scaling and out-scaling research into use is drawn from:
Brock, K., and Harrison, E. 2006. 'Linking research, policy and livelihoods: challenges and contradictions'.
See
http://www.research4development.info/pdf/ThematicSummaries/NRSPPolicy%20BriefLR.pdf

[25] P4 Box 4 Communication for research uptake promotion: learning from practice June 2006 Pat Norrish.
[26] P4 Box 4 Communication for research uptake promotion: learning from practice June 2006 Pat Norrish.
[27] P4 Box 1 Linking research, policy and livelihoods: challenges and contradictions March 2006 Karen Brock and Elizabeth Harrison.

9 Lessons for out-scaling and up-scaling from *Understanding policy processes: a review of IDS research on the environment*

Background

This synthesis study illustrates the complex and multi-tiered nature of policy processes. The authors of the DFID-funded study[28] summarize 10 years of research undertaken by the Institute of Development Studies (IDS) with the aim of understanding how environment and development policies have come to be the way they are, and how or why change comes about—or fails to.

The conventional approach to policymaking (Box 9.1) assumes that experts contribute independent and objective scientific knowledge. Policy makers base their decisions on 'facts' (as opposed to values) and implementation depends on bureaucrats or administrators to put the decisions into practice.

Box 9.1

Travelling the straight and narrow:
The conventional view of policymaking
Traditionally, policymaking is seen as a linear process:

Understanding the policy issue or problem (agenda setting)

↓

Exploring possible options for resolving the problem

↓

Weighing the costs and benefits of each option

↓

Making a rational choice about the best option (decision making)

↓

Implementing the policy

↓

Evaluating the policy (possibly)

The model assumes that policy makers act rationally and carefully consider all relevant information as they go through each stage of the process. If policies do not achieve what they are intended to achieve, blame is often placed on the failure of politicians or managers to implement the policy (for example, lack of political will, poor management or shortage of resources) rather than on the policy itself.[29]

Key points

- Policymaking is political and by no means purely technical and rational.
- Policymaking is incremental, complex and iterative; it often involves experimentation, learning from mistakes and taking corrective measures. As a result, outcomes are varied; there are no set formulas.
- There are always overlapping and competing agendas, as well as diverging views among stakeholders as to what the important problems are.
- Facts are intertwined with value judgements, which play a major role.
- Discretion and negotiation by front-line workers are paramount.
- Technical experts and policymakers mutually construct policy. While scientists help to frame policy issues by providing evidence and knowledge, those working in policy also frame scientific enquiry by defining pertinent areas for investigation.
- In this 'co-production of science and policy', scientists often play down uncertainties as they attempt to satisfy the demand for answers from policy-makers; as a result, plural and partial debates can be recast as singular, closed and certain.
- Policy processes include some perspectives at the expense of others; in particular, the perspectives of the poor and marginalised are often excluded.

While this is view of policy making—also known as 'evidence-based policy' or policy rooted in 'sound science'—is pervasive in development practice, research has shown that this isn't really what happens. Policy processes are complex and involve a variety of actors. To contribute to understanding of these processes, the authors explore the ways in which 'facts' are established within particular networks and how they influence policy change at the national and international level.[30]

Lessons learned

Understanding the mechanics of decision making and implementation, as well as the more complex underlying practices of policy framing, are essential for effective policy advocacy.

What concepts and approaches can help?

To understand the way in which policy is shaped, it is important to take into account:

- how issues are framed by science: the narratives that tell the policy stories

[28] The study was compiled by William Wolmer, with inputs from James Keeley, Melissa Leach, Lyla Mehta, Ian Scoones and Linda Waldman.
[29] Based on Understanding policy processes: A review of IDS research on the environment, p 7.
[30] While the study is based on environmental natural resources research, it provides lessons and approaches that are widely applicable.

- how policy positions become embedded in networks of actors
- the power dynamics that enable or constrain policy implementation

The analysis of these influences helps to clarify why some ideas are acted on, while others are ignored.

Policy narratives define a problem, explain how it comes about, and show what needs to be done to put it right. Those who construct these narratives frequently simplify complex issues and processes to make them more appealing to time-challenged politicians or managers. Some narratives are very persistent, making it very difficult to challenge them effectively (Box 9.2).

Box 9.2

Why some stories stick

- They suit political interests.
- They are easily communicated through political marketing, mass media and education.
- They are embedded in institutional structures, bureaucracies, actor networks and popular culture, limiting thinking about particular areas and reducing the ability of policy makers to consider alternatives or different approaches.
- Once embedded, they are perpetuated and reinforced through everyday practices.

Actors and networks act to perpetuate policy narratives. Coalitions and alliances of people with similar or shared beliefs, visions, codes of conduct and patterns of behaviour, use their chains of persuasion and influence to spread and sustain narratives. These networks often link state institutions with the private sector, donors and civil society representatives such as journalists, researchers and NGOs, establishing connections that span the local and global levels. These diverse stakeholders and interest groups engage in debate and negotiation that can reinforce —or change— the prevailing narratives.

Politics and interests shape policy in a number of ways. Policy makers may use science to support and defend their interests, playing down contradicting evidence (Box 9.3).

Policy spaces define the policy maker's scope of action: the extent to which he or she is restricted in the decision making process by the forces described above. Looking at 'policy space' is fundamental when developing strategies for changing and influencing policy. Strong pressures to adopt a particular policy limit the room for action while, on the other hand, the lack of such pressure may provide valuable opportunities to exert leverage and develop consensus. Developing consensus involves negotiating trade-offs and agreements. While it is seldom possible to please all, it is important that the consensus be genuinely negotiated; otherwise, the policy decision is likely to fall apart.

The examination of knowledge/narratives, actors/networks and politics/interests contributes to the understanding of policy

Box 9.3

Politics and policy: One and the same?

In the conventional view of policy, fact and value are viewed as separate and unrelated. Yet in reality, politics shape policy processes in several important ways.

- The desire of a particular regime to remain in power moulds the political context, as does competition among groups in society to defend their differing interests. Bureaucrats also have their own personal and political agendas to negotiate.
- A range of interest groups exert their power and authority to influence policy making at each stage of the process, from agenda setting to the identification of alternatives, weighing of options, and choice and implementation of the most favourable one.
- Policy is often termed in legal or scientific language to emphasise its rationality and portray it as objective, neutral and value-free, masking the political nature of the policy.

processes, helping to identify policy spaces (Box 9.4). For example, a weakness in the articulation of the dominant narrative may open up an opportunity to introduce a new option. Depending on the policy issue, there also may be important interactions between spaces at the local, regional, national and global levels.

Box 9.4

Understanding policy spaces

Making the effort to understand the nuances of policy processes can bring valuable insight and help policy makers to take the agenda forward. This includes:

- unravelling the relationships between scientific and political interests
- getting a feel for the geography of actor networks behind policy
- questioning the assumptions embedded in policy narratives
- identifying alternative, obscured narratives

To illustrate this, researchers analyzed several case studies from IDS research, highlighting approaches that promote innovation:

In **Ethiopia**[31], technical solutions to food shortage and environmental degradation built upon the prevailing narratives have not worked. More recently, the funding of successful participatory projects led by NGOs, together with the imaginative creation of networks around these activities, have created new policy spaces and helped reshape official thinking regarding agriculture and natural

[31] Keeley, J. and Scoones, I. (2003) Understanding Environmental Policy Processes: Cases from Africa, London: Earthscan. http://www.ntd.co.uk/idsbookshop/details.asp?id=740

resources. Local consultation and planning at the village level are now providing alternatives to top-down solutions.

Box 9.4 *continued...*

In **Guinea**[32], international conservation narratives around biodiversity and forest loss were causing local considerations to be interpreted within globalised frameworks, often excluding the forest users' perspective. New approaches, advocating the use of a broader strategy to make room for silenced voices, are enabling critique, building local skills and confidence, and using the media to express dissent.

In **China**[33], close, well-connected networks linking scientists, donors, regulators, bureaucrats and multinationals have enabled biotechnology advocates to secure access to policy makers. The resulting endorsement of biotechnologies by political leaders—linking it to economic development, food security and poverty reduction—has enabled the rapid development of this these technologies by the public sector.

In **Ghana**[34], powerful political and elite interests have produced arguments that gloss over the reasons why certain people are poor and why environmental areas are being degraded, undermining natural resource management for poverty reduction. The promotion of a deliberative process that encourages new types of participation, enabling policy actors and civil society to examine and challenge the conventional policy discourses, can help to counter this situation.

In **Africa**[35] in general , the dominant narrative regarding livestock disease eradication reflects a set of interests and assumptions that, rather than being driven by the issues of livestock disease, are actually about politics, territory and control. Yet because the international scientific community supports the prevalent views, it is difficult to introduce other perspectives. Creation of new alliances, negotiation of change at international forums, and improvement of the skills of African representatives in standard-setting bodies can help create policy spaces that will enable the introduction of alternatives.

In **India**[36], simplistic views of water scarcity have obscured the real causes of the problem, leading to inappropriate policy that benefits rich irrigation industries and marginalises the requirements of the water-needy, in particular the poor. A powerful coalition of politicians and business constituencies perpetuates the dominant narrative, with the support of media, NGOs and academics with close ties to them. An alternative network of actors—ranging from small NGOs to coalitions of engineers, social scientists, journalists, academics and members of a famous protest movement—is working to challenge the dominant narrative, promoting locally appropriate solutions and institutional reform.

Improving the policy process

Many steps can be taken to improve policy processes and ensure that they result in measures to promote equitable, balanced development objectives.

Capacity building for policymakers: Many people in policy positions do not have the skills or insight to tackle complex policy issues. They may have been trained in different, less relevant areas, and are expected to learn how to 'do policy' on the job. Much effort is currently invested in capacity building around the technical aspects of policy. It is important, however, to dedicate concerted attention to improving understanding of the processes of policymaking.

Linking research to policy: Because research-policy links are complex and non-linear, an astute assessment of the politics of knowledge making and its use in different contexts is necessary. This calls for asking a set of questions:

- Which policy networks have reach and influence?
- How can 'facts' be established within these networks?
- How can research findings influence change, recognising that research and information dissemination are only one part of the picture?

Priority setting for research and innovation systems: Most priority setting approaches use tests of efficiency and potential economic impact, often with little assessment of the likely outcomes of innovations. An understanding of the political and institutional context for innovation processes is critical to improve priority setting. The key questions include:

- Which lines of research are relevant to different political interests?
- How are poor people represented in these discussions?
- What narratives and political interests inform 'technical' research agendas?
- What are the likely obstacles - and how might these be averted by building alternative networks and alliances?

Setting standards: Regulatory standards, such as food safety and biosafety, are increasingly dominating developing country trade, particularly in agricultural commodities. Standard setting involves intensely political processes and most developing countries have little voice in them. A better understanding of these processes can offer a greater chance of influencing outcomes in favour of developing countries and poverty reduction. Questions

[32] Fairhead, J. and Leach, M. (2003) Science, Society and Power: Environmental Knowledge and Policy in West Africa and the Caribbean, Cambridge: CUP. http://www.ntd.co.uk/idsbookshop/details.asp?id=780

[33] Brock, K. and McGee, R. (2004) Mapping Trade Policy: Understanding the Challenges of Civil Society Participation, IDS Working Paper 225, Brighton: IDS. http://www.ntd.co.uk/idsbookshop/details.asp?id=805

[34] Waldman, L. et al (2005) Environment, Politics and Poverty: Lessons from a review of PRSP stakeholder perspectives, Brighton: IDS. http://www.ids.ac.uk/ids/KNOTS/PDFs/Synthesis_Review_%20EN.pdf

[35] Scoones, I. and Wolmer, W. (2006) Livestock, disease, trade and markets: policy choices for the livestock sector in Africa. IDS Working Paper 269, Brighton: IDS. http://www.ntd.co.uk/idsbookshop/details.asp?id=943

[36] Mehta. L. (2005) The Politics and Poetics of Water: Naturalising Scarcity in Western India, Delhi: Orient Longman. http://www.ntd.co.uk/idsbookshop/details.asp?id=913

surrounding the role of science in framing standards, the basis of risk statements made in the name of 'sound science', and the winners and losers of the current standard-setting practices, are critical for understanding the trade-offs and uncovering whether there are alternative perspectives that are currently obscured.

Economic/sector reform management (e.g. SWAPS, SAPs, PRSPs): All too often, the 'participatory consultations' required by donors are limited and do not capture the diversity of issues in sector or economic reform. They exclude certain perspectives, reflect particular sectoral interests, or frame issues in a way that prevents the exploration of alternatives. Policy process analysis can be a useful complement to these processes, creating space for civil society actors and others to raise issues and thereby encouraging more effective and inclusive change processes.

Negotiating responses to controversy, scandals and crises (e.g. avian flu, SARS, HIV/AIDS, climate change etc.): These themes are characterised by varying degrees of scientific uncertainty and risk. In policies dealing with them, the politicised and contested nature of scientific knowledge and the 'co-production' of science and policy have been particularly evident. The following questions need to be asked:

- How have policy agendas been framed, and by whom?
- Drawing on which science-policy networks?
- Are plural and partial debates being recast as closed and certain?
- Which perspectives are marginalised or excluded?
- What trade-offs and disagreements lie behind 'consensus'?

How can the locals bite back?

In an increasingly complex global environment, where a multiplicity of stakeholders stands to benefit—or suffer—from policy decisions, it is increasingly important to build trust around decision processes. Although a variety of participatory approaches have already been put in place to increase public participation in policy, these processes have not always been effective in enabling local knowledge to challenge global perspectives. In other words, they do not help poor people to shape policy agendas. There are many reasons for the failure of these approaches. Participation is often on the host's terms, replicating familiar patterns of dominance and exclusion.

In formulating models of participation, a focus on process helps to elicit the questions that will create more fertile ground for true participation:

- What kind of participation, and for whom?
- Who convenes the process?
- Who sets the agenda, defines the questions and shapes the terms of the debate?
- How are multiple forms of expertise accommodated?

Strategies and procedures that build on a firm understanding of policy processes can reconfigure relationships of knowledge, expertise and policy making by building new coalitions and shifting the framing of debates. At the same time, broader empowering measures—to enable critique and build confidence and skills among citizens—can help people to shape and inform policy debates.

Practical techniques for effecting policy change

Several techniques can be used to create new policy spaces that enable existing policy to be challenged, opening up opportunities for debate and innovation.

Telling persuasive stories—with pragmatic, clear and simple arguments that challenge dominant policy positions—can help to bring about change by suggesting alternative policies and institutional structures. These may include personal stories, videos and other direct testimonials, supported by publications and materials that are more formal.

Building networks and encouraging champions of change helps to convince others that alternative arguments are worth considering. Understanding power structures and relationships is fundamental to enable targeting the right people in the right places at the right time. Building and linking networks is also important, especially those that link local groups with national, continental and international interests.

Learning by seeing is particularly powerful in promoting policy change. This may involve, for instance, getting senior professionals out to the field to interact with remote communities, conducting field days or offering demonstrations; all of these experiences offer proven means of getting people on-board.

Opportunism and flexibility are critical aspects of any strategy. Fixed, inflexible plans cannot respond to changing circumstances and opportunities. Effective leveraging of policy change requires an aptitude for recognizing windows of opportunity as they arise and seizing these moments to get new messages on the agenda and open up the debate for policy reform.

Policies are not operational manuals; they should not define activities on the ground, but lay out principles, allowing latitude for interpretation, adaptation and negotiation. Rather than delivering 'evidence' for policy in a linear way, iterative dialogues need to be established between research and policy.

This synopsis of lessons learned for out-scaling and up-scaling research into use is drawn from:
Understanding policy processes: A review of IDS research on the environment. June 2006.
See
http://www.research4development.info/pdf/ThematicSummaries/Understanding_Policy_Processes.pdf
Knowledge, Technology and Society Team, Institute of Development Studies, University of Sussex.
www.ids.ac.uk/ids/KNOTS

10 Lessons for out-scaling and up-scaling from *Effective policy advocacy*

Background

It is essential to ensure that research goes beyond the publication of results in peer-reviewed journals, and that it achieves deep-rooted impact through productive changes in policy, and concerted and directed actions to influence policy change (i.e. active policy advocacy). This is the premise of the study *Effective Policy Advocacy: An RNRRS Synthesis*[37], commissioned by DFID.

The authors of the paper stress the need to improve people's understanding of the concept of policy advocacy in order to encourage effective uptake of research results. They argue that it is unrealistic to expect unpredictable market forces and farmer-to-farmer diffusion to be enough to ensure that research outcomes have an impact. There is a need to move from this passive attitude to a decidedly active and integrated approach. Only in this way, they emphasize, can the benefits of research findings be effectively institutionalized and targeted in a way that will make a positive difference in the lives of end users, and in particular the poor, who often lack the means to engage and influence policy makers.

Key points

- Decision makers, decision shapers and other stakeholders must be engaged at opportunistic times, when conditions are ripe for success.
- One size does not fit all—action and information must be carefully targeted and delivered according to each audience.
- Diverse cultural and sectoral dynamics must be taken into account.
- Natural and political scientists with local contacts in the policy domain must be involved to help understand and address these dynamics.
- Activities aimed at shaping policy must go far beyond the project cycle.

Lessons learned

This movement towards a more active approach for ensuring that research has an impact depends on thoroughly assessing the particular situations in which research results are to be applied in order to ensure that conditions are favourable (Box 10.1).

Once this assessment has been conducted, "barriers to entry" can be identified and steps can be taken to overcome them. The authors of the RNRRS synthesis use specific case studies to demonstrate how this can be done, especially when working to influence the first four of the conditions mentioned in Box 10.1. They also analyze past efforts in order to illustrate (1) why they succeeded or failed to engage policy makers and bring about policy change and (2) to highlight areas for improvement.

Box 10.1

For policy changes to take root, the right conditions must be in place.

- People must be aware of the problem.
- People must believe that change is feasible, both technically and politically.
- An understanding of the change process must exist.
- Advocates must have access to policy shapers (anyone who has a direct impact on policy development, whether inside or outside the government sphere) and makers.
- Mechanisms for effective change must be in place.
- There must be sufficient political will.

Effectively engaging decision makers, decision shapers and other stakeholders is a complex process that requires informed, diversified and targeted action on many levels. Case studies have shown that interaction with policy makers and shapers depends to a great extent on local conditions. At the same time, these actors represent—and must respond to the needs of—diverse constituencies. Concerted and targeted action is fundamental to produce change in this complex panorama and make it possible for research results to have a real impact.

Interaction with policy makers and shapers helps them to understand what contribution research can make to their own objectives. However, the mechanisms for accessing these actors—and their needs and interests—differ according to each sector, country and region. At the same time, there are many levels and scales of policy making, ranging from the local, to the national, regional or international. This is why policy advocates must understand the local scene in order to design and put in place effective interventions and mechanisms (Box 10.2).

Case studies have also shown that it is important to target individual policy shapers and makers separately, building relationships with them over time. This enables policy advocates to time their interventions and contributions so that they reach their targets at the most opportune moment.

[37] The paper draws on the experience of research projects from DFID's Forestry Research Programme, Livestock Production Programme and Crop Post-Harvest Programme.

Box 10.2

Identifying the policy shapers

Studies have shown that in Ethiopia, Kenya and Uganda, Livestock Parliamentary Groups (members of parliament representing pastoral areas and concerns) have enormous potential to influence policy for improved pastoral livelihoods. As yet, however, this potential is largely untapped. Taking advantage of it will depend on many factors. These include:

- assessing the complex political circumstances of each of the three countries;
- analyzing parliamentary procedures and the parliamentarians' ability to use them;
- studying the role of 'policy entrepreneurs,' capable of networking across diverse interest groups;
- understanding the limitations of individual parliamentarians in terms of motivation and capabilities;
- appreciating the acute need for information on policy options;
- gathering knowledge of the actual conditions in remote areas and constituencies.

The significance of the problems addressed by research is not always evident to policy shapers and decision makers. In these cases, advocates must provide a 'hook' that will catch and hold their attention, explaining the chains of cause and effect.

At the same time, it is also important to work with all of the stakeholders if policy change is to be effective, deep-rooted, equitable, and able to respond to real and critical needs (Box 10.3).

Box 10.3

The power of partnership

In Kampala, Uganda, researchers were able to change longstanding city bylaws and endorse city farmers' rights by bringing together urban farmers, national and local policy makers, civil society groups, researchers and donors. In Nairobi, Kenya, poor livestock keepers from slum areas have been empowered to take collective action that is benefiting more than 1000 farmers directly.

Not everyone is qualified to be an effective policy advocate. Special skills are needed to make research results credible, inspire confidence and trust, capitalize on present opportunities—as small as they may seem—and pave the way for future gains. Training in advocacy can help to build these skills.[38]

[38] See FRP training manual on communication methods and scientific advocacy: http://www.frp.uk.com/project_dissemination_details.cfm/projectID/8121/projectCode/ZF0147E/disID/4094

Using appropriate communication tools and products targeted to diverse audiences can make or break the effectiveness of policy engagement and advocacy. Involving policy makers in workshops—especially when the ground has been prepared by developing good relationships with them—is helpful, but it is not enough. Special information and communication tools must be developed to reach and influence each of the stakeholder groups.

In some cases, monographs, manuals, handbooks and guides may be useful, while in others more interactive decision- or negotiation-support tools (ranging from simple flow-charts to complex computer-driven systems) are called for. Posters may be appropriate for a more technically knowledgeable audience, while radio, press, video or TV may help in reaching remote or geographically dispersed communities. The important thing is that both the vehicle and the messages must be tailored to the audience.

Face-to-face meetings, when they are feasible, may also be far more effective than the written word, particularly when the advocates are able to articulate complex processes and outputs in easy-to-understand language. It is important to keep in mind, nonetheless, that different audiences may react differently to the same facts, depending on their perspectives and background knowledge (Box 10.4).

Box 10.4

No problem, no policy

Where there is little or no awareness of the problem, policy change is difficult or impossible to put in place. In Ghana, for instance, researchers discovered that the methods used to manufacture traditional cooking pots resulted in dangerous metal residues in food. They also found that a local food known as fufu, made from pounded cassava, was one of the more high-risk foods in terms of microbial disease, and that this risk increased during high-rainfall periods. Yet surveys showed that most consumers did not associate unsafe food with food-borne diseases. TV documentaries and billboards were therefore used to cultivate better-informed consumers, while posters and training materials encouraged health officials and street vendors to work together on improving consumer safety and health.

Translating specialized knowledge into workable policies is particularly difficult under circumstances where intersectoral cooperation is not the norm. Corruption, fragmentation of responsibility and lack of geographic and institutional integration can all raise barriers, making it difficult to secure the commitment that enables the key players to take ownership of policy changes.

The participation of specialists in the natural and political sciences can help advocacy teams to build an understanding of the local

nature of policy making. This includes defining the effect of perceptions and other cultural factors (see below) on policy adoption. These specialists can also help to foster intersectoral understanding and cooperation (Box 10.5).

Box 10.5

Going against the flow

In India, central government ministries as well as national, state and local departments are involved in planning and implementing water management policies, and they often use different data sets to do so. This diversity of actors and responsibilities has limited the success of watershed management programmes in producing positive policy change. If this is to change, one of the first challenges is to improve intersectoral communication and linkages. In Himachal Pradesh, this need was addressed by bringing together more that 40 local and central government departments in a workshop designed to create a more integrated approach to watershed management.

Policy uptake is influenced by political, historical and cultural factors. Policy advocates must be aware of political, historical, and cultural factors so that they can determine whether policy formulation is based on perceptions or facts, and whether it is influenced by religion, ethnicity or other cultural factors. For instance, long-standing beliefs and practices may counter research findings or make them difficult to understand and accept. A history of broken promises or inequitable treatment of certain social groups may also make it difficult to build the trust needed for effective policy development and implementation (Box 10.6).

Box 10.6

Different focuses for different folks

Focus groups are often used to resolve conflict and promote policy change. Yet while they worked well with livestock keepers in Uganda, in India they met with failure, largely because of cultural differences and a history of conflict. This was attributed to the fact that the target groups (the nomadic pastoralists of the arid and semi-arid Himalayas) are politically marginalized in this country. In India, pastoralism is viewed by the dominant majority as an obstacle to development and those who practice it are increasingly excluded from scarce property resources.

Proactive advocacy approaches backed by astute analysis of circumstances can help to surmount these obstacles, permitting the development of compelling arguments based on a thorough understanding of local factors.

Effective policy shaping is a long-term proposition, involving changes that build on each other over time. Staff turnover at the local and regional level—often in response to funding considerations or political changes—may make it difficult to construct the progressive steps needed to shape policy. Advocacy must be devised, therefore, with a long-term perspective in mind, to help compensate for change and provide the continuity that is missing at the local level.

The criteria outlined in this summary can help when analyzing why research has not produced the desired impact in the past and when working to build successes in the future. It is necessary to remember, however, that we must continually monitor and evaluate policy, suggesting change as needed.

This synopsis of lessons learned for up-scaling and out-scaling research into use is drawn from:

2005. 'Effective policy advocacy: an RNRRS synthesis' (author details not available).

See

http://www.research4development.info/pdf/ThematicSummaries/RNRRS_Advocacy_and_Policy_Linkages_Synthesis_Paper_P1.pdf

11 Lessons for out-scaling and up-scaling from *Fisheries and economic growth*

Key points

- The contributions that both industrial-scale and small-scale fisheries make to the economies of developing countries are neglected.
- Economic growth from both industrial-scale and small-scale fisheries depends on maintaining sustainable fish stocks. Tools to help governments and communities assess and manage fish stocks need to be widely used.

Lessons learned

The economic potential of fisheries is neglected. Fisheries are not a high-profile sector in many developing countries, partly because official data on fisheries is often scanty (particularly for small-scale fisheries). So, the contribution that both industrial-scale and small-scale fisheries make to these economies is invisible, unacknowledged and, as a result, neglected in economic growth and poverty reduction strategies.

Research shows that fisheries can contribute to growth at both national and local levels. However, few governments act on these results and most do not appreciate the economic potential of fisheries. Thus, opportunities for fisheries to boost economic growth are lost. Ways need to be found to 'give fisheries a voice' when developing national economic growth and poverty reduction strategies.

Economic modelling tools help developing countries decide how to realise the economic potential of industrial fisheries. Fish products (mostly from industrial-scale fisheries) are a major source of foreign exchange for developing countries. Globally, they bring in more than coffee, cocoa, sugar and tea combined. Fisheries also generate taxes, employ people and provide protein foods for domestic markets.

Researchers have developed economic modelling tools that have helped governments to explore options for fisheries, manage stocks and maximise revenue from industrial fisheries. These tools help users avoid risky or uncertain decisions. The trick is to convince governments to use them (Box 11.1).

Economic growth in both industrial-scale and small-scale fisheries depends on sustainable fish stocks. The global fish population is taking a nose dive as species become rare or disappear because of overfishing. There are therefore two main issues for governments to address: The first is to assess fish stocks—a complex task in marine and river basin fisheries as it's hard to pin down where fish are at any one time. The second is to manage fish stocks—again not so easy as fishers will lose out if they are prevented from fishing.

Box 11.1

Modelling tools can help governments realise the economic potential of industrial fisheries

Countries can benefit from selling licenses to fish in Exclusive Economic Zones and from exporting fish. But they only benefit if such licensing and exports are well managed. Even then, they have to cope with trade-offs, for example earning export income as opposed to supplying the domestic market, or selling licenses to foreign fishing fleets as opposed to developing their own fishing industries. Export earnings and revenues from licenses can buy imports to substitute for the fish exported. Or, they can be put towards better health or education services. Researchers have developed tools to help governments make these decisions.

Seychelles tuna long-line fishery

The Seychelles quadrupled annual revenues from its tuna long-line fishery by applying models that:

- assessed the benefits of selling licenses to foreign fishing fleets
- assessed the costs of monitoring and controlling foreign fishing fleets
- set fees, legal penalties and budgets for surveillance

Case studies of license fees for foreign fleets fishing Exclusive Economic Zones show that:

- in the short term, improving compliance and selling more licenses brings in more revenue than raising license fees
- in the medium to long term, governments need to collect precise data on catches by licensed and illegal boats to ensure sustainable industrial fisheries

Researchers have come up with tools that can help managers and communities assess and manage stocks in industrial-scale and small-scale fisheries. These help them quickly collect data, produce reports and take appropriate action. But more people need to use these tools.

At the policy level, research-based advice to governments makes clear that there is a short-term cost to restricting catches so that stocks can recover, but that managing the stocks so that the population can replace itself will increase total economic benefits in the long-term. But governments need to act on this advice.

They often don't because economic, social and environmental goals for fisheries conflict. Addressing this means working with governments to develop coherent policies that recognise and maximise the ways that fisheries can contribute to economic growth. In other words, it means being part of the process of developing national economic growth and poverty reduction plans.

Fisheries that have dollar value are more likely to be well managed.[39] The value of a fishery can be measured by adding up the costs that would be incurred if the fishery were to collapse: the cost of imports to replace fish caught, cost of unemployment and other costs. A study of 50 fisheries showed that when the value of the fishery was known it was more likely to be well managed.

The invisible economic benefits of small-scale fisheries. Small-scale fisheries employ and support 22 million people, mostly in developing countries. Data on these fisheries is difficult to collect and, so, often does not appear, or is underestimated, in national statistics. Most data comes from secondary sources, for example per capita fish protein consumption may be based on official fish production and imports minus exports.

Research has helped raise the income of fishers working in small-scale inland and marine fisheries, for example by stocking fisheries with fingerlings and introducing fish with a higher market value. Research has also provided tools and guidelines for managing small-scale fisheries (Box 11.2). However, governments may not be aware of economic growth potential in small-scale fisheries and so may not consider them when developing economic plans.

Box 11.2

Economic growth in small-scale fisheries may be invisible to national governments

In Lao PDR, communities doubled profits by stocking fisheries with young fish. The additional income was used to develop community facilities and help poorer households.

In Indonesia, to allow stocks to regenerate, researchers developed criteria for selecting river areas where fishing was forbidden. Because of these reserves, fishers' daily catches increased.

This synopsis of lessons learned for up-scaling and out-scaling research into use is based on:

MRAG/DFID. 2006. 'Fisheries and economic growth', FMSP Policy Brief 2, London: MRAG Ltd. FMSP

see

http://www.fmsp.org.uk/Documents/keylessons/FMSPBrief2_Economic%20Growth.pdf

[39] See also Dollar, D. and Kraay, A. 2001 Growth is good for the poor. Washington, DC: World Bank Research Group.

12 Lessons learned for out-scaling and up-scaling from *Fisheries and governance*

Key points

- Fisheries governance has shifted from maximising production to sustaining fish stocks. Much of this stems from research on fish biology and the effects of fishing on fish stocks.
- Policies have shifted from command-and-control to devolution of power. Access rights are being addressed.
- Governance of fisheries needs to be nested and integrated at international, national and local scales. For this to happen, governments need to be convinced that fisheries are important for economic growth.
- The skills and resource base in fisheries management are low. Capacity building addresses the tip of the iceberg but education systems need to change to turn out people with appropriate skills and knowledge.

Lessons learned

Control of fisheries is, overall, ineffective. One quarter of global fish stocks are over-fished, another half are fully fished. However, tools are available to improve the management of fisheries [Box 12.1].

Box 12.1

Tools to improve control of fisheries

Countries can benefit from selling licenses to fish in Exclusive Economic Zones and exporting fish. But they only benefit if licensing is well managed. Research has developed tools that help evaluate options.

Seychelles policy and management system for controlling foreign fishing vessels:

- Seychelles Fishing Authority staff and other key stakeholders learned to control foreign fishing vessels in the Seychelles Exclusive Economic Zone
- crews of illegal boats arrested and convicted
- laws revised
- annual revenues quadrupled by setting appropriate fees, legal penalties and budgets for surveillance.

Illegal, unreported and unregulated fishing:

Globally, governments lose US$2.4 billion annually because of illegal, unreported and unregulated fishing. Almost always, this is because of poor control—no monitoring systems, weak law enforcement, corruption.

Unless governments can be convinced to adopt nested governance structures for international, national and local fisheries, research on sustaining fisheries and maintaining or raising the contributions they make to economic growth, food security and livelihoods is unlikely to be put to widespread use. This framework needs to be in place for power to be successfully devolved.

Policies are weak because they are based on poor data. Policy makers have to steer a path through conflicting demands on fisheries. The biological, social and economic data and analyses they are offered are often a poor basis for making decisions. This means that policy objectives for fisheries are usually not clear and that the framework for developing and managing individual fisheries is weak.

Most people with responsibilities in managing fisheries just do not have what they need to do the job. Unless fisheries authorities are properly resourced and suitably staffed, the existing tools and methods for understanding and managing fisheries will not be used. Education systems seldom prepare graduates with the skills and knowledge needed to manage fisheries and in-service training addresses but the tip of the iceberg.

This synopsis of lessons learned for up-scaling and out-scaling research into use is based on:

MRAG/DFID (2006) Fisheries and Governance. FMSP Policy Brief 5. London: MRAG Ltd.

see

http://www.fmsp.org.uk/Documents/keylessons/FMSPBrief5_Governance.pdf

13 Lessons for out-scaling and up-scaling from *Signposts to more effective states: Think and operate politically*

Background

The paper *Signposts to More Effective States*[40] aims to "inject some realism into thinking about governance". Good governance is seen to be perhaps the most important factor in eradicating poverty and promoting development. But there are no simple answers as to how good governance comes about.

Researchers often refer to the influence of institutions, usually in terms of inadequacy or 'lack of'. The paper describes ways of delivering public services that have evolved from what is actually on the ground rather than being built on institutional models introduced from elsewhere. After all, in developed countries institutions grew in a piecemeal way as people responded to emerging requirements. So, the authors question the 'governance first' model of economic development. Also, they point out that some developing countries, for example China, are following quite different paths to development than those followed by now-developed countries. This suggests that there could be a great deal of scope for out-scaling and up-scaling research findings starting from what is actually there and that any plans to introduce 'best practice' need to fully consider the local situation.

Key points

- Develop an understanding of the social, political and institutional context, look at what is happening with an open mind and build on that.
- Be aware of the impact of changes on local relationships and incentives.
- Think and operate politically.

Box 13.1

Unrealistic expectations: too many demands on poor countries

"For decades, the development community has intervened in poor countries with little understanding of the political and institutional landscape, and with scant regard for local political relationships and incentives."

"In quick succession, donors have advocated state-led development, the marketisation and the retrenchment of government from core functions, followed by democratisation, decentralisation, the establishment of autonomous agencies, the creation of public-private partnerships, and civil society participation in the delivery of core services. All this has been imposed on poor countries, with weak institutions, many of them still in the process of institution building, and in the context of a rapidly changing global environment."

"Donors have consistently been unrealistic about the capacity required to manage complex processes of change, and have virtually ignored the need to build a social and political consensus for such change."

"They [donors] have expected poor countries to put in place a range of 'best practice' institutions … and they have assumed that creating those institutions involves little more than the supply of material resources and technical assistance."

Lessons learned

***Signposts to More Effective States* makes some harsh judgements (Box 13.1) on donor expectations of developing countries.** Agricultural research aimed at helping the poor has to cope with both the changing expectations of donors and the often messy and difficult environments in developing countries. The paper has no direct lessons as to how governance and institutions in developing countries might be improved by uptake of research findings from agricultural research. But what seems to be clear is that an open mind, a thorough understanding of the social, political and institutional situation, and an appreciation of what is actually happening are good starting points to build on.

Develop an understanding of the social, political and institutional context, look at what is happening with an open mind and build on that. Formal institutions based on western models have limited success when transferred to developing countries and, even if at first they seem to work better, they rarely manage to keep it up. The timescales estimated by development agencies for political and institutional change are seldom realistic. New policies and new ways of doing things are often promoted without considering the capacity of local institutions to implement them.

Signposts to More Effective States suggests that what is needed is a shift from the focus on the content of changes to the political feasibility of changes. This means helping develop local ownership of changes, that is, helping the processes for change. The need for a shift to considering political feasibility has implications, particularly for going about up-scaling research findings. Dealing

[40] The paper presents the main findings of a five-year research programme funded by DFID to address the question of how public authority in developing countries can best be reshaped and reconstituted to meet the challenges of poverty reduction in the early decades of the twenty-first century.

with the politics will involve engaging deeply with the various players and facing up to sometimes inconvenient realities.

Researchers and donors are for the most part reluctant to recognise that reality is messy and difficult. They often have preconceived models, rooted in their own experience, of how things should be and find it difficult to imagine or deal with models other than those they are familiar with. The suggested approach is to try to thoroughly understand the social, political and institutional context, look at what is happening with an open mind and build on that (Box 13.2). Unfortunately best practices cannot just be collected and transferred from one setting to another. Institutions and programmes need to be adapted to what is already happening in specific local situations.

Box 13.2

Unconventional ways of tackling problems—taxing the informal sector

The informal sector is very difficult to tax, but ways have been found to overcome this.

In Ghana the Ghana Passenger Road Transport Union collects levies from the large private road transport sector. The government gets the revenue, the Union gets an income from providing the service and the authority to collect levies, and vehicle operators get protection from illegal charges.

The arrangement is by no means perfect but is an unconventional way of taxing the informal sector by creating common interests between state and non-state sectors.

Be aware of the impact of changes on local relationships and incentives. Expectations in countries where weak governments fail to deliver even the most basic services, or even control large sections of their population, need to be realistic. Improving services (such as agricultural extension) is not just about providing resources, skills and technical solutions. It is about politics and incentives for different stakeholders[41].

Incentives for governments—especially in Sub-Saharan Africa—to bargain with organised interest groups are relatively weak. Rulers who have external (aid) or unearned (oil revenues) income do not depend on their citizens for revenue (taxes) or political support. In cases where a powerful ruling executive has direct control over government income, legislatures have very little say and are rarely effective. So, there is little public debate about how government revenues should be spent.

Large amounts of development aid provide governments with a substitute for taxes. But, even in poor countries, people pay taxes although they often see taxes as 'legalised robbery' because they just fill the pockets of tax collectors. Plus, the burden of taxation usually falls on the poor because elites have ways of evading taxes. Decisions about whether and how to provide aid often take virtually no account of the likely effect on governance and how aid might discourage collective public action.

Development aid disrupts the normal (western model) relationship between governments and (tax-paying) citizens, although that's not to suggest it should just stop. But, there is a need to be aware of the impact of changes on local relationships and incentives, including the risk of dependency.

Think and operate politically. Projects often have ambitious expectations of civil society. They expect civil society to get involved in policy-making, deliver services and monitor progress. They expect poor people to participate in local organisations that will give them a voice through networks of associations linked to policy makers. They hope that representation will be fair. These expectations can be naïve.

Civil society is diverse and we need to be realistic about whose interests are being represented and how (Box 13.3). It is important to look at what is actually happening and not be bound by western ideas of representation. Participatory mechanisms can and do provide access for poorer groups to policy making processes even if representation does not conform to the western ideal. Organisations do connect people who would be otherwise under-represented to politicians, public agencies and government. Poor people regularly approach leaders of organisations and committees who they think can help them to speak on their behalf and represent their interests.

Box 13.3

Giving the poor a voice

Surveys of civil organisations in Sao Paulo show that often organisations with good connections to government and political parties give the poor a voice in policy-making. Informal links between organisations and government or politicians are important.

Research shows that participatory processes often involve collectives rather than individuals. For example, participatory budgets in Sao Paulo were meant for individuals to participate directly in budgets. But, in practice, leaders of the community or neighbourhood associations speak on behalf of their organisations. However the organisations are not based on membership, so there is a question about who these leaders speak for or represent.

Research in Delhi, Bangalore, Mexico City and Sao Paulo shows that most people believe government should provide basic infrastructure and services. They want government and political parties to deal with sanitation, garbage and health problems though they are often also prepared to help themselves. They see political parties as very important for solving their problems.

A survey of civil organisations in Bangalore shows that a vibrant civil society does not necessarily give poor people a

[41] World Development Report 2004.

Box 13.3 *continued...*

voice. The elite neighbourhood organisations involve a small core of upper-middle class. These link with municipal authorities in public-private partnerships and marginalise the poor.

This means that any efforts to make changes—out-scale or up-scale research findings—needs a detailed understanding of the formal and informal relationships among stakeholders plus, most importantly, an ability to think and operate politically. This is a major shift in emphasis from a focus on 'strengthening' civil society to working with the interactions (processes) between state and society (Box 13.4). Informal relationships (shared interests, reputation, professional pride) and local practices influence the way formal institutions and mechanisms work. Skilful negotiation and implementation can make a difference.

Box 13.4

Interactions between state and society: complex factors underpin success or failure

Services are being successfully delivered in many ways that are often overlooked because they do not fit in any existing model.

Informal relationships between different stakeholders are important for accountability, whether or not formalised.

Service delivery is highly political.

Motivation of frontline workers in service delivery can be a key to success. Front-line environmental health offices caught up in patronage politics of public toilets in Accra and Kumasi, Ghana, have totally inadequate resources, no transport, low pay, poor training and poor prospects[42]. But only a fifth of workers were dissatisfied with their job. Most enjoyed good informal working relations with colleagues and managers, shared values, a positive organisational culture and good relations with the public. This suggests considerable potential to harness professional motivation and pride.

This synopsis of lessons learned for up-scaling and out-scaling research into use is drawn from:

'Signposts to More Effective States: Responding to Governance Challenges in Developing Countries'. The Centre for the Future State. 2005. Institute of Development Studies.

See

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

[42] Crook, R. and J. Ayoc. 'Urban Service Partnerships, Street Level Bureaucrats and Environmental Sanitation in Kumasi and Accra: Coping with Organisational Change in the Public Bureaucracy'. Forthcoming.

14 Lessons for out-scaling and up-scaling from *Communication for research uptake promotion: learning from practice*

Background

The synthesis document 'Communication for research uptake promotion: learning from practice' identified lessons from the UK Department for International Development's Renewable Natural Resources Research Strategy (RNRRS) which could improve the way that projects communicate in order to ensure 'better research outcomes'. And, from this document, it is possible to draw some lessons that are relevant to, and useful for, communication strategies intended to promote out-scaling and up-scaling.

Key points

- Tackle communication strategically.
- Make sure that the team includes communication professionals.
- Communication takes lots of work, time and money.
- Persistent face-to-face communication gets results.
- Tap into existing channels of communication.
- Use appropriate ways of communicating and finding information, including the internet.

Lessons learned

Tackle communication strategically. The RNRRS programmes and projects did pay attention to communication[43], and they did communicate in many different ways and develop and use many communication products. However, few addressed communication strategically or went through the process of developing a real communications strategy, which must involve the following:

- Analysing the situation,
- Identifying communication challenges, stakeholders and target groups,
- Setting objectives,
- Planning and scheduling activities,
- Establishing baselines,
- Setting up an evaluation process and
- Budgeting for human and financial resources.

All of this is important, because communication processes and products to out-scale and up-scale research results are more likely to be effective if communication is tackled strategically (Box 14.1).

Box 14.1

Tackle communication strategically

"The mandatory communication plan is useful in that it forces one to think about institutional linkages and the actors and institutions one has to address to bring about change. …we have had to address institutional issues, and focus on communicating our results in forms that address institutional issues, and can be understood by those in relevant institutions at the interface with communities and policy communication."[44]

This means identifying the key people and groups in the out-scaling and up-scaling process and listening to them, and then learning from them and responding appropriately. Communication 'products' may be needed to support the communication process (Box 14.2). Analyse what is needed, then develop and test materials thoroughly beforehand and evaluate how effective they were afterwards.

Box 14.2

The communication process is as important, if not more important, than products

"Policy papers were important, but the presence of project members at regional meetings and their lobbying efforts were critical activities to ensuring that the issues were placed on the [CARICOM] agenda."[45]

Call in communication professionals. Researchers will not have the communication expertise to develop and implement effective communication strategies (and products) for out-scaling and up-scaling research results. Just as researchers will be needed to do what they do best (i.e. explore technical issues) people with expertise in relevant fields of communication (with farmers, policy makers etc.) will be needed to interpret and communicate the results of research. Teams leading the initiatives will need to be made up of people with a mix of skills designed specifically for the project concerned.

Communication takes lots of work, time and money. Few programmes and projects commit sufficient resources to communication. In the RNRRS, most underestimated the amount of

[43] P3 Box 1 Norrish, P. 2006. 'Communication for research uptake promotion: learning from practice'.
[44] P4 Box 4 Norrish, P. 2006. 'Communication for research uptake promotion: learning from practice'.
[45] P3 Box 1 Norrish, P. 2006. 'Communication for research uptake promotion: learning from practice'.

time, effort, money, expertise and degree of flexibility that they needed to communicate effectively.

Persistent face-to-face communication gets results (Box 14.3). This is particularly true at the grass roots (targeting farmer field schools and community workers for example) and at what might be considered high levels (meetings with ministry officials, round tables, national and regional dialogues). Building relationships, whether with ministers, officials in ministries and national institutions or community groups and farmers, takes commitment and constancy. At all levels 'show and tell' is a valuable tool.

Box 14.3

Persistent face-to-face communication

"…[G]etting the main issues and concerns on the agenda of CARICOM … required face-to-face interaction with the CARICOM Secretariat and the political directorate. These meetings assumed significant importance and were considered critical by the project leader in achieving buy-in at the levels of the political directorate and senior policy makers and policy implementers."[46]

Tap into existing channels of communication. Don't trust to luck. The flexibility needed to take advantage of unforeseen opportunities like meetings is important. But, a more effective strategy is to find out how target groups communicate and tap into these existing channels—use them to inform, persuade and influence. There are many events on development schedules and networks at regional and national levels that provide openings.

Your situation and stakeholder analysis, and your planning and scheduling of communication activities needs to identify and capitalize on opportunities to talk to the right people in the right places at the right times.

Use appropriate ways of communicating and finding information, including the internet[47]. The amount of information downloaded from programme and project websites shows that the internet is a valuable repository of all kinds of information. Now, many professionals in the developing world have varying degrees of access to this resource. But, most people at the grass roots level aren't able to access or use the internet, and many of those at high levels don't have time to use it. Again, strategic planning will help show whether the internet is likely to be a useful tool in any particular effort to out-scale or up-scale research results.

This synopsis of lessons learned for up-scaling and out-scaling research into use is drawn from:

Norrish, P. 2006. 'Communication for research uptake promotion: learning from practice'.

See

http://www.research4development.info/pdf/ThematicSummaries/NRSP_Brief%20Comm_web.pdf

[46] P4 Box 4 Norrish, P. 2006. 'Communication for research uptake promotion: learning from practice'.

[47] "…the use of the Internet … is relatively new and little is known about [the] reach, equity and effectiveness [of websites and email discussion groups]. …learning-and uptake-require more than simply making information available." P5 Norrish, P. 2006. 'Communication for research uptake promotion: learning from practice'.

15 Lessons for out-scaling and up-scaling from *Capacity development*

Background

In simple terms, 'capacity' means the ability—knowledge and skills—of individuals and organizations to do a given task. The ideal end result of developing capacity in an innovation system is independence—support is no longer needed and the system is capable of continuing to learn and adapt to change.

Efforts of the 1995-2006 Renewable Natural Resources Research Strategy to develop capacity for impact—out-scaling and up-scaling—were scattered and opportunistic rather than strategically integrated. Where there were successes they show that demand-driven, action oriented and integrated strategies that are adequately funded, flexible and supported are likely to pay off.

The innovation systems approach switches attention from conventional research to improving the ways in which innovation happens. It is more interactive and less linear. This re-orientation has important implications for capacity development.

Key points

- Capacity development for out-scaling and up-scaling proven technologies, practices, policies and processes needs to be demand-driven, action oriented and integrated.
- Capacity development cannot be an add-on. A strategy must be in-built.
- The sets of skills and knowledge for out-scaling and up-scaling differ from those needed for research. There will be a shift from technical skills to the soft skills needed to strengthen institutions, policy, legal and economic processes.
- The types of people involved in capacity development services will grow. For out-scaling and up-scaling they will tend to be non-government, civil society and private sector organizations and southern research organizations.
- Networks are a powerful tool for capacity development.
- Capacity development is a long-term process.
- Formal monitoring and evaluation are critical if opportunities to learn and create synergies are not to be lost.

Lessons learned

Capacity development needs to be demand-driven and integrated. This means responding to demand, finding out what new skills and knowledge are needed and how they will be applied (Box 15.1).

Box 15.1

Fruits of the Nile: demand-driven, action-oriented, integrated capacity development [48] [49]

Fruits of the Nile, a small enterprise in Uganda requested help:

- to improve the way they dried fruit for export to UK, and
- to break into UK markets.

Key features were:

- *Demand-driven and action oriented.* The company knew what it wanted and capacity building responded directly to the expressed need.
- *Integrated.* The thrust was on improving the company's economic performance and strengthening its linkages. This is because one will not work without the other: a strong organization would be of little value without a strong core business, and business linkages would not be sustainable without a strong organization. The Natural Resources Institute, UK, and the Kawanda Agricultural Research Institute ran seminars for farmers to improve the dried fruit product. Farmers 'learned by doing' to build solar driers and process fresh fruits. The seminars also covered business management for small solar drying enterprises.
- *In context.* The capacity building linked local poverty to development opportunities and constraints outside the local area, for example the Fair Trade movement, regional, national and international market opportunities, best practices for production, processing and marketing.
- *Partnerships.* Capacity building strengthened links to markets, processors and involved concerted efforts by a range of actors. Strong trust relations lowered transaction costs.

Capacity development needs to be action oriented. Being on the spot to support partners in their newly devolved responsibilities has proved very successful. For example, the Crop Post-Harvest Programme devolved programme development, strategic planning and project support to four regional offices. The Regional Coordinator and small local team work with regional organizations to assess and build the skills that partners need to

[48] RNRRS Synthesis Study No 10. Innovation Systems: Concepts, Approaches and Lessons from RNRRS. January 2005. Page 12.

[49] The concept of this example is based on Getting Mozambican pineapples to market, pages 56-61 in KIT, Faida MLai and IIRR. 2006. Chain empowerment: Supporting African farmers to develop markets. Royal Tropical Institute, Amsterdam; Faida Market Link, Arusha; and International Institute of Rural Reconstruction, Nairobi.

become self-sufficient, such as in mobilizing resources from DFID and other development agencies to implement projects. Often, regional offices can source local trainers. South-South exchanges set up by the regional offices have proved to be very effective.

Capacity development cannot be an add-on. A strategy must be in-built. An analysis of the various 'actors' in the system and the links between them will help answer the strategic questions for capacity development and determine who, what, when and how various capacities might be developed (Box 15.2).

Box 15.2

Developing a capacity building strategy
For an innovation system: Bolivian potato farming
Researchers analyzed the strengths and weaknesses of a complex national innovation system—smallholder potato production in Bolivia—to devise a strategy for building capacity for opening new markets for potatoes.
They found out:

- What and whose capacity needed to be strengthened. Farmers needed to learn to carry out surveys, run crop trials, evaluate results, analyze markets and to pass on to others what they had learned.
- That there was a need to link organizations that traditionally don't talk to each other. They needed to set up a network that would have more power than individuals working alone.
- That levels of trust needed to be better so that changes could be made in relationships between parties, ways of working and hierarchies.
- That there was a need to take a practical approach: 'show' as well as 'tell'.

Individual development: farmer field schools in Gambia [50]
The wheel doesn't need to be reinvented. Often capacity development tools that work well elsewhere for other purposes can be adapted. The key is to find suitable tools, adapt them to the target group and entrench them in the new environment. In the 1980s, rice farmers in Asia raised their rice yields through 'learning by doing' at farmer field schools.

The Animal Health Programme together with the International Trypanotolerance Centre and the Gambian Ministry of Agriculture set up four farmer field schools to help sheep and goat farmers learn to manage animal health and production. In the Gambia, most sheep and goat farmers are women and nearly all are illiterate. So they adapted the manuals for the field schools, making them pictorial rather than text-based, and taught farmers to keep records using symbols and pictures.

The farmer field schools encourage group action. In 'learning by doing' farmers drew up group action plans for controlling ectoparasites and footrot, and coping with shortages of animal feed in the dry season. Group action

Box 15.2 *continued...*

can be a start to building self-sustaining institutions. Groups may go on to tackle other issues such as forming cooperatives to buy supplies, get credit or market their produce.

Organizational development in the Tanzanian national agricultural research system
Most of the funds provided by the Tanzanian government for research pay for operations and salaries. But there is very little budget for projects. After attending workshops in proposal writing, Tanzanian scientists wrote 157 research proposals. Of these, 79 were funded internally and 24 externally. The top ten proposals brought in US$2.7 million for projects.

This development of proposal writing skills is a step towards making the Tanzanian agricultural research system more self-sufficient.

First, the funds they've won by writing successful proposals complement government funding. Second, the researchers get to collaborate with international researchers, interaction that helps them keep current in their discipline. Third, researchers and their research organizations don't rely on others for training. A pool of trainers drawn from participants of earlier workshops trains other scientists.

Institutional development in Nepal seed regulatory framework
For some years the Plant Sciences Programme worked with farmers in Nepal to breed, test and multiply crop varieties—participatory plant breeding. This innovative approach contrasted sharply with the Ministry of Agriculture system for testing, certifying and releasing new varieties in both process and results.

Aligning the official system with the 'new way of plant breeding' meant developing the capacity of the officials and of the farmers—working simultaneously at different levels in the agricultural system—and persistent effort over ten years.

Network development
A strong international plant breeding network is up-scaling seed regulatory frameworks internationally—to India, Bangladesh and Ghana. Such networks help people exchange the technical skills and ideas that pave the way for up-scaling.

[50] FAO now has Farmer Business Schools as well.

Strategic questions for capacity development for putting research into use are:

- What knowledge and skills are needed?
- Who should have the skills and opportunities?
- What should organizational and institutional arrangements look like?
- What networks and linkages will be productive?

The experiences of the Renewable Natural Resources Research Strategy programmes show that

'There are many examples … throughout the NR [natural resource] programmes where selective capacity development has been necessary to both develop and disseminate research outputs. Often these may be end-users; typically small farmers, but traders, manufacturers and other small enterprises figure frequently.'[51]

Cooperation, consortia, round tables and networks are mechanisms to strategically integrate capacity development into sectoral or national initiatives and leverage bilateral and multilateral donor initiatives. Programme steering groups, such as those set up by the Crop Post-Harvest Programme in southern Africa, have proved to be a good way to overcome barriers between organizations and align programme priorities with national needs. Such neutral forums raise levels of trust between partners. Such interactions need to be a designed part of the strategy.

Cooperation between bilateral, multilateral and private donor and development agencies is now the norm. Donor consortia, round tables and networks all recognize that that the whole is greater than the sum of the parts. These interest groups consolidate and align programmes to national poverty reduction strategies and the Millennium Development Goals. But not enough interaction of this kind has happened over the 11 years of the Renewable Natural Resources Research Strategy. The innovation system approach will benefit from deliberately writing these interactions into its plans.

Use intermediaries to exchange knowledge between users and suppliers. Finding channels to exchange knowledge with users is a way of making the exchange a two-way street. For example, poultry feed producers in India learned to substitute low-cost sorghum (low cost because it wasn't fit for human consumption) for high-cost maize in chicken feed. They were helped to do this by the International Center for Research in the Semi-Arid Tropics. But, it wasn't a one-way learning experience—the Center also changed its ways. The poultry manufacturers demanded—and the Center had to learn to give—clear step-by-step recipes for feed, setting out exact ingredients and amounts rather than research results. The examples in Box 15.3 show the value of leveraging the knowledge and skills of a variety of organizations to build capacity.

The sets of skills and knowledge for out-scaling and up-scaling differ from those needed for research. As responsibilities for out-scaling and up-scaling pass to local partners there will be a need to develop their management skills, and skills in building and managing relationships, a trend that is likely to accelerate (Box 15.4).

[51] Capacity Development Synthesis Study 2005 page 8, paragraph 34.

Box 15.3

Exchanging knowledge: knowledge suppliers, intermediaries and knowledge users

RNRRS programme	Producer	Intermediary/ies	Consumer	Outcomes
Crop Post-Harvest Programme	Tribal groups	International Development Enterprises (India) and a local non-government organization	Large scale food processor	Group learning—tribal groups added value and marketed semi-processed milk products
Crop Post-Harvest Programme	Farmer's Clubs	International Center for Research in the Semi-Arid Tropics Farmers Federation	Poultry feed manufacturers	Organizational learning—manufacturer substituted low-cost sorghum for high-cost maize
Natural Resources Systems Programme	Local institutions	National University	Education ministry	Institutional learning—policy change to include rain water harvesting in national curriculum

Box 15.4

The differences between capacity development for research and for out-scaling and up-scaling: soft skills rather than technical skills

Capacity development for research	Capacity development for out-scaling and up-scaling
Engineering approach, top-down flow, implemented hierarchically	Holistic, organic approach, bottom-up, non-hierarchical network model of resolving problems
Focus on: • institution building • getting the pieces right • transfer of information	Focus on: • ownership • getting the approach right • learning by doing
Concentrates primarily on government and public sector	Encompasses the whole of a society (including the public sector), multi-stakeholder in nature, draws civil society and private sector organizations into the planning, design and implementation of programmes
North-South flow of expertise and knowledge	Stresses global networking, with South-South, South-North, and North-South interchange
Based on short-term projects Little attention to either retention or the loss of capacities developed	Strategic, geared to the medium and long-term Stress on maintaining and expanding knowledge, and nurturing capacities developed

The types of people involved in capacity development services will grow. Because soft skills rather than technical skills will be needed, NGOs, local civil society and the private sector are likely to play a vital role as trainers and facilitators to help people and organizations learn (Box 15.5, see overleaf).

Networks are a powerful tool for capacity development. Networks strengthen and create alliances between individuals (informal) and institutions (formal) and operate at all levels—local to global—and across organizational and discipline boundaries. Out-scaling beyond national boundaries often happens because individuals and institutions work together in informal and formal networks. Though often commodity based (e.g. bananas), networks may also focus on issues or processes (e.g. fisheries management). Strengthening networks among the academic, policy and donor communities also increases the likelihood of adoption of policy advice.

The internet gave networks a huge boost as a common space for instant messaging, e-newsletters, resources and tools, exchanging information and planning shared activities. Although experiences in different countries and areas are unique and seldom directly relevant to another, this diverse knowledge is of enormous value when gathered, considered and reinvented to fit local needs. This means networks can be a powerful tool for capacity development.

Capacity development is a long-term process. One clear lesson from the Renewable Natural Resources Research Strategy is that investment in capacity development pays off over the long term rather than the short term. It takes time to build links with local and international networks and strengthen institutions. Some programmes aligned capacity development within their overall strategy, phasing activities within project timeframes. This approach built strong, durable capacities over the long-term.

'Within the Renewable Natural Resources Research Strategy the best examples of significant uptake linked to durable policy change arise from coordinated and interlinked sets of activities that have been pursued over pretty much the entire lifetime of the Renewable Natural Resources Research Strategy (and in many cases pre-dating it).'[52]

Capacity development in short- to medium-term timeframes must integrate with long-term strategies. There are dangers in a short-term approach. Experience and evidence shows that capacity building initiatives most often die at the end of programmes and projects unless the processes for keeping them going have been put in place at the outset.

Formal monitoring and evaluation are critical if opportunities to learn and create synergies are not to be lost. Uneven and unsystematic cross-fertilization of experiences between programmes was a 'major shortcoming' in the 1995-2006 Renewable Natural Resources Research Strategy. There was little learning across programmes (i.e. organizational capacity for learning was weak). The Strategy did not build in processes for monitoring, evaluating and measuring impact, or a formal structure (e.g. regular meetings) to capture and integrate best practice. Opportunities to learn and create synergies were lost. For putting research into use,

[52] Capacity Development Synthesis Study 2005 page 7, paragraph 26.

Box 15.5

Local resources and suppliers for capacity development for out-scaling and up-scaling

Examples of knowledge suppliers	Examples of knowledge users	Examples of capacities strengthened	Examples of impacts	Capacity development level
Traders Research organizations Information and knowledge brokers	Farmers Processors Importers Trainers Coaches Mentors	Farmers trained to keep records, understand costs, base management decisions on information and negotiate prices Farmers know how much their produce is worth	Farm management improves Farmers make higher profits	Individual capacity
Non-government organizations	Farmers	Practical skills Farmers trained in management	Farm management improves	Individual capacity
Equipment suppliers Non-government organizations (eg International Development India supplier of low cost treadle pumps)	Farmers	Advice on equipment Low-cost equipment (eg treadle pumps)	Farm management improves	Individual capacity
Farmers	Researchers	Research output adapted to local circumstances and experience	Research output used	Individual capacity
Advice on equipment	Traders Community groups Producer groups Equipment suppliers Service providers Banks	Traders trained in quality standards Traders provide free training on quality to farmers	Consumers regularly supplied with good quality produce	Organizational capacity
	Community groups	Groups learn to negotiate and lobby effectively		
	Government regulators	New management processes adopted Quality standards for different markets Price regulations Land laws	Favourable environment for agro-businesses Products supply new markets	Institutional capacity
	Interest groups Individuals	Formal collaboration	Trust between parties Lower transaction costs Foster independent learning	Network capacity

the lesson learned is that putting in place and formalizing processes to capture and absorb learning is a priority. This means identifying, consulting and involving all key internal stakeholder groups in planning and implementation from the outset.

DFID and Renewable Natural Resources Research Strategy programmes made huge efforts to manage information. Still, much useful information is in the 'grey' literature, not formally catalogued and scattered over a plethora of department, programme, project and implementing partner web sites. Although programmes developed many useful tools for communicating to various groups of stakeholders in ways that are useful to them there is still a long way to go.

This synopsis of lessons learned for up-scaling and out-scaling research is drawn from:

Capacity development synthesis study. 2005.
See
http://www.research4development.info/pdf/ThematicSummaries/Capacity_Development_synthesis_study_P1.pdf

Bennett, E. 2005. 'Gender and the DFID RNRRS: A synthesis'.
See
http://www.research4development.info/pdf/ThematicSummaries/Gender_synthesis_study_P1.pdf

16 Lessons out-scaling and up-scaling from *Gender and the DFID RNRRS*

Background

Very simply, gender can be said to be a social condition, as well as a biological condition. Gender describes the views, rules and roles that differentiate men from women[53]. The core gender issue in development is inequality in the power to change. The premise is that tackling power relations between men and women will lead to equitable and sustainable development.

Gender awareness means understanding how male and female roles in any particular context affect poverty. This has significant lessons for out-scaling and up-scaling research results. Most of the lessons learned from the synthesis study of gender in relation to the DFID RNRRS relate to out-scaling and there are few pointers as to how to deal with gender issues in up-scaling.

Key points

- Much remains to be done to understand gender relations in development.
- Acknowledge that gender roles have deep roots in tradition, culture and religious law and will be slow to change. Inequality is still acute at the grass roots level in many developing countries.
- Gender relations cannot be ignored as they play a key role in the development process.
- Take into account that women do as much as men in agriculture.
- Take into account that men and women make decisions based on different priorities and get information from different sources.
- Revisit and augment gender-disaggregated data.
- Develop a set of clear, easily implemented guidelines on gender for out-scaling and up-scaling research outputs.
- Do a gender analysis before starting.
- Key gender-related factors that should be considered when out-scaling and up-scaling research results are health, education, household security, markets and management of natural resources.
- Avoid gender-neutral terms such as 'community', 'farmer' and 'fisher'.
- Women are at a distinct disadvantage when it comes to influencing policy.

[53] "gender embodies the roles and duties and obligations of men and women which have been reinforced through the centuries by institutions: the household, the market, the community and the state" P6 Gender and the DFID RNRRS: A Synthesis. Final Draft December 2005 Elizabeth Bennett

Lessons learned

Much remains to be done to understand gender relations in development. Our understanding of gender relations is growing, but much remains to be done. Plenty of the Renewable Natural Resources Research Strategy projects gathered information on gender roles (R7359, for example, looked at how men and women farmers get and use information). This information is a starting point for further work and learning.

Acknowledge that gender roles have deep roots in tradition, culture and religious law and will be slow to change. These roles mean that women are less literate, less economically and politically free, and more exposed to shocks and stress than men (Box 16.1). And, it must be remembered that while many developed countries accept female empowerment and equality in gender relationships, this is not the case in many developing countries.

Despite the entrenched nature of these roles, however, social and economic development will change the way societies operate. And while changes grounded in local customs are more likely to succeed than imported changes, they are not likely to come into play over the space of only a few years. This means that any work to out-scale or up-scale research outputs needs to, at the outset, take gender roles as they stand and work from there.

Box 16.1

Examples of laws and customs that restrict women

Hard-core poor Hindu women sort, grade and sell fish door-to-door in coastal Bangladesh. Here people think that women shouldn't be allowed to sell fish. So, these women are often abused by Muslim traders (R7969 Fish distribution from coastal communities in Bangladesh—market and credit access issues).

Another problem is the fact that laws often give ownership to males. This means that women cannot borrow money as they have no collateral with which to secure loans (see R7799 Changing fish utilisation and its impact on poverty in India, and R8108 Strengthening the contribution of women to household livelihoods through improved livestock production interventions and strategies in the Teso farming system).

Gender relations cannot be ignored as they play a key role in the development process. None of the RNRRS programmes focused explicitly on gender. But in the last five years of the Strategy, many projects acknowledged that gender relations

played a key role in the development process and that many of the key beneficiaries were women.

It must be remembered, however, that gender and women are not necessarily the same thing. It is the unequal relationships between men and women—gender roles—that need to be tackled for development to move forward. Changes in gender roles are part of the long-term process of cultural change.

We need to take into account that women do as much as men in agriculture. Though their tasks may be different, men and women often do an equal amount of the work involved in growing crops and raising livestock (Box 16.2). In addition, women bear the brunt of work involved in looking after children and the home. So it needs to be remembered that any new ways of farming or raising livestock will affect both men and women, though men and women will perceive and experience the changes differently.

Box 16.2

Women do as much as men although it is rarely documented

In farming communities, women usually look after the goats and poultry, and milk animals. They also look after seeds and grow staple food crops—like sweet potatoes in Uganda and cowpeas in Nepal.

In forests, men carve and make furniture from wood whereas women collect firewood, gather nuts and berries, brew beer and make small items to use in the home.

In fisheries, women work in the pre- and post-harvest sectors. They usually process and market the catch, for example.

National production statistics—hardly ever disaggregated by gender—track primary production (male-dominated) rather than harvesting, processing and marketing (female-dominated). There is a clear split between what men do and what women do and this needs to be taken into account when out-scaling and up-scaling research results.

Men and women make choices based on different priorities and get information from different sources. They perceive and experience things differently. For example, a study in Kenya and Tanzania found that men thought fishing was the most important activity whereas women thought farming was the most important (R8196 Understanding fisheries-associated livelihoods and the constraints to their development in Kenya and Tanzania).

Because men and women have different priorities, they also tend to make different choices. Another study found, for example, that women and men choose different fish for self-recruiting species in aquaculture (R7917 Self-recruiting species in aquaculture, their role in rural livelihoods), with women choosing those known to be good for children and pregnant women.

In Kenya, for example, men are likely to buy veterinary drugs from major centres whereas women, who cannot travel far from home, rely on local drug sellers. Men tend to buy preventive drugs because they can plan in advance, whereas women buy cures when animals are sick (R7359 The delivery of veterinary services to the poor). This kind of information is important when planning how to give information on animal health to women and men.

Many projects provided training or skills development and found that women tend to learn and share information in different ways to men. Women, for example, tended to learn through family and friends, while men listened to the radio, read and talked to their friends in restaurants and cafes. The information gap between genders can be narrowed by feeding information targeted to women into their natural communication channels.

Revisit and augment gender-disaggregated data. The Renewable Natural Resources Research Strategy projects also collected a lot of data on gender that was never analysed. So, no conclusions could be drawn. There is still a huge gap in gender-disaggregated data about rural incomes, for example.

Analysis of gender-disaggregated data collected in some of the RNRRS projects could shed light on gender issues which might be useful when working to out-scale and up-scale research results. For example, project R7917 (Self recruiting species in aquaculture, their role in rural livelihoods) collected a significant amount of data on gender roles in the management of fisheries resources, as well as data on the distribution of assets and income within households. This could provide information on who owns household assets and how ownership patterns might affect out-scaling[54].

In Laos, women traditionally manage household budgets. They are also in charge of marketing the fish produced by small-scale rice—fish culture systems. A significant set of gender-disaggregated data was collected by one project (R6830 Technical, social and economic constraints to rice fish culture in Laos, emphasising women's involvement). However, it is not yet clear whether men and women take decisions jointly or separately on whether to sell fish, at what price, in which markets or whether they went to market separately or together. Although both men and women seemed have an equal input in farming the fish, it was also not clear whether raising production would increase or lessen women's workloads.

It is also not clear whether men and women have equal access to opportunities to learn. Some projects recorded the numbers of male and female participants in training courses and workshops, while others did not.

Develop a set of 'clear, easily implemented' guidelines on gender for out-scaling and up-scaling research outputs. 'Women only' projects may be destructive to gender relationships in the long term. The consequences of empowering women have to be thought through to make a positive difference to gender

[54] "Given the predominance of income-generating activities promoted in many of the projects, more though needs to be given to collecting data on how increased incomes will be used and how they will impact on gender roles in the household." P35 Gender and the DFID RNRRS: A Synthesis. Final Draft December 2005 Elizabeth Bennett.

relations. The role that men play in allowing and helping women to change is integral to success.

In a project in Zimbabwe, for example, men felt threatened by women's success in raising poultry (R7524 The use of oil-seed cake from small-scale processing operations for inclusion in rations for peri-urban poultry and small ruminant production). Plus, even though looking after poultry in the home is considered women's work there, it's men who traditionally take the birds to market. This meant that even though women were producing more birds for sale, they didn't receive the proceeds to reinvest in more birds or poultry houses or to improve their standard of living—because the men controlled the cash. In this case, it was suggested that involving men in the poultry production scheme would help to ensure that the benefits were shared equally.

By only targeting women, gender relations may be worsened. For example, a project[55] to produce agroforestry manuals for illiterate women may inadvertently have ignored the needs of illiterate men, who may have been equally in need.

Undertake a gender analysis before starting. Work to out-scale and up-scale research results needs to set out exactly how men and women will benefit. Who wins and who loses may be based on gender. So, gender analysis needs to be a key part of any plan to out-scale and up-scale research outputs, as it can help us to understand gender roles and why some groups are poorer than others because of those roles.

The Crop Post-Harvest Programme carried out a thorough gender analysis before starting a project to improve the process used to convert bambara groundnut into flour. The analysis found that the project was likely to benefit women more than men because more women farm bambara than men. When it came to marketing both men and women would benefit equally. The gender analysis also found that women often needed permission to travel and attend meetings, which could affect the degree to which they benefited.

Gender analysis of conflict is critical to the management of natural resources. One project (R7856 Strengthening social capital for improving policies and decision-making in natural resource management) found that one-third of conflicts involve women. Women feel that local political structures are more effective at solving conflicts because they are at a disadvantage in traditional male bonding and network structures.

Key gender-related factors that should be considered when out-scaling and up-scaling research results are health, education, household security, markets and management of natural resources. The synthesis study evaluated gender issues according to six criteria (Box 16.3). It may be useful to consider these when developing indicators for assessing gender issues in out-scaling and up-scaling research results.

[55] R6072 Agroforestry manuals for illiterate women
[56] See R7917 Self-recruiting species in aquaculture, their role in rural livelihoods.
[57] Waterhouse, R. and S. Neville 2005 Evaluation of DFID Development Assistance: Gender equality and women's empowerment phase II Thematic Evaluation: Voice and accountability. DFIS Working Paper 7 May 2005. DFID: London.

Box 16.3

Key gender-related factors to consider

Health. Different types of food, as well as medicines, may be allocated differently within a household among women, men and children, and this affects their health in distinct ways. Thus, the actual health benefits of out-scaling a crop that—in theory—is more nutritious, need to be realistically assessed before out-scaling. Self-recruiting fish species have particular benefits for women, for example[56]. If more self-recruiting species can be caught, women eat more, thus improving their diet and health.

Education. Access to education—including education about new crops or new farming and fishing techniques—differs between genders. So work to spread new options needs to be carefully targeted.

Household security. It is important to consider gender divisions in making decisions about how to spend household income. In addition, women often suffer more than men from policy decisions about natural-resource management in which they have no say.

Markets. Do men and women have equal access to markets? How will constraints related to transport, getting information about markets, and being able to leave home to go to market, affect the success of out-scaling a new option?

Management of natural resources. How would gender differences related to natural-resource management (at local through to national levels) affect the uptake of a new option? Overall, women take little part in policy-making processes[57]. Women can be helped to take part by making sure both men and women have skills to do this—teaching them to read, giving them information, teaching them leadership skills. All members of the community need to be involved otherwise there is no guarantee that women's voices will be heard even though they might sit on committees that influence management and policies. However, more women taking part can be seen by men as a threat (R7524).

Ownership of assets. We must also consider gender differences in control over and access to assets, including user rights, animals and technologies. Loans taken out by women are often commandeered by men. Although goats, poultry, vegetables and self-recruiting fish species are often considered to be household assets and fall to women to look after, the extent to which women control these assets—selling, spending the money earned—is not clear. In Nepal (R632) women and men make decisions about selling goats equally, whereas in Zimbabwe women cannot make decisions about selling their own livestock.

Avoid gender-neutral terms such as 'community', 'farmer' and 'fisher'. Gender-neutral terms tend to blur what are often clear distinctions between female farmers and fishers and male farmers and fishers. In Nepal, for example, most chickpea farmers are women. Here, women traditionally farm chickpeas 'the poor person's protein' (R7885 Promoting the adoption of integrated crop management in chickpea by poor farmers in Nepal). As farmers' (women's) incomes increased, they spent more on health and education. So, the gender of the farmer makes a difference as, if the farmers are men, their priorities for spending any extra income might be different and have a different impact on poverty.

Again, many farmers who grow Phaseolus beans 'the meat of the poor' in Tanzania are women. So, many of these women farmers were included in trials to improve varieties (R7569 Participatory promotion of disease-resistant and farmer-acceptable Phaseolus beans in the southern highlands of Tanzania). Similarly, many small-scale sweet potato farmers in Central Uganda are poor women who head households (R8273 Improving the livelihoods of small-scale sweet potato farmers in Central Uganda).

In coastal Bangladesh, 10-20% of fish traders are Hindu women who sort, grade and sell fish door-to-door. Information on markets where generally only the poorest women work—fish markets in Bangladesh—is not generally collected (R7969). Because of this, women's work is invisible and seldom valued on equal terms with men's.

But, in West Africa, women who process and market fish put up money for fishing voyages. Some own ships and control fleets. Their strong networks and alliances help them do well in buying and selling fish. Here, gender is again an issue.

Women are at a distinct disadvantage when it comes to influencing policy. At the grass-roots level, some projects found women often do not have time to take part in community capacity-building activities because of their domestic chores and other activities. Gender has a powerful role in governing who does what in communities. This has implications for out-scaling.

The synthesis study, in its discussion on gender and development, did note that "women's organisations in the south are often staffed by women drawn from the elite who are pursuing policies that benefit them-that is, policies that will not prove to be a threat to their social or political class"[58]. This perhaps has implications for up-scaling.

This synopsis of lessons learned for up-scaling and out-scaling research is drawn from:
Bennett, E. 2005. 'Gender and the DFID RNRRS: A synthesis'.
See
http://www.research4development.info/pdf/ThematicSummaries/Gender_synthesis_study_P1.pdf

[58] Taylor, V. 2000 Marketisation of governance: Critical feminist perspectives from the South, DAWN: Suva, Fiji

17 Lessons for out-scaling and up-scaling from *Pro-poor seed systems in East Africa*

Background

Interesting lessons for out-scaling and up-scaling are provided by Crop Protection Programme project R8480, which considered pro-poor seed systems[59]. This was run as part of the UK Department for International Development (DFID) Renewable Natural Resources Research Strategy (1995-2005). The lessons point to the need for pathways for uptake to be clearly defined in order to ensure that end-users benefit. Crucially, they also make clear that unless research findings are thoroughly documented they are useless for out-scaling and up-scaling.

Most small farmers in Sub-Saharan Africa get their seed from the 'informal seed sector'. That is, they save their own seed, exchange seed, and trade it with neighbours and through non-government organisations, community-based organisations and farmer groups. This is mostly because the coverage of commercial seed supply systems in the region is poor and the seed they supply is too expensive for poor farmers. From the farmers' perspective, seed obtained through the informal seed sector is readily available, affordable and comes from sources that they trust.

There are, however, problems with informal seed supply systems. The quality of seed is often poor, for example, and it may carry pests and diseases. Plus, seed may not be stored properly and germination rates may be poor. Crop failures because of droughts or other causes mean that there may be no seed for the following year and there may be little choice of suitable varieties.

Key points

- Evaluate the effectiveness of products and pathways for improving uptake of research findings.
- Insist on high-quality, complete research documentation—any loss of research findings due to poor documentation is a tragedy.
- Participatory learning methods offer considerable scope for building sustainable seed systems. However, changes at the grass roots level need to be integrated with changes throughout the system.
- Existing learning resources may be useful in out-scaling and up-scaling research findings.
- In many developing countries, laws that do not recognise the informal seed sector are barriers to out-scaling.
- Draw on many different perspectives when drawing up plans to improve uptake of research results.

Lessons learned

Evaluate the effectiveness of products and pathways for improving uptake of research findings. In 2003, a group of stakeholders representing international agricultural research organisations, national agricultural research systems, universities, the seed trade and farmer organisations from throughout East Africa met at a Good Seed Initiative workshop. They agreed that the main weakness in the informal seed sector in the region was the failure to share and disseminate research findings to "farmers, seed traders and regulators, researchers, extensionists and policy makers".

To address this weakness a Crop Protection Programme project set out to develop and produce a number of publications of different types (ranging from reports to posters) to share research findings. These were distributed to 1,000 beneficiaries—including workshop participants, coordinators, members of national steering committees, partner and intermediary organisations involved in the Good Seed Initiative or seed-related activities in the region, and regional networks. The publications were also made available in newsletters and websites, and on the internet generally.

The project estimated that these beneficiaries would disseminate this information to up to 10,000 farmers. Unfortunately, however, it did not evaluate the actual extent to which the people who received the publications did share them, or what impact they had on the poor and on legislation. So, there is no way to assess to what extent the project's objective[60] was achieved. The reason given for not doing any evaluation was 'lack of time'. This suggests that either evaluation was planned but that the timeframe for the project plan was unrealistic and time ran out before all the plans could be carried out, or that evaluation was not in fact part of the plan.

Experience shows that evaluation is often seen as an 'add-on' and is not an integral part of plans. Unless the response to printed materials aimed at out-scaling and up-scaling research findings is evaluated it will be impossible to find out whether or not they are effective.

Similarly, the Good Seed Initiative seemed an ideal pathway to speed uptake and impact of seed-related research outputs in Kenya, Tanzania and Uganda. This was because members of the initiative were seen as playing a key role in raising awareness of the

[59] Phiri, N. 2006. 'The Good Seed Initiative (GSI)-sharing the learning from Crop Protection Programme programmes into pro-poor seed systems in East Africa. R8480. Final Technical Report'.

[60] The Good Seed Initiative aims to generate greater synergy between informal seed systems and innovations delivered through the formal seed sector and participatory research. This includes addressing issues such as the need for higher yielding varieties, pest resistant varieties, varieties for new markets, farmer participation in selecting varieties, better ways of saving and looking after seed.

relationship between good quality seed and better crops, and in disseminating seed-related research outputs.

By developing and producing useful materials and distributing them in limited numbers, the project has indeed taken some initial steps towards out-scaling and up-scaling. But it is not clear whether 'making information easily accessible and readily available' resulted in uptake of research findings by, for example, guiding the development of seed legislation. The lesson is that analysis of uptake pathways in networks needs to be rigorous. This may well indicate the need for significant investment in major communication strategies (as opposed to dissemination of outputs) to stimulate each of the different target groups of end-users (such as farmers, seed traders and regulators, researchers, extensionists, and policy makers) to change. A clear understanding of pathways for uptake and what can and cannot be done via these pathways will help to improve impact on end-users.

Insist on high-quality, complete research documentation—loss of research findings because of poor documentation is a tragedy. The Crop Protection Programme project reviewed over 200 research projects related to seed and undertaken between 1996 and 2005. Of these, 38 had findings related to seed quality, seed health or seed dissemination that could be immediately adopted by target beneficiaries. Tragically, a fifth of these 38 projects were not documented in sufficient technical detail for the research findings to be usefully shared.

Research that is not thoroughly documented might as well never have been done. In this case, one fifth of research findings identified as potentially the most valuable to improving the informal seed sector were lacking the technical detail needed to apply the new knowledge or method. This is surely an important lesson for the future and points to an urgent need for quality assurance processes.

Participatory learning methods offer considerable scope for building sustainable seed systems. However, changes at the grass roots level need to be integrated with changes throughout the system—to ensure quality assurance, certification and legislation. The project's final report suggests that the participatory approach offers considerable scope for building sustainable seed systems. Such participatory work would start with the needs of the community and widen to link with existing systems for quality assurance and seed certification.

This means that for out-scaling of improvements to seed to be effective, community level initiatives would need to be integrated with up-scaling efforts to develop quality assurance and certification schemes, and change legislation. At present there is no indication of how this might be done. Partners in the Good Seed Initiative have much to offer in participatory and learner-centred methods and tools, but only at the grass roots level.

Existing learning resources may be useful in out-scaling and up-scaling research findings. The Crop Protection Programme project R8480 developed and tested discovery-based learning exercises in Kenya, Tanzania and Uganda. After testing, the exercises were published in a training manual.[61] The manual for trainers tackles topics such as 'raising awareness' and appropriate dissemination of outputs (e.g. posters). It also sets out discovery-learning exercises that take farmers through processes which allow them to find out for themselves the value of new information and new methods of improving seed.

This project is one of many that have developed, tested and produced learning resources. Depending on how effective these materials are in practice, they may be useful in out-scaling and up-scaling initiatives, or at least useful starting points for developing materials. Materials and media need to be selected to achieve specific objectives in overall communication strategies. For example, participatory digital video proved to be an important peer-to-peer learning tool in Bangladesh for dialogue, and for sharing concepts and results.

Laws in many developing countries that do not recognise the informal seed sector are barriers to out-scaling. In many developing countries, laws governing seed (such as the Kenyan Seeds and Plant Varieties Act) do not recognise the informal seed sector. The Good Seed Initiative aims to address policy issues as well as improving seed systems at the grass roots level. The informal seed sector seems like a good candidate for an innovation systems approach in which integrated strategies bring to bear the concerted influence of existing organisations.

Involve many different perspectives when drawing up plans to improve the uptake of research results. Unless farmers are aware of the value of good seed it will be difficult to establish self-sustaining alternatives to commercial seed supply systems. The 2003 workshop identified farmers' lack of awareness of the value of good seed as one of three major constraints. The others were the quality and health of farmer-produced seed and poor dissemination of research findings.

Of the three constraints, the workshop participants chose the third (poor dissemination of research findings) as their preferred entry point. It is not surprising that they made this choice, as dissemination of research findings is a process most would probably be familiar with, whereas they might be uncertain about launching a major campaign to make farmers aware of the value of good seed. The decision that was made does, however, point to the need to involve many different perspectives when drawing up plans to improve the uptake of research results, as otherwise promising options may be overlooked.

This synopsis of lessons learned for up-scaling and out-scaling research into use is drawn from:
Phiri, N. 2006. 'The Good Seed Initiative (GSI)-sharing the learning from Crop Protection Programme programmes into pro-poor seed systems in East Africa. R8480. Final Technical Report'.
See
http://www.research4development.info/PDF/Outputs/FTR_Good_Seed_Initiative_(R8480)_P1.pdf

[61] 'Discovery-learning exercises for improving the quality, health and dissemination of farmer-saved and farmer-traded seed: A manual for training extensionists and poor farmers in the management of seed for improved yield'. 2006. CABI.

18 Lessons for out-scaling and up-scaling from *Plant breeder and farmer partnerships*

Background

The Plant Sciences Research Programme (PRSP) completed 17 participatory plant breeding (a technique now more appropriately known as client oriented breeding) research projects in Asia and Africa. Their experiences show the importance of taking the needs of farmers into account in the uptake of new and improved varieties—which means understanding what farmers need and then designing programmes that meet those needs.

These projects found that one way to speed up the process of breeding new varieties is to get farmers to test the early outputs of breeding programmes, and that the speediest way to get farmers to grow new varieties was just to give them the seed to test for themselves. Doing this in Nepal and Ghana spread new varieties rapidly. But, getting hold of the seed of a good choice of new varieties is a real barrier to uptake.

Key points

The following key points are raised by this research:

- Participatory Varietal Selection and Client Oriented Breeding can speed up the spread of new varieties.
- Regional and local preferences influence the acceptability of new varieties.
- Poor farmers quickly adopt the best new varieties when given seed, provided it has a combination of traits that the farmers like.
- In developing countries, farmer-to-farmer and informal seed networks are the most important ways by which nearly all new varieties spread.
- Farmers in developing countries are rarely consulted in breeding, selecting and testing new crop varieties. Traits that are important to farmers, such as ease of threshing (in Nepal and Ghana), have never been considered in traditional breeding programmes.
- A wide variety of partners should be involved in the innovation system.

Lessons learned

Participatory Varietal Selection (PVS) and Client Oriented Breeding (COB) can speed up the spread of new varieties. PVS and COB created new varieties of rice that thrive in drought-prone, infertile regions in eastern India and in the Himalayan foothills in Nepal. Farmers harvest up to 50% more grain from these new varieties than from the ones they used to grow. The quality is better and the rice fetches higher prices.

In Nepal in 1997, farmers had a very limited choice of varieties. By 2003, their choice had increased as a result of PVS and COB. These varieties are spreading rapidly in the more than 1 million hectares that make up the most important rice growing regions in Nepal, as a result of the participatory techniques being used. For example, PVS greatly accelerated the spread of a variety (Swarna) introduced from India, and BG 1442, which had been introduced into Nepal but never released.

PVS is both a research and an extension tool. The varieties tested (which can include not only crops, but trees and shrubs for animal fodder and fuel) can spread rapidly from farmer to farmer. Farmers can also mix and match the varieties that fit in their particular cropping system. For example, those who grow vegetables and rice in a mixed cropping system prefer varieties that they can harvest early to allow them to plant vegetables, because the vegetables will then also be early and fetch higher prices.

In Lunawada, India, between 1997 and 1999, the area of one old variety of wheat grown by farmers participating in the project fell from 89% to 20% because farmers rapidly adopted six to eight new varieties brought in using PVS.

In COB researchers take cultivars chosen through PVS, but which don't quite fit the bill, and cross them with varieties that can contribute the characteristics the original variety lacked but that farmers want. Scientists collaborate with farmers to jointly identify potential new varieties with the desired traits from the material produced by the cross. These are tested by the scientists for disease resistance on research stations and by farmers in their fields in PVS trials, from which the best ones spread from farmer to farmer.

Regional and local preferences influence the acceptability of new varieties. In Ghana, farmers and rice traders in villages near urban markets preferred rice that had long slender grains similar to imported rice, whereas further away from urban markets, people liked rice that is sticky when cooked. In western Ghana, however (where people soak, steam and dry rice before milling), they preferred rice which expands a lot.

Participatory methods can show whether a variety is likely to be rejected because people don't like it because of its look, taste, smell or other quality. Eliminating the 'no-go' varieties at an early stage makes it more likely that those that survive the elimination round will be acceptable and will spread more rapidly when out-scaled.

Poor farmers quickly adopt new varieties when given seed. Research findings from Lunawada, India, showed that poor farmers—those with least land—will adopt new varieties as quickly as richer farmers when they are given seed to test. The amount of land owned by farmers made no difference to the proportion of land on which they adopted new varieties. In Jharkhand, Orissa and West Bengal, new drought tolerant varieties of rice are

increasingly grown throughout the upland rice area, with the farmers adopting them often expanding their area of upland rice.

The speed at which the seed of new varieties can spread from farmer to farmer or through informal seed networks is impressive. In India, a Participatory Varietal Selection programme introduced a new rice variety that spread from three villages to over 100 villages within three years. In Ghana, the seed of eight upland rice varieties was given to farmers in six villages in the Volta region. By the following year, it had spread to 22 villages up to 40 kilometres away (Box 18.1).

Ways of giving the seed of new varieties to many farmers or letting them have it very cheaply may be important for getting uptake.

Box 18.1

Want a new variety to spread? Give it away.
In 2000, researchers gave the seed of eight new upland rice varieties to different people and different groups of people in six villages in the Volta region, Ghana. These were: (i) farmers who had participated in Participatory Varietal Selection evaluations, (ii) a seed production group, (iii) the chief farmer, (iv) the extension officer, (v) people categorised by wealth, and (vi) a mobilisation officer who was a also a local politician.

By the following year, the seed had spread to 22 villages up to 40 kilometres away.

People first gave seed to their relatives. Then they sold it to farmers in nearby villages where it fetched 20% to 30% more than local varieties. Some who were given seed kept it all and multiplied it for themselves.

But the champion seed distributor was the mobilisation officer who set up a village seed committee to run a seed fund. The seed fund operated on the basis of 'borrow 1 kilo of seed and return 2 kilos'. After the first year, members of the original seed committee set up similar committees in other villages.

Involve a wide variety of partners. Projects found that they needed to partner with a wide range of different types of organisations involved in some way with putting new varieties within the grasp—economically and physically—of poor farmers.

In Nepal, rice quality is assessed not just with farmers but with consumers and the purchasers of grain—the rice millers. A network of research organisations, non-governmental organisations, government extension agencies, farmers and farmer groups then test and out-scale the varieties. As part of this, community-based groups for various agricultural enterprises form the basis of new, private-sector seed enterprises that are linked throughout Nepal to agricultural input suppliers, civil society, government organisations and donor-supported development projects.

This synopsis of lessons learned for up-scaling and out-scaling research into use is drawn from:
Stirling, C.M. and Witcombe, J. R. 2004. Farmers and plant breeders in partnership, Second edition. Bangor, UK: Centre for Arid Zone Studies (CAZS).
See
http://www.research4development.info/pdf/ThematicSummaries/RLPSRleaflet1.pdf

19 Lessons for out-scaling and up-scaling from *Poverty measurement, mapping and analysis*

Background

Research Into Use clearly anticipates that poverty mapping will be a pre-requisite for putting tried and tested research results into use[62]. Poverty can be defined, measured and analysed in many different ways and the Renewable Natural Resources Research Strategy Programmes (RNRRS) expected to be able to use existing measures and analyses by other agencies that had a comparative advantage in this work (Box 19.1).

Box 19.1

Measuring, mapping and analysing poverty. Who has the comparative advantage?

The Renewable Natural Resources Research Strategy programmes were not originally designed in 1994 to carry out their own poverty analysis. The expectation was that other institutions and organisations had a more direct mandate to carry out this type of work and had a comparative advantage in doing so. Generally, RNRRS programmes were expected to utilise the tools and results generated by others. This is particularly the case with poverty measurement.[63]

But, the programmes found that none of the existing measures or analyses met their specific needs. So, several programmes devised ways to define poverty and groups of the poor, mainly to target and prioritise research that would reduce poverty. They found that the information they considered crucial for defining and measuring poverty was usually missing. And, looking at their results, they concluded that their methods gave indicative rather than definitive results. Despite this, they regarded poverty mapping as essential, particularly for the uptake of research outputs.

The most comprehensive work on poverty mapping to identify pro-poor research has been done for poor livestock farmers, particularly in East and South Africa, and South Asia. This work may indicate possible target populations for research outputs relating to livestock.

[62] RIU Implementation Plan August 2007 "The common goal of the coalitions and partnerships will be to get new research outputs adopted widely but using processes that ultimately empower and incentivise users to express demand for research outputs, and strengthen the capacities and incentive structures of public and private institutions through which knowledge is transmitted (and demanded) within national systems of agricultural and natural resource innovation. In our selection of initiatives under this component poverty mapping will be undertaken".

[63] Page 2. Poverty Mapping and Analysis: An RNRRS Synthesis

Key points

- Poverty maps indicate where research outputs aimed at specific groups of poor *might* be targeted.
- Existing studies do not show where poor people, and the enabling environments for uptake of research outputs, coexist.
- Understanding of the links between poverty and natural resources is limited.
- There are no 'wonder' solutions to reducing poverty. Baskets of options to meet multiple livelihood needs of a particular group of poor people are the most promising.
- Participatory stakeholder analysis may help in defining poverty and the poor, in order to aid the uptake of research.
- Useful tools have been developed to manipulate poverty data and offer decision making options.

Lessons learned

Poverty maps indicate where research outputs aimed at specific groups of poor *might* be targeted. The accuracy of poverty maps, whether at global or local scales, depends very much on the data on which they are based[64]. For many developing countries data is inadequate, sparse or unreliable. Often, proxies and extrapolation are used rather than actual data[65]. Nevertheless, these indicative estimates of poverty are clearly a valuable starting point for locating poor populations. But, targeting outputs from natural resources research to reduce poverty in certain groups needs maps at high resolution rather than global-level analyses (Box 19.2).

The International Livestock Research Institute used existing data, information from the literature and expert opinion to produce maps showing the global distribution of poor livestock owners. But, they found that to analyse poverty and its causes and to find out what kinds of research outputs on livestock issues might improve the

[64] Page 4, Poverty mapping and analysis: An RNRRS Synthesis. "In order to develop an accurate computerized model it proved essential that poverty criteria and indicators be well measured. …if the baseline data is incorrect, then it follows that any analysis and predictors will consequently be too inaccurate to prove useful."

[65] "The DHS (Kenya Demographic and Health Survey) collects information on important dimensions of human well-being, including housing characteristics, households assets, household-member characteristics, high-risk births and family planning, early childhood mortality, child nutrition and school enrolment. Though the DHS does not collect any information on household consumption or income, recent research has demonstrated the value of a household-assets index that can be used as a proxy measure for socio-economic status in the absence of income or consumption data (Gwatkin et al., 2000)." From Thornton, P.K., Kruska, R.K., Henninger, N., Kristjanson, P.M., Reid, R.S., Atieno, F., Odero, A. and Ndegwa, T. 2002. Mapping poverty and livestock in developing countries. International Livestock Research Institute (ILRI): Nairobi, Kenya.

lives of the poor, they needed information that was geographically disaggregated. So, they produced a more detailed map of livestock and poverty in East Africa. Even then, they found that, with the data they had, their maps showed the poor in agriculture, rather than specifically poor livestock farmers. Because aggregate national level indicators often hide important differences between areas or regions, additional analyses would be needed (Box 19.3) to identify the exact locations of poor livestock farmers.

Box 19.2

There is no substitute for high-resolution poverty maps to target poverty reduction

"Despite the caveats we give concerning our map classifications … and the sometimes heroic nature of the assumptions that we have had to make because of data gaps, global-level analyses can effectively identify foci where research and development activities aimed at specific communities or groups of people might profitably be targeted. At higher resolutions, where highly effective targeting is required, there is no substitute for high-resolution poverty mapping approaches, and to be most effective these might be based on small-area estimation. This approach to poverty mapping, which links national census data with household survey data, is under way for East Africa."[66]

Box 19.3

Disaggregated information shows important differences between areas or regions

In Kenya, the poorest districts generally correspond to those with the lowest milk production per person. A map of annual per capita milk production across districts shows that in western Kenya there are striking contrasts in milk output between districts with the same production systems. For example, Nandi District produces more than 10 times as much (497 kg/person) as the neighbouring districts of Kakamega, Kisumu and Vihiga (27-38 kg/person).

The International Livestock Research Institute considered that the key ingredients for high-resolution maps of poor livestock farmers would be geographically disaggregated basic information on the following: the spatial and temporal distribution of crops and livestock; the numbers, location and characteristics of the poor; and the numbers, location and characteristics of highly vulnerable poor livestock keepers. Despite the crucial importance of such information, existing databases are, by and large, very patchy and incomplete.

[66] Thornton et al. (2002). According to this report, preliminary high-resolution poverty maps for Kenya, Tanzania and Uganda were completed in 2002. IFPRI was engaged in producing similar maps for Mozambique and Malawi, as well as the maps that were completed in 2000 in South Africa, giving reasonable coverage of East and Southern Africa.

Similarly, in Nepal, the Forestry Research Programme found that there were no reliable regional or global sources of data on forest-dependent poor people[67]. The Programme had to use indirect methods and surveys and, at the local level, had to rely on the recommendations of individual research projects to identify the poor and their priority problems. And, because the timeframe for the poverty survey was short and data sources were limited, the Programme considered that its findings could only be indicative.

So, databases of crucial information for mapping poverty to target uptake of research to reduce poverty are unlikely to exist. Plus, there are no current studies at country, regional or smaller scales that quantify rates of poverty among and within different production systems.

Existing studies do not show where poor people, and the enabling environments for uptake of research outputs, coexist. Programmes also considered that, in addition to high-resolution poverty maps, mapping variables that indicate whether the 'enabling environment' is favourable or not would also be important for uptake of research outputs.

There will most probably be circumstances where uptake of particular research findings will make very little difference (Box 19.4). However, in other circumstances the same research findings may have very good chance of making a lasting positive change. What has not yet been done is to put the characteristics of the poor together with the characteristics of their environment to pinpoint where any particular set of research findings has the greatest chance of reducing poverty.

Box 19.4

The problems of the poor relate to power, hierarchy, subordination and exploitation

"The problems prioritised by the focus groups and service providers in this survey do not fall easily under the researchable constraints of a forestry programme. They are more fundamental, and relate to power, hierarchy, subordination and exploitation. … How the structures of resource access that are historically rooted in class distinctions that distort even well intentioned policies in practice, can be transformed to provide equity for the poor, is yet to be seen. The community forestry programmes in Nepal have led to some—but not sufficient—reform. Research may usefully be redirected to understanding when and how the poor can take better control of the development and democratization processes in the country."[68]

[67] Page 5, Poverty mapping and analysis: An RNRRS Synthesis

[68] Page 40, A survey of the priority problems of the forest and tree-dependent poor people in Nepal during a time of conflict. Caught in the cross-fire. An Update Report, 2005, by Bal Krishna Kattel, Krishna Paudel and Hemant Ojha (ForestAction, Nepal), in collaboration with Neil Bird, DFID Forestry Research Programme (FRP) UK, December 2005. Kathmandu and East Malling.

The Aquaculture and Fish Genetics Research Programme went so far as to argue that only by studying issues such as "power, hierarchy and social inclusion" before embarking on a project would it be possible to identify whether the preconditions for successful dissemination and uptake of the research were in place and whether the research outputs would address "real rather than perceived needs".[69]

DFID's adoption of the 'enabling/inclusive/focussed' categories of research rather than the 'basic/strategic/applied/adaptive' categories acknowledged that most obstacles to development are not technological but are rooted in policies and institutions and need a high-level and often political response. Thus, RIU, as well as mapping poverty characteristics, will need to find ways to overlay policy and institutional obstacles.

The International Livestock Research Institute (ILRI) Targeting Project didn't take policy and institutional obstacles into account when it set out to offer donors pro-poor livestock research investment options. There was no consideration of broader financial and socio-political contexts although ILRI emphasised that whether or not the options selected would have an impact would depend on there being appropriate 'enabling circumstances'. But, the reality is that conditions in most developing countries are unlikely to be enabling in the near future. This means that identifying where enabling conditions correspond with poverty that can be addressed by existing research outputs is going to be important for successful uptake.

Understanding of the links between poverty and natural resources is limited. The spatial relationships between poverty and poor or degraded natural resources are not yet clear. Analyses of, for example, poverty and soil degradation have not yet been made. The ILRI study points out that combining poverty with vulnerability might be valuable. Some groups of poor people may be more vulnerable than others to climatic and political shocks, such as drought and revolution. ILRI gives the example of pastoralists who live in areas with 300 mm of reliable annual rainfall. This group may be less vulnerable to shocks than pastoralists who live in areas with similar but highly erratic and unreliable rainfall.

There are no 'wonder' solutions to reducing poverty. Baskets of options to meet multiple livelihood needs of a particular group of poor people are the most promising. One lesson learned from the ILRI project was that there are "no wonder livestock research solutions that … can have a huge impact on poor people". While ILRI found this disappointing, they also acknowledged that the conclusion was realistic and proved the value of the process.

The lesson that there are no wonder solutions that livestock research alone can deliver underlines the need to analyse the multiple livelihood needs of a particular group of poor people and put together packages of outputs to meet these needs[70]. Programmes repeatedly called for holistic approaches integrating social and scientific issues, such as land and water management and socioeconomics and hydrology, particularly when it comes to implementing project findings[71].

An Aquaculture and Fish Genetics Research Programme collaboration with CARE in Sri Lanka on fish culture learned that an effective way to increase the uptake of research findings was to provide a basket of options for the poor to choose from. One example was combining water retention structures for fish culture with other uses for the water such as small-scale brick making. This suggests that collaborating with action-oriented agencies whose primary concern is development of poor rural communities, such as CARE[72], could be productive. Putting together combinations of research outputs that complement each other and offering a basket of research outputs to meet differing needs, rather than a single solution, may also increase the uptake of research findings.

In view of these experiences, programmes also proposed that, for direct impact on the poor, work to increase the uptake of research outputs should be 'nested' within local partners' development programmes and existing national and international strategies. This would get round the problem presented by the incompatible timeframes of short research programmes and the often long timeframes of development. Both these suggestions align with the innovations systems approach.

Participatory stakeholder analysis may help in defining poverty and the poor, in order to aid the uptake of research. There is no agreed international definition or measure of poverty. Poverty is multi-dimensional but there is no single indicator to measure all the dimensions simultaneously. And, as the International Livestock Research Institute learned in its Targeting Project for livestock research[73], there is no consensus on appropriate data or any agreed action plan to collect baseline data.

In Sri Lanka, the Aquaculture and Fish Genetics Research Programme learned that it was difficult to define their target group of poor people. The poor engaged in a variety of activities outside the market economy in order to survive. These types of subsistence activities more often than not fall outside statistical data collection nets. So, in this case, defining the 'poor' (towards whom the work to increase uptake of research findings needed to be directed) presented challenges.

Despite these problems, and though they used different tools, both livestock and forestry programmes concluded that poverty analysis was important for the uptake of research outputs.

Participatory stakeholder analysis may be a way to take into account multiple perspectives of poverty. So, it may be a promising approach for the uptake of research outputs through national

[69] Page 6, Poverty mapping and analysis: An RNRRS Synthesis
[70] Page 6, Poverty mapping and analysis: An RNRRS Synthesis
[71] Page 6, Poverty mapping and analysis: An RNRRS Synthesis
[72] The Forestry Research Programme and Crop Post Harvest Programme emphasised that key elements in poverty alleviation are developing markets, and developing producers' marketing and entrepreneurial skills. To do these things, RIU could consider partnering with organisations such as CARE. "VegCARE … A company set up jointly by CARE and a Kenyan company, … advises small farmers on how to grow vegetables that meet supermarket standards, buys them and then sells them on to local and international supermarkets, including Sainsbury's." http://www.careinternational.org.uk/CARE%20turns%20down%20US%20food%20aid+9831.twl
[73] Page 32, Poverty mapping and analysis: An RNRRS Synthesis

innovation systems. Programmes used this qualitative method of gathering and assessing information and criteria. The Aquaculture and Fish Genetics Research Programme learned that stakeholder analysis also developed a shared idea of the work to be done and how to go about it. Participatory stakeholder analysis would also take on board the concerns of the poor about actions conceived for them by outsiders identified by the Forestry Research Programme (Box 19.5).

Box 19.5

Participatory stakeholder analysis will include the poor

"The poor are tired of talking to people from outside who assess the intensity of poverty but do nothing to address it. …. The poor, who have been structurally excluded from development activities for years, no longer tolerate activities implemented "for" them or plans developed "for" them. They are in the dire need of plans implemented "with" them or "by" them, and accountable to them. They often point out that they want to be involved in each activity of development that is envisioned for them."[74]

Useful tools have been developed to manipulate poverty data and offer decision making options. The Forestry Research Programme used a visual tool, causal diagrams, to rapidly analyse data from two surveys in 2002-2003 and 2005. The causal diagrams show the links between problems and causes. This helps assess priorities and focus inputs. For example, in Nepal, the 2002-2003 causal diagram of survey data showed the main problems of the poor were as follows: not having access to credit; caste; large families; and corrupt officials. In 2005, because of the escalating conflict in Nepal, the main problems were insecurity, worsening healthcare and unemployment. The Forest Research Programme learned that the main shortcoming of causal diagrams was that by focusing on one discipline (forestry), higher priorities for the poor, such as health, were not considered. Plus, the poverty issues relevant to different categories of poor people could not be separated.

A decision support tool, PRIMAS, developed by the Animal Health Programme and Livestock Production Programme, has already been used by donors, regional agencies and national agricultural research systems to select sites for development programmes[75] (Box 19.6). Another tool to rank policy alternatives ex-ante, EXTRAPOLATE, assesses the likely impact of policy measures on different groups. Other sectors, such as health, are interested in customising these tools for their specific needs and they seem to be promising tools for RIU to use in matching areas and groups to research outputs.

For research outputs geared to improving livestock feed in poor communities, the feed resources framework (System-wide Livestock Programme) is expected to select and target existing feed resource options and identify projects and policies that are pro-poor. The main output will be a research and development plan on feed resources in the coming years. This seems an avenue for RIU to take, slotting in existing research findings on feed resources into the development part of this plan.

Box 19.6

Tools to help choose where research outputs are most likely to be taken up

"…the analytical tools and techniques of poverty analysis, such as poverty mapping and spatial overlays with markets and other key drivers of livestock system changes as well as the insights into pathways into and out of poverty are beginning to attract interests from other sectors, such as the health sector that are interested in customising to their specific institutions."

PRIMAS (Poverty Reduction Intervention Mapping in Agricultural Systems) is a tool that matches technology options with particular target groups. EXTRAPOLATE assesses the likely impact of policy measures on different groups. Both PRIMAS and EXTRAPOLATE were used to analyse smallholder dairy and small stock in Uganda and India.

This synopsis of lessons learned for up-scaling and out-scaling research into use is drawn from:

'Poverty mapping and analysis: An RNRRS Synthesis.'
See
www.research4development.info/pdf/thematicsummaries/Poverty_Mapping_and%20Analysis_P1.pdf

Brief: 'Learning from the Renewable Natural Resources Research Strategy. Poverty measurement, mapping and analysis.' Susanne Turrall.
See
www.research4development.info/pdf/ThematicSummaries/Brief8_Poverty_measurement_mapping_and_analysis.pdf

[74] Page 40. A survey of the priority problems of the forest and tree-dependent poor people in Nepal during a time of conflict. Caught in the cross-fire. An Update Report, 2005, by Bal Krishna Kattel, Krishna Paudel and Hemant Ojha (ForestAction, Nepal), in collaboration with Neil Bird, DFID Forestry Research Programme (FRP) UK, December 2005. Kathmandu and East Malling.

[75] And possibly research, though this is not clear.

About Research into Use

Research Into Use (RIU) is a pioneering four-year programme that is working to get new livelihood-improving development options into use on a grand scale — so that they benefit large numbers of poor people.

A major goal is to put into practice the tried-and-tested results of research on natural resources funded by the UK's Department for International Development (DFID) and others. We're working closely with in-country partners, to spread the word about these options, stimulate demand for them, and help people adopt, adapt and commercialise them where possible.

For further information, please contact:

The Research into Use Programme (RIU),
NR International, Park House, Bradbourne Lane,
Aylesford, Kent, ME20 6SN, UK

riuinfo@nrint.co.uk

www.researchintouse.com

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