



# Learning from the Renewable Natural Resources Research Strategy

## An integrated approach to capacity development

*DFID's Renewable Natural Resources Research Strategy (RNRRS), which ran from 1995 to 2006, was focused upon the generation of research, and capacity development was limited. DFID's new sustainable agriculture research strategy places greater emphasis on the uptake of research as part of a broader 'innovation system' and signals the need for an integrated approach to capacity development.*

### Key messages

- RNRRS guidance at the outset did not encourage capacity development and concentrated purely on the creation of research.
- However as the RNRRS evolved, limited capacity development initiatives could be funded by programmes as long as they contributed towards the project purpose. Programme managers recognised the value of capacity strengthening for the successful execution of programmes and uptake of research products. Capacity development was carried out at different levels but due to constraints it was often conducted in fragmented and less than optimal ways.
- The new DFID research strategy emphasises the need to develop sustainable capacity in a country's innovation system, as well as to deliver specific technical outputs. This involves a move towards more multi-stakeholder, inter-disciplinary and client-driven research agendas. The range of capacity development interventions will need to be appropriate to public, private and community sector organisations, not just traditional research institutes.
- Research outputs within an innovation system are broader than purely technical and encompass methodological, policy, process and institutional outputs. The scope and nature of capacities therefore changes.

### Introduction: a changing context

The context of agricultural research is changing in a profound way. Scientific and technical issues are becoming more complex, as are the associated social, economic, policy and ethical aspects. In developing countries, particularly sub-Saharan Africa (SSA), there is a need to develop new types of capacity and to replace the skilled resources that are being lost through HIV/AIDS or by migration elsewhere (the 'brain drain'). This means addressing the need for suitable incentives that will retain people in national

research systems and prevent them being attracted to international agencies.

In addition, agricultural research has to adopt new configurations if it is to engage with the wider issues of innovation and science policy and have a real impact on poverty reduction. This means widening its scope from research to innovation; that is, embracing the processes that determine the successful uptake of knowledge as well as its generation. An innovation system brings the users and suppliers of knowledge together from the

outset, thereby ensuring that innovation takes place. Research therefore remains important but is only one element within the system (see the parallel synthesis on innovation systems in Rath and Barnett, 2005).

This study draws on the RNRRS experience and distils key lessons. It considers capacity development in the context of the innovation systems approach and discusses the implications for future capacity development efforts.

### What is capacity development?

Within this Brief, capacity is viewed as the ability of individuals, organisations and the system to

perform research and transform research knowledge into successful pro-poor innovation. Table 1 lists the different types of capacity that fall within this context.

Capacity development (sometimes referred to as capacity strengthening) has now largely replaced the term capacity building in the literature. This probably reflects a desire to move away from the implication that development assistance is needed to build capacity from scratch, and to embrace the view that capacity development should strengthen existing structures.

Capacity development initiatives should embrace some notion of sustainability, since once capacity is established it needs to be maintained

**Table 1. Capacity development domains, outputs and impacts**

Capacity development domain	Examples of outputs	Examples of impacts
Individual capacity	Researchers and other workers trained to a certain level/ discipline	Improved management systems Enhanced research outputs Improved research networks
Organisational capacity	Equipment availed Infrastructure developed (management and systems) Strategic and policy capabilities developed Technology introduced	Enhanced research outputs Improved project and resource management systems (including information) Research needs more accurately identified
Institutional capacity	New/improved research approaches introduced New/improved management approaches adopted 'Infrastructural' changes, e.g. to policy, incentive or market mechanisms	Researchers trained Improved research management systems Enhanced responsiveness to stakeholders
Network capacity	Partnerships, consortia built National/regional networks strengthened North-South partnerships between research institutes	Enhanced research outputs Enhanced responsiveness to stakeholders Transformed research management Durable networks established

over the long term. This may include changing the enabling environment that controls the incentives (or disincentives) that are so crucial to the stability of capacity.

### **RNRRS expectations and guidance**

Guidance on capacity development efforts within the RNRRS changed significantly over its 11-year lifetime, reflecting the evolving policy environment. Initially, research programmes were informed that they ‘should not fund training, technology transfer by extension or institutional development’ (ODA, 1994). However, the rules were relaxed and programmes were allowed to introduce limited capacity building for developing country institutions in recognition of the value of the long-term collaborative arrangements that would result. Capacity development had to be relevant to the project purpose and cost-effective (DFID, 2000). It should be noted that capacity development was never considered in the wider sense as an integrated part of a research framework for the generation and uptake of research.

Bearing in mind these directives, the extent of capacity development that was undertaken is perhaps surprising. Many of the research programmes saw it as an essential part of programme implementation and sustainable uptake. However, capacity development efforts tended to be fragmented, less than optimal and always with the feeling that they had to be conducted ‘under the counter’. Some of the initiatives were deliberate, but others were not explicitly recognised as capacity development, notably the building of partnerships, networks and organisational capacities.

### **Learning from the RNRRS**

The experience of capacity development within the RNRRS is considered across a number of different levels: individuals, organisations, institutions, networks and partnerships. The distinction between organisations and institutions used here is that organisations are physical bodies (e.g. companies, government departments, research institutes) while institutions are the constraints that structure human behaviour, which may be formal (e.g. rules, laws,

constitutions) or informal (e.g. markets, behavioural norms, conventions).

### **Individual capacity**

Initial exclusion of capacity development initiatives from the RNRRS probably reduced the amount of individual development undertaken. The most common formal individual development was the acquisition of post-graduate qualifications by project team members, mostly Doctor of Philosophy (PhD), Master of Science (MSc) or Master of Philosophy (MPhil) qualifications.

Programmes that supported post-graduate training (and circumvented DFID guidance by such means as giving research assistant salaries or asking a co-donor to pay fees) did so as the best way to get a specific research task achieved in terms of both cost-effectiveness and skill development. Programme managers felt that the training in research methods and other skills presented a real strengthening of capacity, although this was not a primary output of the research programme.

Programme managers argued that even if post-graduates move on from an institute, they are rarely lost to the sector. However, evidence of this is mixed. Some post-graduates do stay ‘in the network’, but in an unpredictable variety of roles, while others emigrate or otherwise move on, particularly from unstable countries. The Crop Protection Programme (CPP) tracker study for 1985–2003 showed that international students (i.e. non-European Union) gained 53 out of 78 PhDs (68%). Of these, 91% are still active in the agriculture sector but only 17% remain in developing countries.

### **Organisational capacity**

While selected individuals may have enhanced their skills through involvement in research projects, attention was given less often to the organisational-level capacities of partner organisations. Indeed, projects commonly placed demands on already weak or over-stretched organisations. The exclusion of capacity development initiatives in the RNRRS has certainly limited the amount of organisational support given.

However, some strong partnerships with developing country organisations have been formed and maintained. Over the years, the number and

range of these partnerships has expanded beyond traditional pairings with host country research institutes. In some cases, organisational development went further than scientific training and included project management skills, proposal writing and so on. For example, the CPP strengthened data management capacity within Uganda's National Agricultural Research Organisation (NARO) and developed knowledge management capacity among decentralised knowledge providers in East Africa.

### **Institutional capacity**

Institutional capacity relates to the ways in which individuals and organisations work with each other, through formal or informal means. Appropriate levels of individual and organisational capacity are necessary (but not sufficient) conditions for the development of institutional capacity. In addition to the need for specific competencies from researchers and research institutes, other parts of the system may need to be developed. For example, government departments may need to adapt in order to relate directly to farmers or farmer groups. Such adaptation may require changes in culture, policies and incentives as well as the acquisition of new skills.

Institutional capacity constraints can become apparent when considering the scaling-up of research outputs. The Plant Sciences Programme (PSP) dissemination strategy (PSP, 2001) shows a particularly well developed approach (see box).

There are many examples where RNRRS projects worked at the institutional level, perhaps to effect changes in the enabling environment through policy impact, or to change market relationships with private sector partners. The 'soft' transaction skills needed to develop partnerships and effect change may have been acquired during such projects, but they can also be the aim of targeted capacity development initiatives.

Many programmes came to recognise that adaptive research and a requirement for immediate impact meant they needed to engage with a wider set of stakeholders beyond their traditional research institute partners. In addition to widening the range of organisations, this meant understanding the linkages and interactions.

The Crop Post Harvest Programme (CPHP) perhaps pursued this most explicitly, using

### **Box 1. Institutional capacity development: participatory varietal selection and breeding**

The Plant Sciences Programme (PSP) has maintained long-term support for an innovative approach to crop improvement, whereby farmers breed, test and multiply crop varieties. Two significant capacity problems needed to be addressed in the course of this work. The first was to develop the capacity of farmers to conduct scientifically rigorous and documented field trials. The second was to persuade and train the government departments concerned to understand and accept that on-farm data was as valid as formal on-station trial data and to ultimately enshrine this perception in a revised seed regulatory framework.

This process has been successfully concluded in Nepal and is being replicated in Bangladesh, Ghana and India through a strong international network that has facilitated the transfer of germplasm and ideas between partners. This case underlines the fact that capacity development often needs to be undertaken simultaneously at different levels in the agricultural system and that it takes persistent effort over extended periods of time – ten years in this case.

Source: Joshi et al. (2005)

innovation thinking to underpin its strategy. In 2002 the programme adopted a 'partnerships for innovation' approach in an effort to improve the quality and sustainability of its research partnerships and to enhance the relevance and impact of its research. The approach was centred on the creation of project coalitions, involving stakeholder representatives from research institutes, governments, non-governmental organisations, smallholder rep-representatives, private sector, etc. The projects were managed by coalition teams. The approach required capacity development in a number of areas and the team introduced an integrated set of initiatives, for example, providing

a 'starter pack' for new partners and developing institutional monitoring and evaluation (M&E) techniques.

### **Networks**

Networks are drawn together through common professional interests rather than organisational affiliations. They are nourished by personal contact and rely on high levels of trust and informality. Despite the evidence that networks are a powerful vehicle for exchanging knowledge and ideas, they receive little formal recognition in development strategy. On the contrary, budget allocations to networking are often viewed as being somewhat unfocused and ineffectual. Researchers seem in no doubt of the power of professional networks, however, and many RNRRS projects have created and strengthened alliances between researchers in developing countries.

Knowledge networks are especially valuable in countries where formal structures are weak. For example, in SSA, government agencies are underfunded and the skills shortage is exacerbated by brain drain, HIV/AIDS and intermittent finance and security issues. India suffers different problems: although public and private finance is adequate, the research sector suffers from poorly functioning institutional linkages resulting from an over-bureaucratic system.

Within the programmes there are numerous examples of professional networks being strengthened through such activities as the formation of network groups, exchange visits, project workshops and learning events. The PSP in particular has defined a research model ('an institute without walls') that explicitly recognises the importance of national and international network linkages with flexible partnerships, as distinct from a more conventional formal set of research partnerships (Stirling et al., 2006).

### **Partnerships and devolution**

During the lifetime of the RNRRS there has been a clear and steady trend towards greater involvement of overseas partners. This can be attributed to many factors, including a growing recognition of the effectiveness of participative approaches, particularly in delivering adaptive research; the driving force of DFID's emphasis of the poverty impact agenda;

and a progressive liberalisation of formal contractual requirements.

Technical and managerial capacity development among partners relies on having a sound base of training support. The RNRRS programmes have produced plenty of training material at both project and programme level. For example, through a series of linked projects, the Fisheries Management Science Programme (FMSP) has developed a comprehensive set of software, tools and techniques for sustainable fisheries stock management.

The building of sustainable research capacity through a partnership approach requires a commitment to devolve responsibility and control to public and private sector partners. Several programmes have recognised that this can be facilitated greatly by some form of local presence that is rooted in the local institutional networks. The CPHP has probably explored this most fully through its four regional offices, each with a regional coordinator and small local team. These teams have provided programme development, strategic planning and project support.

### **Conclusions: the secrets of success**

Several useful conclusions can be drawn from the experience of the RNRRS, especially in relation to innovation systems research.

### **Research goes hand-in-hand with capacity development**

Research and capacity building should not be considered as mutually exclusive options. Research cannot be separated from capacity development, and research cannot be conducted without building capabilities. Serious capacity development is a long term, extensive and expensive specialist undertaking, but so is research, and while the translation of research into effective innovation means paying more attention to capacity development, it must not be at the expense of research quality.

Good research and good capacity development both take time. While two- or three-year projects have benefits in terms of accountability, realistic planning and budgeting, they may not allow sufficient time for effective capacity development. It

is a combination of long-term programme strategy and short-term effective project management that has distinguished the most successful of the research programmes, and those that demonstrate a durable change to systems and capacities.

### **Who and where?**

Individual post-graduate support can be worthwhile if justified as a cost-effective means of completing planned research activities. However, it is probably not effective capacity development unless it is linked to a wider organisational or network development strategy consistent with the aims of the research programme. New mechanisms (and current best practice) should be investigated to maximise the number of in-country trainees and the incentives that encourage them to stay within the national system (e.g. in-country post-doctoral fellowships).

In terms of organisational capacity development, it is difficult to see the justification for extending research budgets to encompass general and non-specific research capacity building within traditional research institutes, since although an undoubted national good, it would divert both the resources and objectives of a research programme. In addition, it would probably be difficult to implement in a direct budgetary support environment. Limited support would be more effective if directly targeted at improving capabilities for successful innovation, wherever they may be.

Some programmes have arrangements for in-country support, with the CPHP's network of regional offices representing the most fully developed model. Such local presence is of great assistance in capacity development since it allows for informed assessments of local capacity and sourcing of local skills in response. South-South capacity development exchanges between researchers and other professionals have proved to be very effective and are easily facilitated by local offices.

Incentives and disincentives are very important for the sustainability and maintenance of capacity. In the longer term, the answer to the brain drain has to be through changes in the systems, status and comparative rewards offered to trainees in developing countries, rather than reducing the opportunities for higher education. More needs to be understood about how reward systems work and

how individuals who gain skills can be encouraged to remain in the national system, rather than moving abroad. Incentives should also reward successful innovation, not just the acquisition of research skills, post-graduate qualifications and publications records.

### **Integrating capacity development within innovation systems**

Using an innovation systems approach to research widens the field of engagement, putting more emphasis on multi-stakeholder, interdisciplinary and client-driven research agendas. There are several implications for capacity development.

Firstly, when capacity development is applied across the whole system engaged in delivering successful innovation, the range of potential interventions needs to include those that are appropriate to public, private and community sector organisations, not just traditional research institutes.

Secondly, research outputs within an innovation system are not just technical, but also methodological, process, policy and institutional. As a result, the range and nature of capacities needed to embed these innovations into a society are much greater. The focus becomes that of an integrated approach to systems capacity building.

Thirdly, an innovation systems framework offers a rational tool for mapping the national system, identifying stakeholders and their institutional relationships, assessing their capacities and identifying gaps and weaknesses for creating, adapting, packaging, trading, disseminating and using knowledge. The scope and range of innovation systems mapping will depend upon the nature and scale of the research activity. The capacity of project and programme management organisations themselves will need to include a competence in innovation systems mapping and capacity development needs analysis, and research projects will need to allocate sufficient resources throughout their lifetime to undertake these tasks.

Finally, M&E of any capacity development initiative is essential to ensure that it is meeting its intended objectives. This requires specialist tools and approaches. Furthermore, M&E can play an active role in organisational capacity development by fostering learning from experience. A self-assessment approach as a shared activity with

partners can also help engage staff and stakeholders in assessing needs and learning from their experiences.

## Additional resources

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## About this Brief

This Brief is an edited summary, prepared by Susanne Turrall, of a paper written by Frank Almond and Dan Kisauzi (2005): *Synthesis studies of the Renewable Natural Resources Research Strategy: Capacity development*. [www.research4development.info/thematicSummaries/Capacity\\_Development\\_synthesis\\_study\\_P1.pdf](http://www.research4development.info/thematicSummaries/Capacity_Development_synthesis_study_P1.pdf)

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### About the Renewable Natural Resources Research Strategy (1995–2006)

The objective of DFID's Renewable Natural Resources Research Strategy (RNRRS) was to generate new knowledge and to promote its uptake and application such that the livelihoods of poor people are improved through better management of renewable natural resources. Through its ten research programmes it addressed the knowledge needs of poor people whose livelihoods are dependent on natural resources production systems in semi-arid areas, high potential areas, hillsides, tropical moist forests, and at the forest/agriculture interface, the land/water interface and the peri-urban interface. The breadth of the strategy programme reflected the wide variety of environments in which poor people live in poorer countries and the multiple routes by which research can reduce poverty.

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