



Research Capacity Strengthening

Learning from Experience

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Addendum

This report summarises a workshop held in September 2011. In November 2011, the House of Commons Science and Technology Select Committee launched an inquiry into Science and International Development. This inquiry is very relevant, focusing on “DfID’s current activities to build scientific capacity in developing countries” and will report in Q3 2012.

Further information on the inquiry, including written and oral evidence, is available here: <http://www.parliament.uk/business/committees/committees-a-z/commons-select/science-and-technology-committee/inquiries/parliament-2010/science-and-international-development/>

The UKCDS and a number of other organisations represented at the workshop submitted evidence to the inquiry.

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Contents

Acronyms and abbreviations	5
Executive Summary	6
1. Purpose of the Working Paper	10
2. UKCDS and the Research Capacity Strengthening Group	10
UKCDS Research Capacity Strengthening Group	10
Rationale for Lesson-Sharing workshop	11
3. Research Capacity Strengthening	11
What is research capacity strengthening?	13
The framework of the Lesson-sharing Workshop.....	14
Key challenges in research capacity strengthening	16
Maximising impact through coordination	16
Supporting equitable approaches and building Southern-led research capacity strengthening initiatives.....	16
Sustainability.....	17
4. Research capacity schemes to support individuals	17
Context.....	17
Key challenges facing individual researchers	18
Approaches to support individual researchers	18
Case study: ‘Africa Initiative – Knowledge for Tomorrow’	20
Background.....	20
Objectives	20
How does it work?.....	20
What has happened since implementation?	21
Examples of achievements	22
What makes it an effective scheme?	22
What would be done differently?	22
Individual research capacity strengthening: Lessons learned	23
Local context for research capacity strengthening.....	23
Strategic, long-term engagement and commitment	23
Mentoring.....	24
Individual to institutional linkages	25
Questions that remain unanswered	26
5. Organisational (institutional) research capacity strengthening	26

Context.....	26
Research organisation capacities	26
Challenges faced by research organisations.....	27
Approaches to address organisational capacity development.....	29
Case study: Research Capacity Strengthening- The Makerere Experience, Uganda.....	30
Background.....	30
Objectives	30
How does it work?.....	30
Expected benefits	30
What has happened since implementation?.....	31
Examples of achievements so far	31
What made it effective?.....	31
What would be done differently?	32
Organisational research capacity strengthening: Lessons learned	33
Strategic lessons.....	33
Models for institutional research capacity strengthening	34
Questions that remain unanswered	35
6. Environmental (national/ regional) research capacity strengthening.....	35
Context.....	35
Challenges.....	37
Case study - Health Research Capacity Strengthening Initiative (HRCSI)	40
Background.....	40
Objectives	40
How does it work?.....	40
Expected benefits	40
What has happened since implementation?.....	41
Examples of achievements so far	41
What made it effective?.....	41
What would be done differently?	42
Environmental Research Capacity Strengthening: Lessons learned.....	43
Understanding the country context in depth helps to support a country-led process	43
Investing in long-term partnership	44
Diverse technical specialists required for research capacity strengthening	44
Questions that remain unanswered	44
7. Addressing cross-cutting challenges through a holistic perspective on research capacity strengthening	44
Maximising impact through strategic coordination	45
Supporting equitable approaches and Southern-led agendas	46
Sustainability and succession planning	46
8. Conclusions and actions	47

Actions to improve coordination.....	48
References	49

Acronyms and abbreviations

DFID	Department for International Development
ICTs	Information Communication Technologies
RCSG	Research Capacity Strengthening Group
SIDA	Swedish Development Cooperation Agency
UKCDS	UK Collaborative on Development Sciences

Executive Summary

Purpose and background of the paper

The paper provides a synthesis of the discussions at a workshop held by the UK Collaborative on Development Sciences (UKCDS) on research capacity strengthening, in September 2011. The workshop brought together the UKCDS' Research Capacity Strengthening Group (made up of funders and other stakeholders such as learned societies) and other programme managers from the UK, Europe, North America and developing countries. It was an opportunity to share case studies, models and lessons learnt from research capacity strengthening initiatives in developing countries (mainly sub-Saharan Africa), with the longer term aims of improving coordination across the sector, more Southern leadership of existing or new initiatives, and greater sustainability.

Research capacity strengthening

Research capacity can be understood as a country's ability to produce, debate and use research knowledge and products relevant to their needs, such as new technologies¹. Research capacity strengthening (also known as capacity building or capacity development) is thus the long-term, complex processes aiming to enhance these abilities. A wide variety of approaches and interventions are employed to build capacity, led by development agencies, research funders, foundations, learned societies and academic networks.

It is useful to identify three integrated and interrelated levels at which research capacity can be strengthened; individual, organisational and environmental. This framework was adopted to guide and organise discussions at the workshop.

- **Individual:** involving the development of researchers and teams via training and scholarships, to design and undertake research, write up and publish research findings, and influence policy makers.
- **Organisational:** developing the capacity of research departments in universities, research institutes, think tanks and others to fund, manage and sustain themselves, and to interact with society.
- **Environmental:** changing the 'rules of the game' at the national or regional level. Addressing the incentive structures, the political and the regulatory context and the resource base in which research is undertaken and used by policy makers, service providers, the private sector and wider society.

The three levels overlap substantially, with no clear boundaries between them. Most interventions do not try to act at all levels, but may intentionally or unintentionally spill over to effect changes (both positive and negative) at other levels.

¹ SIDA's definition, shared at the workshop.

Supporting individual capacity

Support for individuals is crucial in order to conduct high quality research, and to train upcoming generations that are the future research base in a developing country.

In many developing countries, few universities are able to maintain a flow of doctoral students. Where flow is achieved, a number of barriers prevent researchers developing their careers. The growing number of undergraduate students increases the time taken teaching and on administration, lowering the priority of research. Financial constraints mean that laboratories are ill-equipped, and low pay causes researchers to pursue other professions, or to supplement income with consultancy work. In addition, while the availability of academic journals has improved significantly, obstacles to accessing and using these persist.

Approaches to individual capacity strengthening include PhD training (home country, fully-funded scholarships at overseas universities or “sandwich” arrangements), training in research skills and soft skills, such as proposal writing, research project management and communication, and mentoring schemes.

A number of case studies and lessons learnt were shared at the workshop. Lessons included:

- the need to understand the country specific context, and existing capacity and constraints from the start to allow for sustainable long-term improvement.
- Programme managers must also be prepared to re-design programmes in order to take into account changing political, social and environmental contexts.
- Projects should build on existing capacity, avoid using parallel processes and enable local ownership where possible.
- Mentoring is key for individual development and needs to be built-in to the institution with incentives, resourcing and succession planning, so that new mentors are produced.

Supporting organisational capacity

For many workshop participants, stronger local research institutions and networks of research organisations are a key goal of research capacity strengthening efforts as they provide the infrastructure and architecture on which individual researchers depend.

Decades of under-investment in research institutions in developing countries has resulted in low organisational capacity across many, with insufficient concentrations of expertise in departments and limited physical facilities for conducting research, including libraries, information technology and laboratories. The workshop profiled many different approaches for strengthening organisational capacity: including partnerships, direct support to organisations, and network or consortia models.

Participants noted that implementation of organisational capacity building is more challenging, iterative and requires longer timeframes than is often anticipated at the outset. In addition, working with research institutions requires that they engage with internal processes and politics in order to influence changes in rules and policies. Building an

understanding of the organisational environment and establishing a collaborative approach with management are key first steps.

Supporting environmental capacity

Research capacity strengthening at the environmental/national/regional level involves creating an enabling environment for research. It is vital to look at the research system as a whole; not only the capacity to produce research. Multi-faceted initiatives should look at capacities amongst government bodies, civil society institutions and the private sector to demand, engage with and use research and research-based 'products' like a policy brief or a new technology. This includes funding mechanisms, regulation and policy for research.

Many of the challenges faced in strengthening environmental capacity are similar to those at individual and organisational levels, such as a lack of a local skilled workforce or support network. In many developing countries there is a lack of national research funding and policy-setting institutions (e.g. science councils) and setting these up can be difficult, time consuming and require specialist skills. Often the demand for research by government is low because there is a lack of understanding about how research can contribute to policy and benefit the country as a whole.

Approaches to strengthening the environmental capacity include supporting governmental and parliamentary scientific advisory bodies, or 'innovation clusters'. The enabling environment also encompasses ICT infrastructure and the media which can be strengthened to encourage the exchange of research-based knowledge between researchers, policy makers and the private sector.

To achieve sustainable environmental capacity, long-term committed partnerships are needed which tackle both the scientific and political capacity within a developing country. Initiatives should be experimental and leave flexibility for trial and error. The 'theory of change' – the premise of how the programme is expected to deliver – may change as the conditions of implementation change. A strategic approach; understanding the key politics; and early engagement with stakeholders are vital. Within the organisation managing the programme, specialists are needed to ensure success of a capacity building project, and these individuals must be replaced by trained equivalents when staff move on.

The need for a holistic perspective

Workshop participants identified overarching challenges that face capacity strengthening at all levels of engagement.

- **Maximising impact through coordination** - can the barriers presented by the differing mandates, timescales and other pressures of funders and implementing organisations be overcome to allow them to work more strategically and collectively?

This was considered to be one of the most significant issues at the workshop, with the challenges of making improvements not to be underestimated.

- **Supporting equitable approaches and building Southern-led capacity strengthening initiatives** - can a more responsive approach be developed, rather than donors leading the agenda, and ensure equitable collaborative research which links global and local issues?

Putting this into practice is extremely challenging, especially where the national capacity to develop an agenda is missing.

- **Sustainability and succession planning-** for true sustainability, how can capacity to build capacity be developed from within developing countries and their research institutions?

Many capacity building initiatives only think about succession planning late on, and without it being integral to programme design.

The workshop participants concluded that to address these challenges it is not sufficient to intervene in research capacity at one level without analysis of how the intervention will connect to interventions at other levels. Those agencies considering capacity strengthening in research should take a holistic perspective of the research system, even if they only have the funding or mandate to intervene at a single level.

Conclusions

The purpose of the workshop was to share lessons learned amongst people working on strengthening research capacity in developing countries. No model or mechanism has emerged as the most effective at supporting research capacity development. Success is highly context dependent, and this has contributed to a lack of systematic evidence around the approaches used.

The linkages between the individual, organisational and environmental levels of research capacity are messy and complex. In capacity strengthening, activities interact across these levels, reinforcing or undermining other initiatives in unpredictable ways. Significant improvements in coordination between donors and funders of research capacity strengthening are required so that initiatives can complement each other to drive whole-system change. The UKCDS Research Capacity Strengthening Group is one forum seeking to enhance this cooperation.

1. Purpose of the Working Paper

The purpose of this Working Paper is to provide a synthesis of the discussions on research capacity strengthening in developing countries that took place during a workshop held in September 2011 by secretariat of the UKCDS on *Research capacity strengthening: Learning from experience*.

The workshop discussed a rich range of experience from research capacity strengthening programmes in developing countries. Many lessons were shared and generated important insights into common challenges, models and mechanisms to consider in research capacity building. This paper draws together and presents a synthesis of those discussions.

The purpose of this working paper is to highlight key issues that emerged, inform wider stakeholders of this work and enable others in the science and development communities to respond and contribute to efforts to improve learning and coordination.

The paper highlights the lessons for those considering capacity building in research, identifies key opportunities for those already involved in this area, and flags important questions that still need to be considered. Examples are presented as short case studies drawn from the experience shared at the workshop. They are not intended to represent best practice, but to illustrate challenges and practical solutions to them.

The first section describes the workshop and the Research Capacity Strengthening Group of the UKCDS. It then goes on to present lessons learned about initiatives to support individual research capacity, followed by insights into organisational initiatives. The next section considers the perspective of environmental research capacity strengthening, before looking at three major concerns which affect activities across all three dimensions: coordination, building Southern-led initiatives and sustainability.

2. UKCDS and the Research Capacity Strengthening Group

The UK Collaborative on Development Sciences (UKCDS) was established in 2006 as a result of the Committee's 2004 report *The Use of Science in UK development policy*. UKCDS' vision is that UK research funding has maximum impact on international development outcomes and we aim to encourage and facilitate working relationships for effective research for development.

UKCDS Research Capacity Strengthening Group

Research capacity strengthening is a complex endeavour. The wide range of terms used – research and innovation capacity strengthening, building or development – encompass the diversity of activities and approaches aimed at supporting researchers, research organisations and the research environment in developing countries.

Given the complexity of contexts and needs, a diversity of approaches is appropriate. However, coordination of research capacity strengthening is also vital to avoid duplication and achieve scale when working in the same countries and sectors. Sharing of experience and lessons is key to improving future initiatives.

Coordination of research capacity strengthening initiatives is challenging. Improving information sharing and lesson learning can be a step towards ensuring better coordination. The UKCDS-convened 'Research Capacity Strengthening Group' (RCSG) brings together UK stakeholders who have some interest or involvement in strengthening research capacity in low income countries.

The aim of the group is to develop a better understanding and relationship between UK stakeholders and to encourage stakeholders to share information, improve coordination and collaboration, and learn from each other's experiences on research capacity strengthening issues.

Rationale for Lesson-Sharing workshop

The RCSG stakeholders are involved in a wide range of research capacity strengthening schemes:

- supporting individuals and their research careers
- developing organisational capacity in universities, research departments and institutes
- supporting an enabling environment for research in developing countries.

Many schemes have been in place for a number of years, building up valuable learning on how to address research capacity strengthening issues. The different mandates and objectives mean that experience and lessons learned are not often shared beyond immediate stakeholders.

This workshop was convened in order to unlock and share learning from research capacity strengthening programmes - both what has gone well and what has not- to help improve future programmes and initiatives.

The focus of the workshop was on research capacity strengthening. As this is fundamentally linked to higher education capacity and innovation capacity, these were included within the remit, but the focus was on the 'research elements' of higher education and innovation systems.

UKCDS members attended together with members of the research capacity strengthening group and others from a range of learned societies, funders and implementers of programmes and initiatives, from the UK and developing countries.

3. Research Capacity Strengthening

Higher education, research communities and their linkages with the wider economy and society represent what is termed 'research capacity'. Research capacity can be broadly

defined as a country's ability to produce, debate and use research knowledge and products relevant to their needs, such as new technologies².

Research encompasses many academic disciplines, ranging from the natural sciences to the social sciences and humanities. Every discipline has a contribution to make to defining, analysing and solving technical, industrial, social, economic, political and environmental challenges and issues of national concern.

In the international development domain, research capacity strengthening (also known as capacity building or capacity development) is a key concern. The concept of research capacity strengthening is open to interpretation, but there has been growing acceptance of capacity strengthening as a context-specific, dynamic process that goes beyond a technical and value-neutral transfer of skills.

Research capacity strengthening is now viewed as more than just providing training or distributing manuals. It is a long-term, complex process that requires the interplay of individuals, organisations, national and international research systems.

Research capacity development involves shifts in power, and provokes changes in systems and the wider environment. It is influenced by factors such as cultural values and political processes in the country context (ESSENCE, 2011; Leach and Waldman, 2009).

In the international development context, many writers have come to see the ability of a country to establish country institutions, governance and delivery systems, and provide a suitable policy and regulatory environment for development to take place, as absolutely central to a country's ability to choose and implement its own development path. The emergence of this capacity should be viewed as a development result in its own right (ECDPM, 2008)³.

Capacity to produce and utilise research in all disciplines - science, engineering and health, social sciences and humanities – is a key part of a country's capacity to analyse, understand and address the social, cultural, economic, political and environmental contexts within which development is to be supported and policies implemented (Harle, 2011). As such, a strong research sector is a key element in a country's capacity to lead its own development.

² SIDA's definition, shared at the workshop.

³ Some broad definitions of general capacity building have been established. The 2006 OECD-DAC paper defined capacity as 'the ability of people, organisations and society as a whole to manage their affairs successfully. (OECD-DAC, 2006: 12). Capacity is the outcome of capacity development, which is 'the process whereby individuals, groups, organisations, institutions and societies increase their abilities to perform functions, solve problems and achieve objectives; to understand and deal with their development need in a broader context and in a sustainable manner' (UNDP, 1997). Support for capacity development is 'what outside partners – domestic or foreign – can do to support, facilitate or catalyse capacity development and related change processes' (OECD-DAC 2006: 12).

What is research capacity strengthening?

There is a wide range of views and perspectives on what activities are considered to be research capacity strengthening. Different organisations have different intentions, mandates and objectives for their schemes.

There are no agreed definitions of what constitutes research capacity strengthening. For some organisations, the focus is to support the production of quality research. For others, it is addressing the supportive environment for research, for example through supporting research management at universities. Addressing development issues through research capacity strengthening is not necessarily a primary aim.

What is clearer is that the main focus and delivery approach of a particular programme or scheme influence how research capacity strengthening is approached and to what extent the potential to achieve lasting outcomes is realised.

For example, the primary aim of a scheme may be to fund excellent research and in the process develop research capacity. Much of the DFID's research capacity strengthening support is provided in this way through thematic research consortia, where the primary objective is to produce high-quality development research on the theme. The assumption is that research capacity in the country in the thematic area will happen implicitly, although lessons from early experiences do not support this view (Barrett et al 2010).

The Swedish Agency for Development Cooperation – SIDA – defines research capacity as the conditions that make performing and utilising research results possible.

Research capacity strengthening initiatives are also led from outside the international development domain. Many foundations and trusts, learned societies and academic networks seek to build links between research communities and provide financial support to researchers both nationally and internationally to advance knowledge on issues of global and regional concern.

International research collaboration, consortia, fellowships, training and exchange schemes, awards and other research funding mechanisms are common approaches that aim to support the skills and research environments of developing country researchers.

Different agencies and organisations bring different strengths to capacity initiatives. For example, learned societies can work with scientists in their own country and low income countries in a bottom up, small scale approach – addressing particular niche needs and testing different approaches. Bilateral funders such as the Swedish International Development Cooperation Agency SIDA and DFID can implement larger schemes and work more closely with other governments. Large foundations such as the Wellcome Trust are able to work at scale in regions and countries, often in partnership with development agencies.

No model or mechanism has emerged as the most effective at supporting research capacity development. Although there is a lack of systematic evidence around research capacity strengthening processes, the complexities and specifics of country contexts mean that diverse and multi-faceted approaches are appropriate.

However, there is a significant level of recognition that unless research capacity strengthening is explicit and prioritised, it is likely to be secondary and incidental (Barrett et al, 2010). A key message from the workshop was that a conscious and deliberate focus on supporting research capacity, alongside or even as a precursor to funding research projects, is more likely to lead to improved capacities to produce high-quality research, not only during the lifetime of the grant but into the future.

The framework of the Lesson-sharing Workshop

To create a more integrated overview of this diversity and understand better how initiatives link to one another, it is possible to conceptualise research capacity strengthening as three integrated and interrelated levels: the individual, the organisational and the institutional (or environmental or national) level. This framework was used to guide and organise discussions at the lesson-sharing workshop.

- **Individual:** involving the development of researchers and teams via training and scholarships, to design and undertake research, write up and publish research findings, and influence policy makers.
- **Organisational:** developing the capacity of research departments in universities, research institutes, think tanks and others to fund, manage and sustain themselves and interact with society.
- **Environmental:** changing, over time, the 'rules of the game' and addressing the incentive structures, the political and the regulatory context and the resource base in which research is undertaken and used by policy makers, service providers, the private sector and wider society.

Adapted from DFID's 'How to' note on capacity building in research

The three levels overlap substantially and there are no clear boundaries between them. Most research capacity strengthening interventions do not aim to address all the levels, but may intentionally or unintentionally spill over to affect changes at other levels.

Current thinking is that the linkage between the components should be understood because an intervention focused at one level of capacity will require change at another level if it is to be successful and sustainable (ESSENCE 2011).

These may not always be beneficial effects. For example, an intervention aimed at increasing the research and fund-raising skills of individual researchers may lead to researchers leaving a research organisation to find a more conducive environment if it does not enable them to develop and pursue their research. Therefore, the intervention may have contributed to national capacity at the aggregate level in terms of training more researchers, but not to the capacity of the researcher's original home organisation.

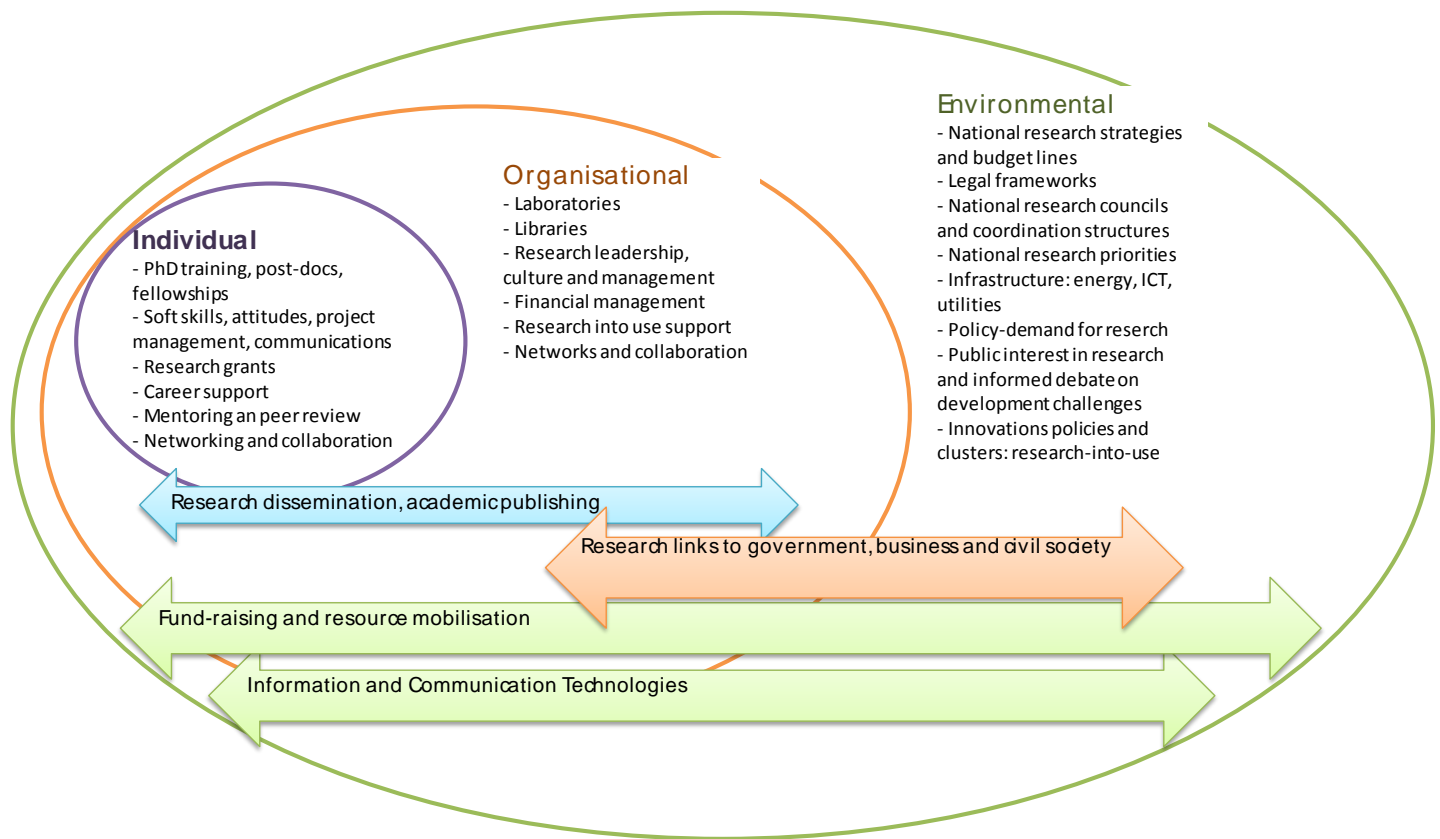
Understanding how an initiative at one level relates to others can help in the design of more sustainable research capacity strengthening interventions.

Figure 1 shows how interventions at different levels can potentially interact, reinforce or constrain each other. Cross-cutting issues can influence single-level initiatives. To illustrate,

in Morocco, university faculty are civil servants, employed directly by the Ministry, as in France.

This 'environmental' condition puts major constraints on research development at the individual and organisational level. Individuals have few incentives to pursue research, and universities have little power to promote the development of research, as they cannot hire or fire academic staff. Interventions at the individual or organisational level would need to take this context into account.

Figure 1: Research capacity strengthening ‘intervention map’ with cross-cutting issues



Source: Adapted from the diagram produced by Working Group JAWSI at the Lesson Sharing workshop

The focus of the workshop was to consider practical proposals for how initiatives at different levels might support other levels in a more intentional and strategic way.

Key challenges in research capacity strengthening

At the workshop, participants shared some of the overarching concerns about the challenges that face research capacity strengthening at all levels.

Maximising impact through coordination

Coordinating smaller and larger contributions made by different organisations and programmes to maximise the overall impact and overcome duplication and fragmentation is a key concern. Can the barriers of different mandates, skill-sets, timescales and pressures of different organisations be addressed through working more strategically and collectively?

Supporting equitable approaches and building Southern-led research capacity strengthening initiatives

In some (but not all) approaches to research capacity support, the ideal is for capacity to be led from the south, with the requests for support generated from Southern designed and developed agendas and programmes.

The reality in consortia models is often that Northern organisations direct and manage grants and are accountable for the outputs. It is difficult for Southern partners to take any real lead on research projects in these circumstances (Barrett et al 2010).

A further challenge is that the quality of research outputs is often assessed through peer review and publication in international journals rather than journals based in developing countries. The lack of established Southern-based journals that could provide quality assurance further serves to lead Southern researchers away from local agendas toward topics of international concern (Leach and Waldman, 2009).

So a major challenge is how realistically to achieve Southern-led projects and initiatives. Can a more responsive approach be developed, rather than donors or Northern partners leading the agenda, to support more equitable collaborative research linking global and local issues? How can this be achieved when accountability for funding still lies in the North?

Sustainability

Balancing short-term demands for results with the realities of supporting long-term, sustainable capacity is a third major concern. The challenges of making research funders' efforts to support capacity building compatible with the development objectives of the institutions, individual professionals and governments are not to be underestimated. For true sustainability, how can capacity to build capacity be developed within developing countries and their research institutions?

These questions will be explored through the lenses of individual, organisational and environment schemes, with overall lessons drawn together in the final section.

4. Research capacity schemes to support individuals

Context

Research capacity schemes to support individuals involves the development of researchers and teams. Individual researchers conducting high quality research and training future generations are seen as crucial to the future of the research base in a developing country (Harle 2011).

However, in many developing countries, few universities are able to maintain a flow of doctoral students. Where this flow is achieved, a number of significant challenges and barriers at the organisational level mean that few researchers are able to go on to develop their careers. This has knock-on effects in terms of a drop-off in the numbers of research-active staff who are able to teach, supervise PhD students and develop new research.

Key challenges facing individual researchers

Workshop participants shared their views on the key challenges facing individual researchers. These were echoed by the findings of a recent review of African research commissioned by the British Academy (Harle 2011). These include:

- Growing numbers of students mean that teaching and administration workloads crowd out space for research.
- Individual research fellowship and training often does not translate into career support and organisational support of a research culture.
- Financial constraints mean that access to resources and facilities, from journals, good libraries and adequately equipped laboratories, is limited and research is difficult to continue in the researchers' base organisation.
- The erosion of research cultures in many universities means that there is a lack of support for junior researchers
- Pressures of teaching and administrative workloads and pursuing funding have led to competitive rather than collegiate cultures, leading to the 'intellectual isolation' of junior researchers
- Low pay and under-resourcing push many academics into consultancy and private teaching arrangements, rather than research
- Research can become an individual activity, conducted in the margins of departmental life, rather than institutionalised in supportive cultures and processes (Harle, 2011).

Approaches to support individual researchers

The findings of the review and the experience of the workshop participants points to the importance of rounded packages of schemes that address more than one of the constraints highlighted. For example, fellowships might have limited impact if researchers are not supported further to build on their PhD training and continue their research on their return to their home institutions (Harle, 2011).

Examples of schemes that were highlighted include:

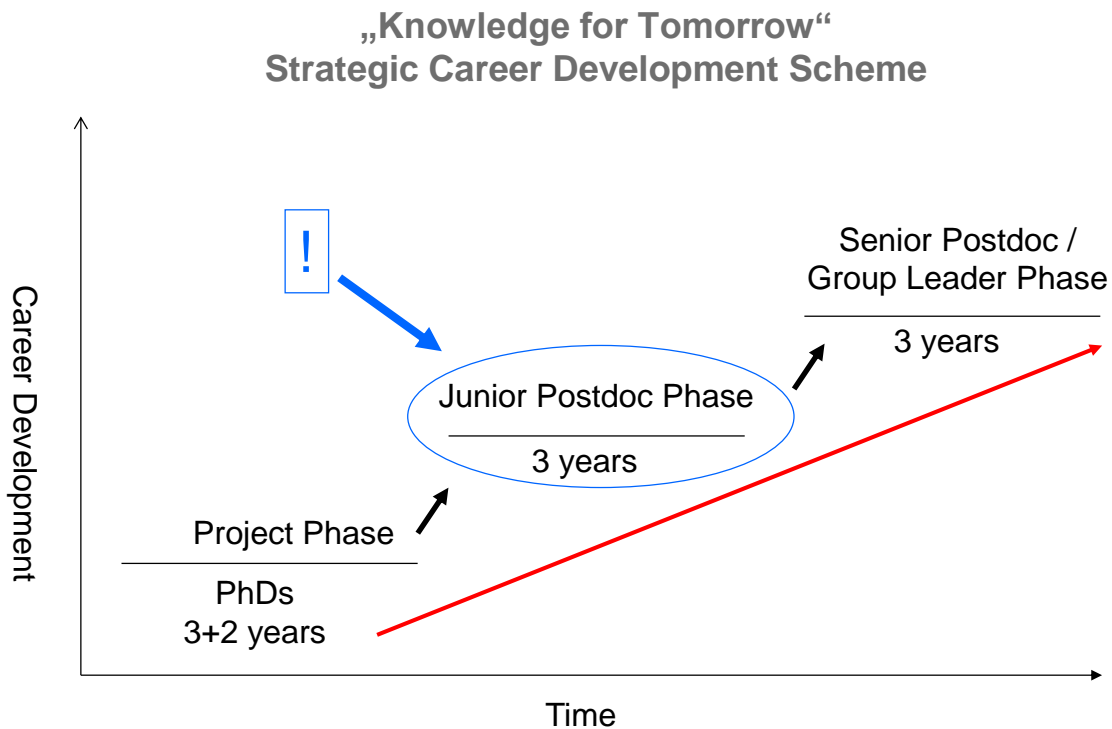
- PhD training and research, both abroad and at the base organisations
- Post-doctoral fellowship programmes in thematic areas
- Mix of support to research skills and soft skills, such as proposal writing, research project management and communication
- Research grants with additional travel and training components
- Career development, mentoring and networking opportunities
- Universities strengthening graduate schools
- Support to enable doctoral students with teaching workloads to undertake field work or complete dissertations.
- Efforts to establish regional collaboration
- Fully-funded scholarships at African or overseas universities, split site or sandwich arrangements

Sustaining the development of researchers and their research through the early career, post-doctoral phase seems a key challenge to translate the gains from individual schemes into gains for the research organisation.

Case study: 'Africa Initiative – Knowledge for Tomorrow'

presented at the workshop by Detlef Hanne of the Volkswagen Stiftung

Figure 2: Focus and timeframe of the Africa Initiative



D. Hanne, Volkswagen Stiftung, presented at workshop

Background

'Africa Initiative: Knowledge for Tomorrow' was prepared in close interaction with African scholars and institutions. The initiative provides capacity building and sustainable support for researchers in sub-Saharan Africa with a focus on junior scholars.

Objectives

The objectives are to:

- Contribute to the development, reinforcement and extension of academic networks within Africa.
- Improve "true partnership" in research and technology between the global North and South.

How does it work?

Support was provided over 9-11 years in three phases:

- The 'project phase' involved training PhDs
- Second phase – 3 years can apply for 3 year post doc
- Senior post/doc

The support given in the initiative encompassed a broad range of activities, not only research support. These included:

- Research training
- Networking opportunities
- Training in soft skills, such as project management, collaboration, proposal writing, publication and communication, language courses
- Career development support.

The initiative involved home institutions, foundations, research collaborators and specific coordination roles.

The initiative involved a three stage application process which culminated in a selection Conference. This meant that researchers received direct feedback on their proposals from peers and reviewers, and established networks from the start. The programme provides:

- Regular workshops and conferences
- Soft skills development courses and summer schools
- Regular feedback from mentors, reviewers, coordinators, foundations.

Grants of 2.9 Mio EUR were made for 6 years, including for conferences. The home institution receives the funds but the post-doc award holder organises the administration of the grant.

What has happened since implementation?

Initially, Knowledge for Africa was a network, but this became led by Northern partners. Experience highlighted the importance of developing careers, so it was decided to focus on more junior academics in south.

Experience in the initiative pinpointed the junior post-doc phase as a key point where targeted support could make a difference. Junior post-docs were identified because:

- They are the future leaders
- They are often well educated (in northern institutions)
- There is often a crucial funding gap that prevents research being developed after the PhD stage
- Lack of networking opportunities for mentoring and career development

On-going challenges include:

- Scaling up and adding new partners is challenging, as more partners requires more coordination - this means a high workload for foundations and coordinators, qualified and coordinated staff are required.
- Sustainability - how to maintain funding for a few more years, some ideas include networking groups or establishing a small academy afterwards
- Varying success of how well grants are administered within the institutions.

Examples of achievements

- 24 fellowships granted (10 fellows 2008, 10 fellows 2010 + 4 travel grants)
- 17 male scholars, 7 female scholars supported
- 18 Anglophone, 5 Francophone and 1 Lusophone scholars supported
- 5 junior fellows used the fellowship to re-establish in their home countries
- 4 fellows were promoted to lecturers right after the receipt of the grant
- 21 students (8 PhD, 11 MSc) involved in projects (2008 fellows only)
- 22 international peer-reviewed publications (2008 fellows only)
- 16 additional grants acquired (2008 fellows only)
- 1 International research prize (Matovu, 2008 fellow)
- 1 joint policy paper in PLoS NTD.

What makes it an effective scheme?

Feedback from fellowship recipients, international peers and coordinators suggests that the following areas are key to the success of the initiative:

- It takes a strategic, long-term view of the support – nine years.
- Size matters – the scheme seems to have achieved a critical mass
- Grants are flexible and include travel and networking elements
- Donors and foundations are actively involved in the implementation of the programme
- Mentors, peers, coordinators and reviewers are active and involved over the course of the support
- The bottom-up approach, focusing on junior scholars, gives a real boost to research careers and supports independence
- Networking with international peers helps to build confidence and profile for researchers, supporting the quality of the research
- Good mix of research and soft skill development, including administrative capacities
- High quality of selected fellows
- Good individual training opportunities
- Initial meetings are supported by regular workshops/summer schools to build relationships and networks, in recognition that face-to-face contact is important even if relationships are conducted largely at a distance.

What would be done differently?

The lessons learned suggest that career development was not emphasised enough at the start. Having identified this key point at which support can make a crucial difference to sustaining a research career, career development has taken a much more central role.

Individual research capacity strengthening: Lessons learned

The workshop participants identified a number of lessons learned from their experience of individual schemes.

Local context for research capacity strengthening

Capacity strengthening of individual researchers does not happen in a vacuum. Experience highlights the challenges for individual researchers on sustaining their research and careers on their return to their home institutions or move up from student to faculty positions if they stay in their departments. Therefore, understanding the organisational and national context is a key first step. Assessing the context, identifying existing capacities, constraints and opportunities for support helps to bring in sustainability planning from the start. Key lessons relating to context include:

- Assessing the context, national environment, the politics, the key players, and the dependencies between them is key – some funders have a regional presence, either directly or through partners, to maintain understanding local contexts and the wider policy environment for supporting research careers.
- Research systems vary from country to country, and between institutions – attention to the specific conditions in each context is important to support modified approaches in each institution rather than standard templates.
- Building on existing capacity – it is important to identify existing local capacity and understand what is feasible in practical terms to undertake the initiative.
- Enabling local actors to undertake an assessment of their strengths and weaknesses and to work in partnership to identify needs and gaps is vital.
- Local ownership of the research capacity strengthening priorities and agenda is important – good planning and discussion are key but the issues of power and influence of Northern money and agendas and how Southern agendas are represented and by whom need to be acknowledged.
- Pre-programme development work is often required, for example to build up reporting and financial systems in research organisations and understand what support there may be for the initiative, for example policies or incentives to support mentoring.

Strategic, long-term engagement and commitment

Research capacity strengthening is not straightforward and not something that can be wrapped up in a year. To seriously improve capacity in the long-term requires realism to recognise that it can be high risk and many setbacks will be encountered along the way, including partnerships that fall apart and researchers who are not able to succeed in their chosen field.

There are many factors that can affect a programme - political changes, social environments and organisational cultures, changing personnel, historical and structural features of the local context (such as the presence or not of national institutes and civil service employment arrangements for university academics as in the Morocco example already mentioned).

Key lessons identified include:

- Being clear about the purpose, intention and objectives for a scheme – for example, whose capacity is being strengthened, identifying the ultimate goal of the initiative, defining what success looks like in this context and establishing the expectations of sustainability for the initiative.
- Taking time to identify the most strategic intervention, given the remit and limited resources.
- Developing a long-term perspective but also identifying intermediate and short-term ‘wins’ that build towards the long-term to help programme achievement and to help maintain donor support.
- Understanding that research capacity strengthening requires active partnership from donors, as well as Southern institutions.
- Decisions about targeting need to balance working with the known ‘usual suspects’ and involving a wider range of research organisations in capacity strengthening.
- Managing the implementation of the scheme with an eye to reality-checking plans against changes in the context, resources and new opportunities, and being prepared to re-design and adjust.
- Avoiding using parallel processes - where possible, it is important to try and strengthen local capabilities and mechanisms across all aspects of the programme. For example, directly funding African institutions (rather than sub-contracting through UK institutions) can help to anchor individual schemes within their organisation, as it can strengthen financial management in an institution. Direct funding is likely to require time and support and require a longer timeframe.

Mentoring

Mentoring is a key component of many individual schemes. The rationale for mentoring is that personal links between senior and junior researchers helps to sustain career development and build professional networks.

Participants at the workshop highlighted that mentoring requires institutional support for both mentors and mentees. Mentoring is more likely to be effective when it is part of a broader initiative. Key lessons include:

- Building-in mentoring in the local institution involves establishing appropriate incentives to reward time spent mentoring researchers; this requires an institutional recognition that research is as important as teaching, which may be challenging in to achieve in some institutions.
- Mentoring is highly personalised, tailored to individuals’ needs; it is more effective if it involves mutual learning between mentor and mentee.
- Resourcing for mentoring is important to ensure that time is committed to the mentoring –it takes time for relationships to develop and to conduct mentoring sessions themselves.

- Creating a mentoring ladder or succession chain is important – when individuals reach a particular career stage, they should be able to take on mentees themselves, and when an individual leaves, a new mentor should be available to continue the relationship.
- Mechanisms/ modes to support mentoring include:
 - individual to individual links - senior to junior links - as well as department to department links
 - remote relationships are more effective if supported by site visits for face-to-face interactions
 - building mentoring within a project, with dedicated budget lines, which creates shared interests and cements relationships better
 - funding mentoring through a post-doc so mentors take their role seriously.

Individual to institutional linkages

The importance of creating a conducive environment for research within institutions was highlighted as a key stepping stone to sustainability. Individual schemes may not be directly targeting the organisation level, but schemes need to take account of how they contribute to strengthening at the organisational level if the benefits are to be sustained.

Key lessons on how to bridge between individual schemes and organisational ones include:

- There are often tensions between what the researcher needs and what the institution needs – these need to be worked through.
- Differentiating between the different roles a researcher has to play and supporting a range of skills - research methods, research management and finance – builds a foundation for sustainable research capacity.
- Creating research cultures and the systems to support them within organisations and institutions requires training and experience with institutional change.
- Joint/co-financing and joint supervision increases buy-in by the organisation, as does involving senior academics in review committees and similar bodies for capacity building programmes.
- Monitoring and management support can be included and funding for on-going training.
- Strengthening the institutional research environment can be supported by funding equipment that is then retained by institution.
- Individual researchers can be encouraged to contribute to teaching programmes, so that the institution benefits from having research-active staff; existing lecturers can be offered PhD training.

- Support to research management, leadership and administration should be considered as well as to individual researchers to enhance the research environment at the home university.
- Capacity to deliver ‘soft skills’ training can be built-up in institutions, for example, project management; communications; writing; critical analysis.

Questions that remain unanswered

- What more can be done to encourage the full and equitable involvement of Southern researchers in the development, management and implementation of research applications submitted to research capacity strengthening schemes? What practical steps to strengthen capacity can be taken by funders whose main aim is not international development?
- What sorts of capacity strengthening activities are required to support researchers and projects build the development impact of their research – i.e. by working with industry, practitioners and policy?

5. Organisational (institutional) research capacity strengthening

Context

Many of the initiatives discussed at the workshop provided support to research organisations as part of the package of capacity strengthening. The research organisation is the site which provides the enabling environment for researchers to conduct research. Many schemes aimed at supporting individuals also included components to support researchers’ home institutions.

Research organisations include university departments and faculties, as well as self-contained research institutes. At universities, research is conducted alongside teaching and higher education, with different requirements in terms of institutional management and leadership. Many of the problems reported by researchers on their return from fellowships were linked to the poor research environment that posed significant barriers to expanding research agendas and careers.

Research organisation capacities

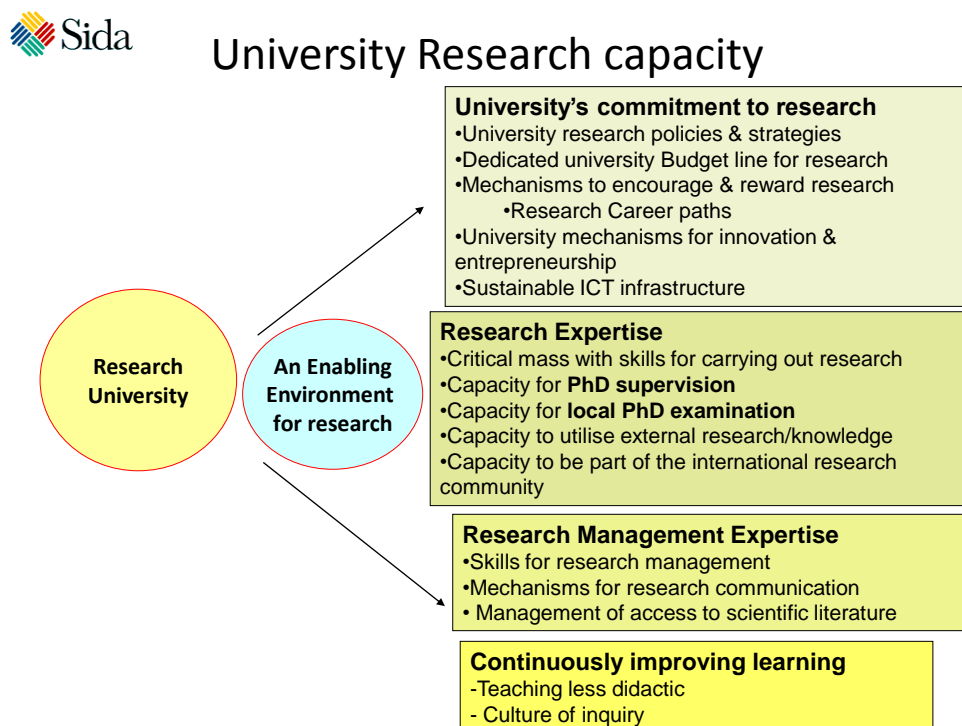
For many of the workshop participants, universities and research institutes are the entry point for research capacity strengthening. Stronger local research institutions – universities, departments, thematic research institutes, as well as networks of research organisations – were considered by many to be the appropriate goal of research capacity strengthening efforts.

Research institutions play a key role in providing the infrastructure and architecture on which individual researchers depend, including:

- developing research agendas
- putting in place policies and frameworks to prioritise and support research
- establishing financial management systems
- providing fund-raising support
- creating facilities and research infrastructure, for example, laboratories and libraries
- supporting 'soft skills' research management, project management, publishing and communication, collaboration, networking, profile
- providing departmental leadership, professional development of new researchers, as well as PhD training to establish a critical mass of intellectual expertise for successful, sustainable research
- establishing networks and links into private sector and government to support research-into-use and innovation.

SIDA is a bilateral development cooperation donor with a long history supporting research capacity in developing countries. Since 1975, SIDA has provided a range of support to individual researchers, research organisations and the wider research environment through projects, research grant schemes, policy development and innovation systems development.

Figure 3 illustrates SIDA's view of the capacities that research institutions require to perform their role effectively in the research system.



Challenges faced by research organisations

Participants shared their views on the challenges faced by research organisation and universities. Universities, departments and research institutes in developing countries face many constraints to their capacities to support research. For many years, universities and

tertiary education were squeezed by public spending cuts under structural adjustment programmes and were not prioritised in development cooperation. The resulting under-investment has resulted in low wages for researchers, weak concentrations of expertise in departments and few physical facilities for conducting research, including libraries, information technologies and laboratories. Specific challenges were discussed further.

- **Commitment by top university management**

Many universities have business models which are geared to teaching, with accompanying incentives, rewards and systems. This can mean that university management may consider research to be marginal to the business model. Management commitment however, is vital to achieve the changes in policies, rules and systems that will support research, such as Intellectual Property, financial systems and human resources to manage research grants, support to publishing and establishing research career paths.

- **Entrenching a research culture among staff**

Due to the teaching imperative, academic staff often carry large teaching, administrative and consultancy workloads which means that the time available for research is minimal (Harle 2011). Research cultures of enquiry and critical thinking are hard to maintain in the face of competing incentives and performance targets. The lack of a critical analysis culture means that teaching methods can also be affected. The risk is that future generations of students are not encouraged in independent exploration and enquiry.

- **Constrained research management capacity**

Research management capacity at many universities in the developing world is also constrained. Fund-raising for research is complicated and bureaucratic, especially where it involves international transfers of funds. Research organisations' financial systems have to meet different reporting and grant management requirements. Often, a funder might invest in supporting financial management capacity in order to meet its own requirements, but then different systems have to be built to accommodate different funders' requirements.

- **Weak coordination of multiple grants, awards and projects**

The reality is that donors may often be funding the same organisation through different projects, awards and grants. Coordination is weak, both within a single organisation and amongst donors funding the same organisation through different mechanisms. Multiple reporting requirements put a strain on research organisations' resource-scarce systems. Conversely, there may be initiatives and opportunities that organisations could benefit from but of which they are unaware.

Approaches to address organisational capacity development

Participants discussed many different approaches for strengthening organisational capacity. These range from partnerships, direct support to organisations to research consortia to tackle particular issues.

Strategic points for intervention and support include:

- Bilateral or partnership programmes involving support to specific institutions
- support to specific units and thematic areas of expertise within an institution
- support for research management, including universities' research policies and strategy
- improving coordination within universities and between departments of different institutions
- strengthening collaboration in specific thematic area or disciplines to create critical mass of expertise through pooling and networking across institutions within countries and regions
- strengthening research support facilities, for example, libraries, ICTs and laboratory equipment; stipends for research and funds for travel at faculty level
- Establishing PhD training, mentoring and leadership development.

Some examples of initiatives include:

- support for North-South institutional partnerships (e.g. Royal Society Leverhulme Ghana- Tanzania Award⁴)
- develop Southern-led consortia addressing specific themes and research areas (e.g. Wellcome Trust African Institutions Initiative⁵)
- focus on providing targeted support to specific organisations, universities, units and departments (e.g. SIDA's work with Makerere University, also the University of Dar as Salaam, National University of Rwanda⁶)
- Develop centres of excellence (e.g. Next Einstein Initiative⁷).

Participants at the workshop recognised the complexities of working to strengthen organisational capacity. Organisations are political, universities especially so. Strengthening research capacity at the organisational level is not only about changing processes, but also about addressing power structures, relationships and incentives.

These tensions often ensnare capacity initiatives and research projects. Building institutions requires a different set of skills and support, organisational development expertise which research funders may not have access to.

⁴ <http://royalsociety.org/grants/schemes/leverhulme-africa/>

⁵ <http://www.wellcome.ac.uk/Funding/International/WTX055734.htm>

⁶ <http://www.scidev.net/en/features/makerere-university-rebuilding-a-reputation.html>

⁷ <http://www.nexteinstein.org/>

Case study: Research Capacity Strengthening- The Makerere Experience, Uganda

Presented at the workshop by George Nasinyama, Makerere University

Background

Makerere University in Uganda was established in 1922 as Technical College. In 1947, it was transformed into Makerere College. By 1949, it was a Constituent College of University of London, and by 1963, a Constituent College University of East Africa.

1970, Makerere became the National University of Uganda. Strategically, Makerere is positioned as a research-led university. Research aims to infuse & informs teaching at all levels.

Concerted efforts have been directed at sourcing funds to support research & Innovations function through a multi-pronged approach.

Objectives

The case study is about the Makerere-SIDA Bilateral Research Collaboration Initiative. The objectives are to:

- Assist Uganda in its endeavour to promote research and support Makerere University to build capacity for PhD training

This goal is summed up in the slogan: 'To support the supervisor to supervise'.

How does it work?

This programme is by far the largest research support to Makerere University. It totals 430.11 Million SEK (Eq. USD \$61 million) for the period 2000-2014.

The support covers:

- PhD training (tuition and research costs)
- Sandwich mode at Makerere & Sweden higher education institutions
- Support to supervisors to link with their counterparts in Sweden
- Conference attendance by PhD students and supervisors
- Faculty research funds
- Independent university wide research fund at the School of Graduate Studies
- Support to the Demographic Surveillance Site
- Support to development of centres of excellence (GIS lab, Biomedical Lab)
- Support to Infrastructure development in ICT
- Support to library services.

The programme is governed by a Steering Committee, Central coordination at DRGT with sub-program coordinators at supported units.

Expected benefits

The benefits that are hoped for include:

- Improved research culture at Makerere
- Improved research infrastructure
- Capacity of academic staff to supervise
- Increased number of staff with PhD training
- Better communication skills leading to dissemination at international conferences
- Scholarly writing skills with an increase in publication of research outputs in peer reviewed journal.

What has happened since implementation?

The programme has been running for twelve years. Initially, some of the challenges included:

- Support was concentrated in Science-based disciplines
- Grants were not able to be spent according to planned rates
- Delays in timely reporting to SIDA
- Delays in financial audits by auditor general
- Balancing staff time between programmatic activities and normal university work schedules was an on-going challenge
- Coordination of large programs/many programs proved more demanding than expected
- The original Steering Committee was composed of beneficiaries, which led to conflicts of interest and bogged down decision making.

In this period, there were also changes in the Government Procurement System which had to be adjusted to and changes in program coordinators at Makerere had to be managed (2001-2004, 2004-2005, 2005-2011).

Examples of achievements so far

These challenges were overcome and learned from and the programme moved on to make considerable achievements. Some of these include:

- Over 158 PhDs and 15 MSc trained still serving the university and writing grant-winning proposals
- Capacity in the Library strengthened with over 20,000 journals available on-line
- Technologies developed through research-into-use linkages include:
 - urban Crop-waste management, highway pavements, triple helix for SMEs through the Innovations systems and Innovative Cluster Programme
 - Other technologies under development include Malaria vaccine research/trials
- Policies have been influenced - in Malaria treatment, conflict and post-conflict conciliation and transformation, land policy among others

What made it effective?

Some of the key factors which have made the programme effective include:

- Long-term commitment of support by SIDA
- Reforms in Makerere's Research & Innovations function
- Improved capacity in human resource to produce, manage and help get research into use
- The sandwich model as opposed to staff training wholly abroad helps to minimise brain drain

- Joint supervision involving academic staff from the south and those from the north improves the quality of supervision and PhD training of the southern partners
- Recognition that administrative costs need to be met and the subsequent provision of administration funds/overheads has led to good performance of the programme.

What would be done differently?

The lessons learned from the experience of initial composition of the Steering Committee meant that this was changed to include a significant proportion of members from outside the university. The new, more balanced committee experienced less conflicts of interest and went on to provide better oversight.

Organisational research capacity strengthening: Lessons learned

Working with organisations is complex and factors vary with the context. Many participants with experience of initiatives to support research organisations noted that implementation is more challenging, iterative and requires longer timeframes than had been anticipated at the start. Some of their lessons are shared below.

Strategic lessons

One of the key lessons for working with research institutions is that research capacity strengthening involves engaging with the internal processes and politics of the university or research institution to influence changes in rules and policies around research. Building an understanding of the organisational environment and establishing a collaborative approach with management is a key first step. Key lessons include:

- Conduct an institutional analysis (similar to a political economy analysis), as pre-programme preparation to understand power relations, factors influencing change, opportunities and constraints in internal and external environments.
- Identify collaborators, co-funders, champions and influencers - the obvious and not so obvious influencers, but to remember that funders bring their own organisational politics with them.
- Aim to establish a dialogue and respectful cooperation – research capacity strengthening needs to be a collaborative process that involves donors and partners in mutual accountabilities, treats partners as the equals they are and is upfront about mutual benefits – this requires trust and takes time to build up relationships.
- Partners should be expected to take ownership, so initiatives need to support what organisations themselves would like to do in order to support buy-in and enhance the potential for longer-term sustainability - it is important to articulate the initiative with the institution's strategic plans (if it exists), or to require a strategic plan if there is not one already in place.
- Coordination of opportunities is important, so aim to identify co-funders, existing initiatives and alternative resources to spread support to other aspects of the organisation that may be beyond the scope of a single initiative.
- Research organisations and universities need to be clearer about what other funders are spending within their organisation, it is not only the duty of the donor to do this – greater transparency requires improvement in research organisations' central record-keeping.
- Programme models rarely translate from one institution or area, so partners and funders should be open to flexibility, mixing and matching models to suit the context and recognise that one size does not fit all.

- A shared outcome for the research capacity collaboration should be clearly articulated and signed up to by the organisation and the funder; this should include identifying realistic sequences of intermediate gains and secondary benefits.
- Establishing a culture of open and honest identification and discussion between organisations and donors of what is acceptable and what is not helps to support realistic implementation – if a problem is not identified and institutional changes made to address it, progress will be slow.
- Feedback about what is not working can be helpful – experience suggests that the frustration of large numbers of qualified PhDs and PhD students, if articulated collectively, can lead to changes in rules in institutions
- Financial management is a major area that requires particular attention - support should be given to partners in a pre-programme phase to ensure they are ready to take on implementation and to allow time and resource to build up capacity; avoid awarding large grants at the start.
- Sub-regional organisations and consortia can help provide organisational mentoring at the financial management level to support weaker research institutions.
- Legal and policy-level issues also need to be included in support – for example addressing intellectual property issues.
- Experience suggests that change often comes from within organisations themselves, rather than from the initiative - it can come down to good researchers, frustrated with the way the research environment is tackled in their country and at their institution, sacrificing their research careers and moving into non-research positions to influence change.

Models for institutional research capacity strengthening

Some exploratory options for models for supporting research capacity in organisations were discussed:

- Partnership model and organisation to organisation mentoring, for example, department to department and strategic ‘twinning’ of research institutes, perhaps in different regions.
- Regional networking hub or secretariat model, for example, the African Economic Research Consortium (AERC)⁸ or Partnership for African Social and Governance Research (PASGR)⁹.
- Network or consortia model to conduct thematic research which includes research capacity strengthening and combine stronger and weaker organisations, for example,

⁸ AERC www.aercafrica.org/

⁹ PASGR <http://www.pasgr.org/>

DFID's Research Programme Consortia model, although experience suggests that the success of this model is mixed (Barrett et al 2010)¹⁰.

- Overseas operation/ satellite model: Medical Research Council Unit Gambia¹¹, an overseas operation of the UK Medical Research Council
- South-south mentoring: for example, universities in China, South Korea, and Singapore partnering with universities in African countries.

Questions that remain unanswered

- Research-into-use: To what extent should initiatives focused at the organisational level also support linkages into private sector, government and social enterprise to support innovation and development of research products?
- How can higher education and teaching benefit from improvements in research capacity and not become silo'ed outside research-led initiatives?

6. Environmental (national/regional) research capacity strengthening

Context

Research capacity strengthening at the environmental level involves creating an enabling environment for research. At this level, research capacity building is viewed as enabling the research sector as a whole to enhance its contribution to economic and social development, through creating the right policy contexts and leadership that enable research organisations and individual researchers to address issues of national concern.

Initiatives at this level are multi-faceted and may be closely integrated into development cooperation efforts.

Most of the participants at the workshop involved in activities at this level take a systems view that links research, higher education and innovation. The goal of capacity strengthening at this level is geared towards supporting a dynamic national research sector – linked into international networks -to contribute to social, political and economic development in the country.

A vital aspect of the research system is not only the capacity to produce research, but capacities amongst government bodies, civil society institutions and the private sector to engage with, use and demand research, evidence and research products.

Most participants at the workshop considered that to achieve sustainable impact in the long term, support needs to tackle building both scientific and policy capacity within developing

¹⁰ <http://www.dfid.gov.uk/What-we-do/Research-and-evidence/How-we-do-research/How-we-fund-research/>

¹¹ MRC Gambia <http://www.mrc.gm/>

countries. This involves strengthening not only the capabilities of individuals and institutions but also the environment for communicating, debating, producing and applying research.

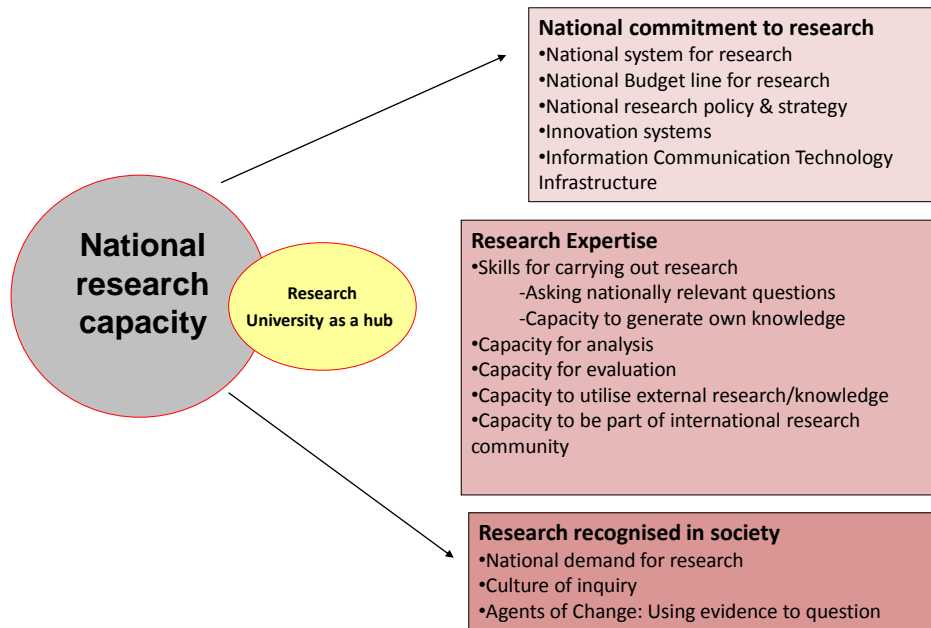
Strengthening this enabling environment involves supporting a range of processes and national-level institutions, including:

- Government-led support for research, including funding mechanisms, investment in national ICT infrastructure, and the regulatory and policy environment for research.
- Research systems, including national research councils and funding bodies, universities, research institutes, think-tanks and civil society organisations.
- Governmental and parliamentary scientific advisory and analytical bodies.
- Specialised intermediaries, public and private sector, who are able to facilitate the communication, exchange, translation and use of research-based knowledge and products in science and research, business and enterprise, civil society and communities.
- Traditional and new media are able to inform public debate with research and evidence-based knowledge on issues of national, regional and international interest.
- 'Innovation clusters' involving private sector, universities and (local) government.

Again, SIDA has a lot of experience to share on strengthening research capacity at the environmental level. Figure 4 illustrates how SIDA sees the key elements of the research system. Strengthening these elements in an integrated way is key to supporting SIDA's partner countries and regional research actors to be better able to plan, produce and use research in the fight against poverty.

Figure 4: SIDA's conceptual framework for environmental research capacity strengthening.

National Research capacity



This perspective places the research university as the hub for supporting research to be key to country-led development efforts.

As highlighted in the discussions at the workshop, at the environmental level, it is important to have a research development strategy that is led by the partner country. Dialogue with the funder should consider what is desirable and needed, given the particular challenges of the country context.

Challenges should not be underestimated – research capacity strengthening at the environmental level is non-linear, iterative, political, and context-driven. Long timelines and strategic approach are needed to build-up critical mass, partnership with institutions in countries are vital. Working at this scale and making progress requires stamina and commitment from all partners.

Challenges

There are many challenges in supporting research capacity strengthening at the environmental level. Institutional, political and social environments in developing countries are varied and building country-led processes is a long-term endeavour. Participants shared their views of some of the major challenges.

Poor coordination of initiatives

The lack of coordination is a feature across all the levels of research capacity strengthening. Participants noted the issue of multiple initiatives, nationally and internationally-driven, but poorly coordinated at the national level. Some initiatives are independent, some are embedded in development cooperation country strategies. Duplication, fragmentation and missed opportunities are a major frustration for country partners and donors alike.

Absence of national institutions

National institutions may sometimes be involved in research capacity strengthening, for example science councils, but sometimes they are not because they do not exist in a country. New organisations may need to be created to coordinate and manage research funds if a local entity does not already exist. As noted earlier, developing organisations is a long-term process, requiring specialist skills.

Existing rules and systems cannot support an expansion of research capacity

Existing bureaucratic and legal systems in countries and organisations may not have capacity for supporting research. Their systems are unlikely to be easily adapted to carry out this function. One example that was shared was that financial rules designed to prevent corruption in procurement can present obstacles to providing research grants (C. Bardsley, ESRC).

Policy and government-side demand for research is weak or absent

The capacities to work with research and define research priorities on the policy-side are often weak, with few or no scientific advisory bodies linked to governmental institutions. The demand for research to address national priorities can be absent due to a lack of understanding of how research can contribute to policy.

Linkages between higher education, research, private sector and government are often not developed into innovation systems. External and international research organisations play a disproportionate role in African innovation, for example.

Obstacles due to the absence of a research culture are common

The lack of understanding of research, its processes and institutions can be a major obstacle to establishing policy-side support for developing the research sector. The pressure for rapid responses to policy issues means that consultancy reports are often preferred to research which needs longer timeframes.

Research analysis can also be critical of government positions, which can be challenging in contexts where a culture of open public debate is less established. Research values of independence, transparency, peer review and open academic publication of research results can be problematic in some contexts.

Specialist skills are needed for capacity development, not just research specialists

Working in partnership at environmental level requires organisations with different skills and experience, including specialists in capacity strengthening and organisational development – research staff who are good in their home roles and functions may not be good at training and developing others.

Tensions between long-term engagement and demonstrating short-term results

Tensions between short-term and long-term approaches abound – agencies may have begun to see results after five years but then the project has to be wound up according to internal agency procedures.

Being realistic about the iterations and unpredictability of research capacity strengthening can be challenging to agency cultures and country partners. Trial and error is a legitimate part of the process, but taking a learning and adaptive approach is not easily supported by funders' home politics nor if local organisations prioritise their own goals in the process.

Case study - Health Research Capacity Strengthening Initiative (HRCSI)

Presented at the workshop by Jo Mulligan, DFID

Background

The HRCSI is a partnership between UK Department for International Development (DFID) and Wellcome Trust (WT). This partnership was joined by the International Development Research Centre (IDRC), Canada which has a track record in strengthening health systems in Africa.

The initiative started in February 2008, and is taking place in Kenya and Malawi, with £10 million provided to each country (funding provided by DFID, WT and IDRC).

Objectives

The objectives of the initiative are to:

- Strengthen national capacity for generation of health research knowledge
- Improve its use in evidence-based decision making, policy formulation and implementation

How does it work?

There was a country-led process in defining the scope. National Task Forces developed programmes of work.

The main approach is to foster and nurture national research grant-giving bodies. This approach is based on a broader premise that to achieve sustainable impact in the long term, research needs to help build scientific **and** policy capacity within developing countries. The definition of capacity building in this initiative includes not only the capabilities of individuals and institutions but also the “uptake environment”.

There is also a learning and evaluation strand, ‘HRSC Learning’ which is supported separately.

Different approaches were developed for each country, based on the country processes in response to local conditions.

In Kenya, a new NGO was established, the Consortium for National Health Research (CNHR).

In Malawi, the approach is to strengthen the Government of Malawi via their National Commission for Science and Technology.

Expected benefits

The benefits that were expected from the programme included:

- Strengthening the capabilities of researchers and their institutions to conduct and communicate research
- Strengthening intermediaries to report, engage with and broker research knowledge
- Helping policymakers to seek out and use research evidence
- Strengthen stakeholders to articulate demands for research.

What has happened since implementation?

Progress in both Kenya and Malawi was slow at the start. There were delays in disbursements and activities.

In Kenya, building an NGO from scratch was difficult, but justified given the political context. It was important that the organisation was seen as independent of government. Technical expertise in organisational development was sought from a private sector management consultancy, which made a positive contribution to progress.

In Malawi, progress was seriously hampered by changes in the government structure and the National Commission for Science and Technology becoming a para-statal body.

There have been on-going challenges in recruitment and capacity in both countries, especially in finances and grants management teams.

The tensions between long-term commitment to build capacity and short-term political timelines and the need to show results have required substantial management.

In its implementation, the initiative has turned out to be more like a development project focusing on developing organisations, and negotiating political and governance arrangements, rather than an initiative dealing with specifically research concerns. It has required far greater inputs of management time than were anticipated at the start.

Examples of achievements so far

In Kenya:

- 4 Communities of Research Excellence (CoReS). £1.5m available for 3 years.
- Awarded 6 leadership grants for research training and infrastructure
- 7 associated PhD studentships and one post-doctoral placement
- 20 graduate student 6 month research placements as interns in universities, research institutes, government ministries and state laboratories
- Strengthening ethics regulations, raising the profile of science with young Kenyans, establishing a knowledge sharing platform to facilitate policy making (enabling environment).

What made it effective?

Lessons about what has helped the initiative make progress include:

- The political and institutional environment is crucial, so this needs to be carefully mapped and relationships and alliances established.
- The importance of local ownership and control is central, so designing programmes which directly empower southern organisations is vital.
- Working with partners takes time and mutual understanding, at the outset and ongoing investment in relationship management.
- Finding opportunities for funders to complement mutual strengths and mitigate weaknesses can help to deepen impact.

- It is important to identify the mix of technical expertise and capacity that will be required – both research and non-research - and be open to new ideas and new ways of working from specialists who may not be from the research area.

What would be done differently?

Some of the lessons that emerged with hindsight include:

- The importance of undertaking a full contextual/ Institutional analysis during the design of capacity strengthening initiatives
- Avoiding building institutions at the same time as expecting them to implement activities – build-in long lead times
- Getting the right technical assistance in at the start
- Thinking seriously about capacity needed to manage programmes – are they better led from regional hubs?

Environmental Research Capacity Strengthening: Lessons learned

Participants highlighted that research capacity strengthening is not supported by evidence of what is effective in different contexts. They flagged that it is important to consider how to position a programme, not as a conventional programme but as an experiment.

From the perspective of an experimental programme, challenges should be carefully identified and articulated. Planning for how to address these is necessary but plans should have sufficient flexibility to create the space for trial and error, failure, learning and innovation.

A learning review strand as an integral part of the programme can help as the 'theory of change' – the premise of how the programme is expected to deliver its benefits - may change as the conditions of implementation change. It is more helpful to have explicit review points that support decisions on how the programme framework and plans should be adapted rather than trying to massage new understandings into the original plan.

Other lessons are highlighted below.

Understanding the country context in depth helps to support a country-led process

Participants highlighted the importance of undertaking a full contextual and institutional analysis during the design of capacity strengthening initiatives, as in the case study. Often, the realities of development agency processes mean that time to do this is constrained.

The lack of time to fully analyse the context and develop a systemic perspective means that many initiatives tend to focus on the established institutions. Opportunities to build up weaker organisations are missed. The opportunities to build demand for research on the policy and private sector side may also be missed, despite this being integral to creating sustainable research capacity.

Investing time to map the context and identifying key players, politics, and the practicalities can help to focus on strategic points for support. Together with early engagement with stakeholders, immediate beneficiaries and potential research 'users' will strengthen the foundations for implementation.

Establishing country ownership of a process is challenging, but looking to international indicators for research capacity, such as the annual Africa Capacity Indicators Report¹² and the African Innovation Outlook¹³ can help to identify areas of national weakness. Country comparisons can help to support political buy-in but this needs to be handled sensitively.

¹² Africa Capacity Indicators Report 2012

<http://www.capacity.org/capacity/opencms/en/topics/monitoring-and-evaluation/acir-2012.html>

¹³ African Innovation Outlook 2010

<http://www.nepad.org/humancapitaldevelopment/knowledge/doc/2226/african-innovation-outlook-2010-executive-summary>

Investing in long-term partnership

Building research partnerships across continents was highlighted as key. These relationships need to be based on trust and mutual accountability. This takes time to develop and is a precondition of good capacity building.

The management resource and capacity to support this level of partnership development is considerable and should not be underestimated. A key question was whether environmental research capacity strengthening is better managed from the region rather than head office.

The pressures of short project cycles can mean that bilateral aid agencies can inadvertently undermine research capacity even as they seek to support it as long-term engagement is challenging to support.

Diverse technical specialists required for research capacity strengthening

Many participants highlighted the need for other types of technical expertise, such as organisational development and management consultancy, development partnership and programme management, as well as research specialists. However research advisors and programme officers within funding agencies in charge of research capacity strengthening should themselves have a deep understanding of research as a sector.

Continuity of staff in long-term initiatives is a challenge, so the training of new research advisors and programme officers is essential to ascertain that the specific goal of the support is clear and followed.

Questions that remain unanswered

One significant dimension to national capacity building in the social sciences is the creation and management of data infrastructures. Only a nationally-funded body has the resources and scope to support large scale data infrastructure development, and to enforce policies on open access to data produced. This is an important risk to consider in a fragmented landscape of northern donors. How do we ensure that data produced by projects funded by various donors are available for secondary use and thereby can contribute to wider research capacity strengthening?

7. Addressing cross-cutting challenges through a holistic perspective on research capacity strengthening

Three main overarching concerns were outlined at the start of this paper:

- **Maximising impact through coordination** - can the barriers of different mandates, timescales and pressures of different organisations be addressed through working more strategically and collectively?
- **Supporting equitable approaches and building Southern-led capacity strengthening initiatives** - can a more responsive approach be developed, rather

than donors leading the agenda, and ensure equitable collaborative research linking global and local issues?

- **Sustainability** - for true sustainability, how can capacity to build capacity be developed from within developing countries and their research institutions?

The conclusion of the participants at the workshop was that one of the keys to addressing these challenges lies in accepting that it is not sufficient to intervene in research capacity at one level without analysis of how the intervention will connect to interventions at other levels. The main lesson to emerge is that those agencies in the science and development communities considering capacity strengthening in research should take a holistic perspective of the research system as a whole, even if they are developing a single intervention.

Maximising impact through strategic coordination

This issue was considered to be one of the most significant at the workshop. Participants expressed frustration with duplication and failure to achieve critical mass in some areas. It was felt that a lot of effort is wasted due to poor coordination and a lack of complementarity between initiatives active in the same locations.

Participants identified two main levels for coordination:

- between funders and donors of initiatives
- within and between research organisations, universities and institutions

Coordination between funders and donors of research capacity strengthening initiatives

The challenges of coordination should not be underestimated. Donor agencies, scientific research bodies, philanthropic foundations and charities all have widely different mandates. As yet, there is a need to generate significantly more momentum behind initiatives to promote coordination, even complementarity.

However, initiatives to support coordination at the funder level do exist. These include ESSENCE on Health Research, an initiative between funding agencies to scale up coordination and harmonization of health research capacity investments within national strategies.

ESSENCE is in its early days. As one of its first activities, ESSENCE members agreed to jointly develop and produce a good practice document on Monitoring and Evaluation Framework for Research Capacity¹⁴. The successful production of the Framework has created valuable learning about improving coordination using a sector-based approach.

Health-related initiatives have been flagged here. However, there is considerable experience and learning in agriculture on research capacity strengthening which it has not been possible to cover in this paper. Agriculture should also be looked to as a source of valuable models and approaches for coordination.

¹⁴ <http://www.who.int/tdr/publications/non-tdr-publications/essence-framework/en/index.html>

Coordination between national research bodies and institutes

There are also opportunities for coordination between research organisations involved in research capacity strengthening. The key opportunity identified was a harmonised reporting format to address the issue of multiple requirements and high administrative burdens.

A harmonised reporting format, although specific and practical, seems a long way off. Participants flagged the need to consider carefully how national research institutions would view the benefits and risks of closer coordination. Trust would need to be built.

Supporting equitable approaches and Southern-led agendas

The paradox of research capacity strengthening is that initiatives are often externally (internationally) driven because the national capacity to develop an agenda is often missing. In keeping with the shift in international development towards country-owned development, participants at the workshop emphasised that capacity strengthening should be led by developing country partners. But they also recognised that putting this into practice is where the challenge lies.

Participants highlighted the following lessons from their experience:

- Partners and beneficiaries must drive the capacity building, but this should be based on a partnership approach between national research institutes and funders where mutual benefits have been discussed and agreed.
- Goals should be defined together, and priorities from all partners are reconciled.
- Donors and funders should be mindful of their powerful position and be aware that what Southern partners express is influenced by the agendas and funding coming from the global North; more trusting and open discussions can only be achieved with time and relationship-building.
- The starting point should always be the local context and the aim should be to build on what is already there
- Be clear and realistic about impact.
- Demand for your capacity building is an indicator of success.

Sustainability and succession planning

Sustainability and succession planning remains a major challenge for research capacity strengthening. Handing over initiatives to national leadership should be a logical outcome of successful capacity strengthening. However, a lot of initiatives are only now reaching their ten-year milestones and starting to think about succession and exit strategies. The main lessons highlighted by participants included:

- Succession planning is often done poorly and in a state of crisis. It should be planned for right from the start, as part of the 'entry strategy', as a goal. If planned for with time and flexibility, then donors and partners can develop a shared strategy for a gradual hand-over

- Sustainability and succession planning should take into account conditions at all 3 levels, individual, institutional and environmental, and recognise issues of competition amongst different research organisations that are inherent when handing-over initiatives.
- Donors and funders should be clear from the outset about their own minimum and maximum timelines.

8. Conclusions and actions

The purpose of the workshop was to share lessons learned amongst people working directly on initiatives and programmes aimed at strengthening research and innovation capacity in low income countries. Insights were exchanged in order to improve understanding and expertise when considering developing new or existing programmes or initiatives.

The main lesson to emerge is that no research capacity strengthening initiative can succeed in isolation. Funders and donors may have a clear focus on one level of intervention, but a holistic perspective of the research system as a whole is vital for supporting success in the longer-term.

Of the three levels of intervention, the individual level appears, on the surface to be the most self-contained and straightforward. However, the experience shared at the workshop suggests that the view of three 'tidy' levels of research capacity strengthening, with clear distinctions between them is idealised.

In reality, the linkages between all three are messy and complex. In research capacity strengthening, activities loop back and forth iteratively across boundaries, reinforcing or undermining other capacity initiatives in unpredictable ways. Events might combine to create critical mass and a tipping point generated that will result in stronger capacity, or it may not.

To operate in this complex area, participants emphasised three key messages:

- Identify what is necessary to keep the whole research system functioning at all levels, and focus on who is best placed to provide support to components at each level.
- Systematically analyse what is required to make the system viable and try to identify factors at other levels that will influence single interventions, positively or negatively.
- Identify co-funders and partners, aim to complement initiatives at other levels and leverage alternative resources to enhance the reach of research capacity strengthening initiatives.

Most importantly, participants emphasised that without significantly improving coordination between donors and funders of research capacity strengthening, these insights will remain as ideals and aspirations.

Actions to improve coordination

The UKCDS Research Capacity Strengthening Group is well-placed to consider innovative and ambitious approaches to enhance coordination. Proposals for specific actions to support improved coordination between funders and donors included:

- Jointly developing an outcomes-oriented framework for research capacity strengthening that makes the case for longer-term support and ten year targets
- Developing common understandings of common challenges, such as budgetary issues around direct and indirect costs and overheads, with a view to developing Good Conduct Principles and guidelines
- Encouraging link-ups between different sector networks to try to bridge silos
- Developing national research strategies for other sectors beyond health, agriculture and others
- Embedding research capacity strengthening into existing development donor coordination mechanisms, for example IFORD
- Combining research funding.
- Establishing an international forum of research capacity donors.
- Improving information sharing amongst national research organisations about different donors' initiatives, by discipline, theme, process and activities and at which level: individual, organisational or environment strengthening.

Taking on a more holistic view of research capacity strengthening provides a platform for improving coordination of efforts. Strengthening coordination could yield important benefits, enhancing the potential of separate schemes to link up, build on new initiatives being led by developing country institutions, and help to direct scarce resources more strategically to build authentically sustainable research capacity into the longer-term.

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