
Research-costing practices

*Towards bridging the gaps
in research funding in
low- and middle-income countries*

Resource document for
***Five keys to improving research costing
in low- and middle-income countries***

February 2012



ESSENCE on Health Research is an initiative between funding agencies to improve the coordination and harmonization of research-capacity investments. Recognizing the particular complexities involved in health-related research, ESSENCE aims to improve the impact of investments made in institutions and their employees, and to provide enabling mechanisms that address the national needs and priorities of health research in the funded countries.

Although ESSENCE is health-focused, this document has wider reach and can be used across all research fields.

ESSENCE members embrace the principles of donor harmonization and country alignment expressed in the 2005 Paris Declaration on Aid Effectiveness and in the 2008 Accra Agenda for Action. According to these principles, donors are asked to align with the priorities of the countries in which they work, and harmonize their activities and procedures in order to both facilitate complementarity among themselves and to reduce administrative loads on funding recipients.

To achieve these goals, ESSENCE members agreed to jointly develop and produce good-practice documents that would incorporate current knowledge and best practice on health research and development issues. The first good-practice document titled 'Planning, Monitoring and Evaluation Framework for Capacity Strengthening in Health Research' was published in 2011.

This document, the second in the series, emanated from a funders' seminar, arranged by the Association of Commonwealth Universities at the 2010 conference of the International Network of Research Management Societies in Cape Town, South Africa. At this event, research costing was highlighted as a major challenge for institutions in low- to medium-income countries (LMICs) that are seeking to develop and maintain sustainable research environments. The suggestion was made to review the practices of funders and recipients related to the definition and funding of direct and indirect costs. The learnings from that review are contained in this document.

It is hoped that this document will provide ESSENCE members, and the research institutions they support, with information that will help all parties to (i) better understand the challenges and requirements of research costing, (ii) develop appropriate mechanisms for costing future research accurately and sustainably, and (iii) that it will act as a channel for further engagement between funders and institutions.

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Introduction

Research institutions in low- to middle-income countries are critical both to the ongoing pursuit of health and to economic development in their countries, and globally. It is essential that these institutions develop and maintain their research environments to sustain high-quality research. As highlighted at the 2010 INORMS Conference, determining and recovering research costs is a major challenge for institutions in LMICs. ESSENCE initiated a project to understand the research costing practices of both funders and funding recipients.

The project started off with surveys of health research funders and funding recipients in LMICs. Fifteen funding organizations participated in the survey, responding to ten questions about their current grant-costing practices. A total number of 128 responses from individuals at 96 research institutions in 47 different countries were obtained through the survey to funding recipients in health research environments. Fifty-four percent (54%) of the responses were from a university environment and 35% from research institutes. The majority (94%) of the responses were from institutions in sub-Saharan Africa, which will therefore be seen as representing LMICs in the context of this document. It is acknowledged that there might be institutional, country-specific or even continent-specific issues that were not identified in the scope of this study. It will therefore be important to confirm whether the findings transfer to other LMICs.

The data from the surveys were supplemented by follow-up discussions with selected respondents and/or other relevant individuals. This was done through e-mail, face-to-face conversations, telephonic discussions or at events such as the Centres of Excellence Summit in Kampala, Uganda, the Summative Workshop on Setting an Agenda for EARIMA¹ in Dar es Salaam, Tanzania (both in September 2011) and the SANORD² Conference in Johannesburg, South Africa, in November 2011. In addition, a number of case studies were developed to highlight good practices identified through survey responses.

It is acknowledged that research costing, even at the level of terminology, is a complex and context-specific topic. On a national level, legislative differences can affect costing, accounting practices and terminology. Even in high-income countries, where models for costing research and calculating indirect rates have been developed over many years, the issue of costing research remains a subject of continuous discussion and revision, as the body of knowledge in this area expands. This document therefore does not intend to provide clear-cut solutions, but instead highlights current practices and provides examples of current good practice that can be used by institutions in LMICs, which are in a process of trying to understand their research costs and which seek to engage with funding organizations to meet their funding requirements. As such, it is hoped that this document will contribute towards raising awareness of the importance of understanding research costs and thereby provide a basis for further debate on establishing

1 East Africa Research and Innovation Management Association

2 Southern African-Nordic Centre

sustainable research environments in low- and middle-income countries through full research costing.

The study led to the publication of two documents that are linked but have different purposes.

The first document is the one you are reading now, *Research Costing Practices: Bridging the Gap in the Funding of Health Research in Low- and Middle-Income Countries*, provides background information about the ESSENCE study and contains additional case studies and examples.

The second document is *Five keys to improving research costing in low- and middle-income countries*. It is a concise and practical resource for research institutions, research managers, and donor organizations.

Five keys to improving research costing are described in detail. The purpose thereof is to offer research institutions and funders some pointers and guidance on the generic processes involved in calculating, managing and recovering research costs, including:

- categorizing cost items as direct or indirect;
- calculating an indirect-cost rate using a relevant approach;
- recovering indirect costs through applying the rate to grant applications ;
- distributing recovered indirect costs within the institution to sustain and improve ongoing research programmes.

The publication is available online at <http://www.who.int/tdr/partnerships/initiatives/essence>.



SECTION I: Sustainable research environments

Requirements for sustainable research environments

A sustainable research environment is the result of a number of interlinking factors and requires contributions from role players on various levels, including international, national, institutional and individual levels. Some of the key factors that were highlighted by the survey respondents are summarized below. These factors are by no means unique to LMICs; however there is some urgency in the need to fast track the development and implementation of these in LMICs.

Research leadership – research should be high on the institutional agenda and champions are required to give research the necessary prominence and impetus. Linked to this are the requirements for strategic planning, setting research priorities, building partnerships and ensuring that adequate resources are available. The research leader should create cohesion and ensure that research has a ‘home’ in the institution. Furthermore, translating the complexities of the research system for researchers, protecting research within the institution and against external factors and expectations, as well as creating and maintaining a research culture and a conducive research environment, are important roles of the research leader.

Relevance of research – in the process of setting priorities, cognisance should be taken of the relevance of research to the region and the potential impact on regional development. A number of respondents expressed the desire for an institutional strategic plan for research, embedded in a national plan and executed in partnership. Currently the trend seems to be that research priorities are mainly driven by funders of research.

Human resources for research – a critical mass of researchers who can generate and use knowledge in priority areas is needed. This requirement is not only about the numbers, but also about the level and relevance of skills and inherent motivation of researchers. In LMICs in particular, it is about broadening the base – increasing the number of individuals and institutions participating in research, while ensuring that relevant skills are developed in pursuit of research excellence. A strong research base is a key requirement for a sustainable research environment. In addition, recruiting and retaining excellent scientists are important. One of the challenges that was mentioned repeatedly was the ability to offer competitive salaries. In order to supplement salaries, university staff often engage in paid consultancy work. This places an additional workload and burden on staff and does little to broaden the research base. A recent sub-Saharan African Medical School Study (Mullan et al. 2010) showed that few faculty members in medical schools are involved in grant-supported research.

Infrastructure and equipment – the availability of a supportive infrastructure and access to state-of-the-art equipment is globally recognized as a key component of a sustainable research environment. Many institutions in sub-Saharan Africa function under significant resource constraints. Respondents expressed the need for a more strategic approach to infrastructure

development and access to equipment in a resource-restricted environment. Infrastructure development should be linked to institutional priorities and optimized through partnerships. Effective financial and accounting systems was also emphasized as a requirement – this is especially important in the context of research costing.

Access to information and networks – in systems where the research community has relatively limited access to networks extending beyond the institution, the region and the country have a critical role to play in strengthening the research environment. Another aspect related to access highlighted by the respondents was access to technical and scientific information.

‘Doing successful research largely depends on the people doing the work, the available facilities, the mechanisms put in place for project management and the incentives provided for achieving specific goals. This is where the gap is between what actually occurs in high-income countries, compared to the situation in Africa.’ – Survey respondent

A cohort of the next generation of researchers - the current population of researchers is ageing, and young talented researchers need to be identified early on in their careers. Promising young scientists should be supported and nurtured to enable them to compete on a global scale. Access to mentors and role models, as well as career pathways, is the important underlying component to achieve this. Clear and attractive career pathways are also important in recruiting and retaining excellent scientists. The perception is that poor salaries and poor infrastructure make it difficult to attract mentors.

Platforms – enabling platforms such as centres of excellence can provide a means to consolidate resources and to focus on excellence in specific areas. These platforms can potentially serve as focal points for the development of research leadership, capacity development, partnerships, interdisciplinary research and to attract funding.

Underpinning all of the above is the need for a consistent flow of funding and effective research management support and administration. Even though the focus is on the institutional level, the steering role of government in promoting and supporting research bears mention. In LMICs efforts to create sustainable research environments are highly dependent on political will and credibility and adequate financing of research (Lansang & Rodolfo 2004). Governments should partner with funding organizations to ensure that institutions receive sufficient funding, in areas that will ensure a sustained research environment.

‘The requirements for a sustainable research environment are most likely the same all over the world but the support from government is not the same and this is believed to be the one factor that will make the difference.’ - Survey respondent

The importance of research funding

The importance of funding to sustain research cannot be overemphasized. In fact, every single respondent to the survey sent to funding recipients identified funding as a major requirement for a sustainable research environment. A key issue, related to the funding of research and related training, is whether the funds provided for research cover the actual costs involved.

The absence of a clear and robust method of understanding research costing had led to much research being undertaken at below cost. Eighty two percent (82%) of the respondents indicated that their institution cannot cover the costs associated with research. However, it was evident that very few institutions actually went through a process to understand their research costs through the calculation of an indirect rate. Instead, the allowable indirect cost rate of their major funder, an average of the rates allowed by their major funders or an estimated rate (often the rate for many years) was used as the institution's indirect rate.

Therefore, in LMICs, a first step towards a sustainable research environment is for institutions to have a better understanding of their actual research costs. Only institutions that know the full costs of their activities and projects can judge if they are able to operate on a financially sustainable basis. Without this information, institutions are also not in a favourable position to negotiate rates with funders/donors. It is therefore not surprising that almost 50% of respondents to the survey have never attempted to negotiate indirect rates with funders.

The European University Association (EUA 2008) in their publication *Financially sustainable universities – towards full costing in European universities* highlights the benefits that full costing provides for universities. These include:

- A more systematic approach to activity analysis and costing;
- A more efficient internal resource allocation ;
- Improved strategic decision-making abilities, based on better understanding of investment decisions. This was shown to be one of the main drivers for institutions to move towards full costing;
- Benchmarking possibilities within the sector and an enhanced ability to negotiate and price activities, which leads to higher cost recovery of project costs, thereby contributing to financial sustainability.

In addition, money gained through more efficient management of the institution and better project delivery will allow the setting up of incentive processes and reward those who work efficiently. For example, researchers will gain a better understanding of the costs associated with research and thus help the university to focus on the needs of the institution in order to achieve financial sustainability.

The benefit of full costing is not limited to institutions. On national and continental levels, proper costing can ensure accountability, build up trust between government, funding agencies and universities and smoothe the transition towards autonomy. Full costing facilitates national government budget allocations, as universities can provide what they need on a reliable and

verifiable basis. Full costing also enables universities to act more efficiently and base their decisions on sound data, which, in turn, reassures the government that the funding allocated is being used appropriately. Robust costing systems can also help governments to benchmark their own achievement of objectives more effectively.

The EUA study found that competitive research funding schemes in Europe have played an important role in the decision of universities to move towards full costing. The schemes' model of cost recovery encouraged universities to implement full costing, while increasing the pressure on national competitive funding schemes to follow their example. The statement was made that national funding schemes that do not fund indirect costs provide no incentive for universities to establish models to identify these costs – in other words, without it there is the absence of suitable drivers (EUA 2008).

Research management and administration

Excellence in research and research management go hand in hand. In our world of ever increasing complexity, research needs pro-active research management, both at strategic and operational levels (European Commission Expert Group Report 2008).

Today, research management and support offices, irrespective of what they may be called, are customary in institutions, particularly in high-income countries. There is a strong emphasis on creating a helpful working environment for research. The demand for more research development and innovation has led to a requirement for increased accountability and transparency of government agencies by the public, resulting in an influx of agency regulations and policies directed towards accounting for, and reporting of, research activities. With such an ever-changing and complex regulatory environment, it is practically impossible for researchers to keep up with all the new requirements and compliance issues independently (Rockwell 2009; Stanley & McCartney 2009).

In terms of research costing, it has to be recognized that it is important for universities not only to have the ability to identify the full costs of research, but also to have the necessary management and administrative infrastructure to manage their internal resources in support of sustainable research funding (European Commission 2008).

In LMICs, the resource, human, and financial infrastructure in place to assist researchers in applying for grants, implementing grants and reporting on grant expenditures and findings is not always that well developed. In fact, in many parts of Africa, the 'professional research manager' does not exist - or is only just starting to emerge. In many instances, it is academics with an interest in the field who have taken on the role of research manager. Even where research management offices do exist, they are expected to divert their limited resources towards attracting grants (through helping on proposals) and managing grants that already exist, rather than pro-actively negotiating indirect rates. In many cases, too, their key challenge is to

gain recognition within their institution, before they can have any major impact on research development, institutional advancement and research excellence.

Respondents to the survey had to indicate their particular function in the institution. The responses from individuals who identified themselves as research managers were isolated and it was striking that 85% of this group did not respond to questions on the details of indirect costs (e.g. what the rate was, how it was determined and approved etc.) or on the availability of institutional policies and guidelines.

Common titles for a research administrator or research manager included- vice president for research, chancellor of research, research administrative officer, grants manager, grants and contracts manager, research compliance manager, director of research and sponsored projects, sponsored programme manager, sponsored research manager, sponsored projects manager, or research development associate. These individuals may work in research management, contracts and grants management, financial management, intellectual property and technology transfer, training and educational programming, human resources management, regulatory compliance, ethics and institutional review boards (IRB)s, and information services.

‘A major gap I see today is the need to have administrative staff to help develop and support research. It seems that institutions prefer to have more research projects in number [rather] than in quality – quality projects that can attract adequate funding are required’ -Survey respondent

SECTION II: Calculating the costs of research

The important practices of both funders and funding recipients, based on the surveys, are summarized in this section. Case studies providing further insight into the practices can be found in Section III.

Funders' practices

The main focus of the survey to funders was to determine their allowable rates. The responses also provided information on the funding structures.

The 15 organizations which participated in the survey mainly fund institutions/organizations, open competitive calls and individuals, with a focus on applied research, research training, individual research capacity strengthening and basic research.

The practices that emanated from the survey are summarized below.

Allowable charges for research grants

The charges allowed as direct or indirect costs differed across the organizations surveyed. Based on the majority of the responses, the following were generally considered to be direct and indirect cost items.

- *Direct costs* - Salaries, travel, equipment, supplies;
- *Indirect costs* - Rent, utilities, maintenance, research management office, legal fees.

Determining the allowable indirect rate

The funders were asked to indicate how they determined the allowable indirect cost rate for LMICs that are not in the country of the funding organization. There were differences in the policies of the different funding organizations. In summary:

- The majority of the respondents (n=8) indicated that the rate was determined as a percentage of the grant;
- In some cases the rate had to be presented transparently per item as a charge to the project, with the expectation that it would not exceed 10%;
- Allowable indirect costs were based on the institution's policy, although each request was reviewed individually;
- For one funder there was no set percentage and the rate was negotiable;
- One response indicated that indirect rates were only provided to LMICs and in such cases all costs had to be presented transparently as a direct charge;

- One funder provided funding for indirect costs, which could be charged on staff salaries and other staff-related costs;
- Another funder made provision for higher indirect rates for LMICs (50% for LMICs and 20% for high-income countries).

Reimbursement of indirect rates

For those funders that did allow indirect rates (the others provided core support or did not allow indirect rates), the rates varied between 5% and 50%. The rates for research grants were: 8% (n=1), 5–10% (n=1), 8–10% (n=1), 10% (n=1), a maximum of 13% (n=1), a maximum of 14% (n=1), and 50% on staff salary and other staff-related costs (n=1).

For training and capacity-strengthening grants, the rates were: 8% (n=1), 10% (n=3), and a maximum of 13% (n=1).

Support for research management

Only two of the respondents did not provide some sort of support for research management. In some cases (n=8) it was included as an indirect cost and in others as a direct cost (n=5) in project budgets.

Conclusions

There is variation in the payment of indirect rates by funders to LMIC institutions, with rates ranging from 0–15% of direct costs. Some donors fund indirect costs at a higher rate, although only as a subset of direct costs (i.e. salaries). Other funders provide support through non-earmarked core funding, core support, or grants specifically to fund research infrastructure and do not provide support through indirect rates. The survey showed policy variations between funding indirect costs in developed versus LMIC countries (higher rate allowed for LMICs, compared to high-income countries).

There is definitely room to harmonize grant policies among funders of research in LMIC organizations. Multiple funders can begin to work together at an institutional level to harmonize policies and ensure an adequate level of support to sustain a research environment. At a more global level, funders can begin to discuss how to harmonize policies and practices in order to address the most pressing needs expressed by the funding recipients in their survey responses and case studies.

Institutional practices

The survey to funding recipients revealed that the majority of funding for research and training currently comes from national governments. Other major contributors are foreign not-for-profit

organizations (e.g. academia, charities, foundations), foreign government agencies (e.g. DFID, NWO, SIDA, USAID) and their own institutions respectively.

Respondents highlighted the need to supplement core funding with competitive grants and hence the importance of developing skills in competitive grant writing. The increase in competitive grant applications will most likely become one of the motivating factors for the need of funding recipients to understand the actual costs of research.

The funding received by institutions provides support for the broader categories of applied research (76.5%), individual research capacity strengthening (58.5%), research training (57%), basic research (46.5%), research management and support (30%) and product development research (32.5%). It is important to note that the majority of funders who responded (13 of the 15) appreciate the importance of good research management and support structures and provide funding in this category.

It was clear from the funding recipients' survey that in many cases there was a lack of institutional understanding of research costs. Forty two (42) respondents indicated that their institutions have a calculated indirect rate; 28 institutions have not developed these rates and respondents from 26 institutions did not know. Relevant institutional policies and guidelines existed for only a few of the institutions which had calculated indirect rates.

Further analysis revealed that many of the rates were not calculated using a specific approach or methodology; nor were they confirmed in institutional policies or procedures. Instead, they were based on what the major funder of the institution allowed as indirect rates or were an estimated rate. The lack of an institutional approach was also evident when respondents from the same institution provided different figures for the institutional indirect rate.

'I do not know how the blanket rate of 10% that is charged by my institution came about, but I know it has been in use for about 23 years. I have a feeling it was chosen arbitrarily, but I may be wrong.' Survey respondent

Indirect rates and calculation methodology

A wide range of indirect rates was used, usually between 8% and 35%, with an average rate of 15%. The indirect rate itself might not be significant and should be linked to the approach or methodology. Some examples of how rates were determined:

- A percentage of the total approved project budget;
- A percentage of the direct costs;
- A percentage of selected costs, such as rent and administrative costs;
- University levy on salaries, plus a percentage of internal indirect costs (administrative support and research management, audit costs, staff benefits, including maternity leave and sabbaticals, vehicle maintenance and organization of meetings);
- Selected based on a regional comparison;

- One institution, the European and Developing Countries Clinical Trials Partnership (EDCTP), assisted with the calculation of the indirect rate;
- Calculated by the auditors during the annual audit;
- In many cases, the rate that was allowed by the major funder, or the average of allowable rates of the largest group of funders, was used as the institutional indirect rate;
- In some cases, each applicant did as pleased, although mostly based on what the funder prescribed.

Applying and negotiating indirect rates

Approximately 50% of respondents had never negotiated an indirect rate with a funder, either because the funder clearly stated in their guidelines that indirect costs were not allowed, or that they had a fixed rate, or because the respondents felt that they did not have the necessary experience and consequently the confidence to negotiate.

The survey revealed a perception that the likelihood of obtaining funding was greater if the budget request was smaller. Applicants therefore often keep the budget at a minimum, excluding indirect costs to increase the chance of being funded.

The respondents who did negotiate rates had diverse experiences. In some cases, the negotiation was successful and can be ascribed (from the view point of the institution) to proper institutional systems for auditing, understanding of the institution's financial structure and costs, persistence on the part of the institution or because the rate was perceived as reasonable e.g. 10%.

Unallowable cost items

The following were cost items that some respondents listed as items that were not included in project budgets, as they were not allowed by their funder or because the institution had the perception that the items would not be funded:

- Students' sponsorship;
- Improvement of staff qualifications (capacity development);
- Rental of facilities;
- Salaries for administrative staff;
- Infrastructure upgrades;
- Mentorship (senior staff mentoring junior staff);
- Taxes;
- Publication costs.

Institutional: Funding ratio

Of the items funded through grants (as direct or indirect costs) the institution: funder contribution ratio was found to be:

- Utilities (70% contribution by institution);
- Rent (67% contribution by institutions);
- Salaries (60% contribution by institutions);
- Auditing fees (42% contribution by institutions).

The institution: funder ratio was the smallest for:

- Supplies (18% contribution by institutions);
- International travel (25% contribution by institutions);
- Domestic travel (25% contribution by institutions);
- Equipment (30% contribution by institutions).

In general, the institutions' perceived gaps in terms of costs covered by grants proportionate to expenditure were:

Largest	Smallest
<ul style="list-style-type: none"> • Salaries (Salaries are often not fully funded or funded at all, yet the need to attract and retain expertise is a major challenge for institutions in LMICs) • Equipment and maintenance • International travel • Rent • Research management office 	<ul style="list-style-type: none"> • Audit fees • Supplies • Domestic travel • Utilities

It is important to keep in mind that various institutions have different needs and therefore different perceived gaps. The information is based on an average of the responses and it is difficult to say there was a specific combination of categories which was consistently under-funded. Just because one institution, for example, could cover the costs of international and domestic travel, did not mean another could do that just as easily with their grant monies. The institutional context is important.

Respondents commented that there is an assumption that basic infrastructure and support is available at an institutional level, such as funding for specialized training, general staff development or, communication equipment, but this is often not the case. In some instances, there is no, or very limited, institutional financial support allocated to research. One respondent highlighted the fact that unprecedented increases in living costs in the home country were putting pressure on salary costs. In addition, lower exchange rates resulted in more expensive equipment, and increases in travel costs made the cost of field work very high.

At some institutions, in particular the younger institutions, activities have to be developed from a very low base. In these environments, salaries, student support, infrastructure development and running costs are of high priority.

Distribution of recovered indirect rates

It is not always clear to researchers where the funding recovered from indirect costs goes and how it is used. Very often the costs are distributed between central administration, the faculty/school/department and the researcher.

Conclusions

At present, institutions are dependent on research funding from national governments, a small number of international non-for-profit organizations and international government funding agencies.

In general there is a lack of skills and experience in research costing and in many cases indirect rates are determined with little precision. There is often no institutional approach – it is individuals in the institutions which receive grants who have developed some experience.

Without proper research costing, the most successful research universities in LMICs are at risk of undertaking their work at a huge loss, posing a threat to sustainable research environments. The consequences of poor costing ultimately result in operating funds being diverted to cover some of the costs of research projects, which drains university funds, rather than supplementing them.

Governments and funders should partner to ensure that institutions understand the costs of research and are funded at a level that will ensure a sustainable research environment. This might include the costs of upgrading infrastructure and improving support services, such as research management and governance, accounting and financial reporting, information technology, and library services. Universities should develop proper systems and processes to approve budgets for external grants, to ensure that costs are recovered or if rates are waived, that the project is of strategic importance to the institution.

Institutions should develop funding frameworks that dedicate a portion of the institutional budget to support research (e.g. provide seed funds for research, graduate student support, conference travel, postdoctoral support) and offer incentives to drive strategic research goals.

Regional research management associations should prioritize skills development in the areas of research costing and budget support, as well as policy development among research managers.

SECTION III: Keys to research costing

A vast variety of systems and practices related to research costing exists, differing from country to country, region to region, institution to institution. Research costing is influenced by many factors and a “one size fits all” approach is not feasible.

From the survey responses and analysis of case studies, key obstacles to research costing and sustainable research environments were identified. These are:

- Sub-Saharan African research institutions generally do not proactively calculate indirect costs;
- Institutional management and coordination of external research grants is not well developed;
- Funders’ policies and practices on the reimbursement of indirect costs vary significantly;
- Seemingly inadequate dialogue between funders and institutions on research costs.

Based on these obstacles, five keys were identified to provide guidance to institutions that do not have relevant systems and procedures in place and to give ESSENCE members an understanding of the context and the institutional needs identified in the scope of the study. (See Figure 5.1.) The keys aim to offer pointers and other guiding information, drawing on the survey responses, interviews, case studies and literature. They are not intended to impose on funders or institutions, but to create an opportunity for funders and institutions in LMICs to learn from each other and to move closer towards bridging the gaps in health research funding in LMICs. The institutional context remains the most important consideration when taking the pointers and other guiding information into account..



Figure 1: Five keys to accurate research costing

A number of case studies and examples related to the different keys identified in the study were constructed. A *case study* is generally based on a combination of information extracted from an organization's website, interviews conducted with an institutional contact person and additional documents provided by the contact person. The case studies therefore provide insight into specific practices and perspectives. An example contains relevant information extracted from the literature or from an institutional website to illustrate a practice or perspective relevant to a specific key or combination of keys.

The case studies and examples are clustered under funders' perspectives and practices, institutional perspectives and practices and practices on national/regional levels.

Funders' perspectives and practices

The following case studies concentrate on the funding modalities particularly relevant to the study for individuals/institutions in LMICs, the eligible expenses, with specific reference to the policy regarding the reimbursement of indirect costs and also some of the challenges that funders experience when dealing with institutions in LMICs. Case studies are provided for the International Development Research Centre (IDRC), National Institutes of Health (NIC), Netherlands Organisation for Scientific Research (NWO) and the European and Developing Countries Clinical Trials Partnership (EDCTP). The example in this section illustrates how a network of funders aims to support harmonization of policies and practices.

CASE STUDY 1

Relates to Keys 1, 4 and 5

The **International Development Research Center (IDRC)** is a Canadian Crown corporation. Its funding comes primarily from the Parliament of Canada through annual allocations and it also partners with Canadian and international donors to increase the resources available for development research. The IDRC supports research in low- and middle-income countries to promote growth and development. The result is innovative, lasting local solutions that aim to bring choice and change to those who need it most.

The IDRC's approach is not only to provide financial support, but also to build capacity within the developing world to conduct, manage, and use research. The IDRC employs a business model entitled 'grants plus', which helps its grantees invest in improved research methodologies, insure policy influence and evaluate their projects. The IDRC also provides access to databases and ad hoc training (i.e. communication, resource mobilization).

Through international competitive calls, unsolicited funding proposals and scholarships, the IDRC provides support for developing country researchers and institutions via four main programme areas:

Agriculture and Environment – the focus is on research that fosters sound environmental management policies and long-term economic development that benefits local communities. Programming in this area revolves around: food security, climate change adaptation, climate change and water, ecosystems and human health, and environmental economics.

Global Health Policy – to support research in low- and middle-income countries which targets the root causes of inequity and poor health and informs effective policy making. The main initiatives under this programme are: Global Health Research Initiative, Governance for Equity in Health Systems, Non-Communicable Disease Prevention, and Development Innovation Fund.

Science and innovation – to support research and capacity building to help low- and middle-income countries produce, adapt, and use science, technology and innovation for development. This programme comprises four initiatives: the African Institute for Mathematical Sciences, the IDRC Challenge Fund (a partnership with Canada's science-granting councils), Information and Networks, and Innovation for Inclusive Development.

Social and economic policy – this programme supports low- and middle-income countries create strong, informed policies and the right environment for change. Through three initiatives – Governance, Security, and Justice, Supporting Inclusive Growth, Think Tank Initiative – this programme supports research focused on building accountable states, promoting inclusive and sustainable economic growth, and strengthening independent policy research organizations.

Along with these four programme areas, IDRC also has two programming divisions: the Donor Partnerships Division and the Special Initiatives Division. The latter includes the Canadian Partnerships, and the Fellowships and Awards. The Donor Partnerships Division helps develop relationships with research funders and international organizations. The ESSENCE study on research costing is an example of a strategic partnership project funded by the IDRC.

The IDRC has an Evaluation Unit, which supports IDRC management, programme staff and project partners in their evaluation roles. The unit also forges links between the IDRC, its project partners, and international evaluation practitioners and theorists.

In terms of research expenses, the IDRC considers the following as *direct cost* items for its grants:

- Personnel costs, including all remuneration, allowances, honoraria, and benefits paid to project staff and advisors hired for the project. Replacement costs (release time for academics) of principal researchers are paid, based on their time commitment to the project, their research role, and the policy of the institution;
- Consultants' costs may include fees, travel, accommodation, living expenses and support services hired directly by the consultant and billed to the project;
- Evaluation costs related to systematic evaluation that assesses either progress towards achieving project objectives or the quality and effects of funded activities;
- All equipment that has a useful life of more than one year and costs more than CAD 1,000. Costs may include the basic purchase price, freight costs, and other costs associated with purchasing the equipment (excluding import duties, sales tax or insurance on equipment after delivery);
- International travel costs for ground transportation, accommodation, meals, airfare, departure taxes, and other expense related to international travel by project staff;
- All training expenses related to registration, tuition fees, living allowances, research and training expenses, and travel costs to undertake the training;
- Research expenses related to carrying out the research and disseminating the research findings, which may include payments to people who gather data or provide casual labour, the maintenance and operation of project vehicles, consumable goods and non-capital equipment, computer services, in-country travel, reference materials, rent paid for land or premises used in a research project, conference registration, dissemination costs, equipment rentals for seminars and conferences, and printing.

Allowable *indirect costs* include administrative costs not directly related to the research, but exclude overheads. Indirect expenses include salaries and benefits of personnel, who support and administer the project, such as secretaries, clerks, and accountants,; stationery and other office supplies;

telecommunications costs (unless the nature of the project has warranted a specific budget line item for that purpose) and computer equipment used for the administration or accounting of grant disbursements.

Institutions with a policy of recovering indirect costs through the application of a percentage can do so, provided that the IDRC or its auditors are satisfied that the levy is fair and reasonable and that the rate is 13% or lower of the total grant (excluding equipment and indirect costs). http://www.crdi.ca/EN/Funding/Guides_and_Forms/Pages/default.aspx

As mentioned above, IDRC's funding comes primarily from the Canadian Parliament through annual allocations. Because parliamentary funding cannot be used to cover the administrative costs of partnerships, the IDRC must recover these costs. The IDRC's approach to cost recovery is to share administrative, as well as specific, direct project costs with its funding partners, in a ratio commensurate to each partner's share of the overall project or programme expenditures. The IDRC's cost recovery rate on co-funded projects/programmes is based on calculations of the project's administrative support costs, which average 12% of direct costs. The 12% includes costs of grant and financial administration, information management, and programme oversight.

Examples of *direct costs*:

- Research contributions (grants) to third parties;
- Personnel (salaries and benefits, consultants' fees);
- Research expenses (travel, conferences, equipment rental, telecommunications, office space and equipment, recruitment costs, printing, translation, publications, etc.);
- Harmonized Sales Tax (HST).

Examples of *indirect costs*:

- Support to grant and financial administration (risk assessments, contracting, legal advice, procurement costs, external fund management, accounts payable, audits, banking fees);
- Knowledge/information management (license fees for literature databases, digital library, record keeping, IT support);
- Programme oversight (partnership development and maintenance, evaluation planning, management, and human resources management).

Information provided by Nicole Généreux, Senior Officer, Donor Partnership Division.

CASE STUDY 2

Relates to Keys 1, 4 and 5

The **National Institutes of Health (NIH)**, a part of the U.S. Department of Health and Human Services are the largest source of funding for medical research in the world. The NIH are made up of 27 institutes and centres, each with a specific research agenda, often focusing on particular diseases or body systems.

The NIH define direct costs as any cost that can be specifically identified with a particular project, programme, or activity or that can be directly assigned to such activities relatively easily and with a high degree of accuracy. Direct costs generally include personnel costs, travel, equipment, and supplies directly benefiting the grant-supported project or activity, alterations and renovations, subcontracts, other expenses such as animals, animal care expenses, lab costs and fees, tuition remission for graduate students, equipment maintenance, rental costs, consultant services, stipends, audiovisuals, long-distance telephone calls, postage and publication costs.

Indirect costs are defined as costs that are incurred for common or joint objectives, which cannot be readily identified with an individual project, programme, or organizational activity. Examples of these costs are facilities' operation and maintenance costs, depreciation, and administrative expenses.

There are a number of exceptions to grants to foreign institutions (institutions outside the U.S.). The NIH do not support the acquisition of, or provide for depreciation on, any capital expenditures, or support the normal, general operations of foreign and international organizations. Although major alterations and renovations (>\$500,000) are not allowed, minor alterations and renovations (<\$500,000) are generally allowed, depending on a specific programme's regulations. Customs and import duties' costs, including consular and visa fees, customs surtax, value-added taxes, and other related charges are not allowed. Finally, a limited indirect rate of 8% of total direct costs, less equipment, is allowed. This rate should be used to support the costs of compliance with NIH requirements. Some examples of NIH compliance requirements include the protection of human subjects (including education necessary for the protection of human research participants), animal welfare, invention reporting, financial conflicts of interest and research misconduct.) The 8% is allocated automatically and does not have to be negotiated with the NIH. Since the indirect costs are intended for compliance costs only, other items normally considered indirect costs and relevant to a particular project e.g. rent may be requested as a direct cost in the project budget.

In addition to many other aims, the NIH have an interest in developing sustainable partner capacity at institutions in LMICs to promote long-term research partnerships and consequently to improve health outcomes. Therefore building a sustainable research environment in research institutions in LMICs is crucial to the evolution and maintenance of strong research programmes in those countries. The development of comprehensive research and innovation management offices (in the U.S. known as 'Offices of Sponsored Programs'), in LMIC institutions builds a critical part of the sustainable research environment by enhancing an institution's ability to recruit and retain researchers and garner important research infrastructure and funding. While scientific capacity in LMICs has been strengthened over time through research and research training programmes, little or no attention has been paid to research management, something almost every research institution in the developed world finds essential to

sustain their research enterprise. Programmes to support these efforts are currently sponsored by the Fogarty International Center (FIC) and the National Institute of Health and Human Development (NICHD) with some additional funding from the President's Emergency Plan for AID Relief (PEPFAR). Other institutes that invest heavily in LMICs are the National Institute of Allergy and Infectious Diseases (NIAID) and the National Heart Lung and Blood Institute (NHLBI).

The Fogarty International Center (FIC) supports basic, clinical and applied research and training for U.S. and foreign investigators working in the developing world. Since its formation more than 40 years ago, Fogarty has served as a bridge between the NIH and the greater global health community, facilitating exchanges among investigators, providing training opportunities and supporting promising research initiatives in low- and middle-income countries. Over the last four decades, about 5,000 scientists worldwide have received significant research training through Fogarty programmes.

Fostering a sustainable research environment in LMICs is one of the key goals of the FIC Strategic Plan (2008-2012) (<http://www.fic.nih.gov/programmes/pages/medical-education-africa.aspx>). Three new Fogarty initiatives supporting this goal are the Medical Education Partnership Initiative (MEPI - <http://www.fic.nih.gov/Grants/Search/Pages/Awards-Program-MEPI.aspx#programmatic>), the MEPI Supplements for the Initiative on Research and Innovation Management (iRIM - <http://grants.nih.gov/grants/guide/notice-files/NOT-TW-11-025.html>), which includes an expansion of the NICHD-administered International Extramural Associates Research Development Award (IEARDA) programme; and a newly announced programme, Training Programmes for Critical HIV Research Infrastructure for Low- and Middle-Income Country Institutions (<http://grants.nih.gov/grants/guide/pa-files/PAR-12-069.html>).

The Medical Education Partnership Initiative (MEPI) is largely funded by the Office of the U.S. Global AIDS Coordinator (OGAC) and jointly administered by the FIC and the HIV/AIDS Bureau of the Health Resources and Services Administration.

MEPI provides support to African institutions to strengthen and build the clinical and research capacity of medical educational institutions in sub-Saharan Africa and thereby help strengthen the human capacity for health. The three main objectives are to:

- Improve the quality of clinical education and care;
- Enable graduating medical students to remain in their home country to practice, serve as faculty, and/or conduct research related to the implementation of the U.S. President's Emergency Plan for AIDS Relief (PEPFAR) and other public health priorities; and
- Enhance the recruitment and retention of qualified academic faculty through partnerships and research opportunities.

A coordinating centre links the African sites and their U.S. partners, leverages shared resources and provides technical expertise. A Web-based platform allows all partners to share data and outcomes. MEPI enables participating institutions to strengthen their information technology infrastructure, supports distance education and data sharing, and encourages the establishment of clinical registries to inform research and health-care decision-making on national levels.

A portion of the funds awarded can be used to support the development of research capacity, research training, and increasing opportunities to participate in research or apply for research funding. This included research integrity, ethical review, financial management, grant management and administration

(including how to search for, apply for, and administer grants to create a strong infrastructure to support research and grants at the institution).

The FIC and the NICHD are supporting the **Supplements for the Initiative on Research and Innovation Management (iRIM Programme)**, which provides one-year supplemental funding to meritorious applications from institutions participating in the MEPI network and the IEARDA Programme.³ Building upon the pre-existing MEPI network of more than 30 African institutions, which includes the more established LMIC medical research institutions (those which have some research management expertise and some MEPI funding to enhance that expertise) and collaborating with LMIC institutions with varied research management capability or funding, provides the chance to create ‘research and innovation management’ networks to facilitate building research management capacity in sub-Saharan Africa. The recipients of the International Extramural Associates Research Development (IEARDA) awards have gained the expertise and experience needed to help promote biomedical and behavioral research capacity through the strengthening of their key research administration staff and infrastructures. The IEARDA awards have prepared these grantees to address institutional and regional needs by producing a cadre of trained academic research administrators, who can facilitate and/or develop appropriate administrative infrastructures for the implementation of rigorous sponsored research programmes. These grantees have received training and can provide resources and support to faculty, students, and staff in the application for, and administrative oversight of, research awards and, when appropriate, serve as regional resources.

iRIM's intention is to use these existing programmes to build expertise, infrastructure, and capacity in research administration. It is expected that the IEARDA grantees, in collaboration with other partners who have expertise in this area, will share their research administration expertise with the MEPI network and other institutions in sub-Saharan Africa by providing training and technical assistance to institutions, which have, or plan to develop, centralized institutional research management and innovation offices. The MEPI institutions funded under iRIM will participate in and use this training to develop and/or strengthen a centralized institutional research management and innovation office, in collaboration with other partners who have expertise in this area. It is expected that these institutions and offices will also become a resource to other institutions as part of a network of research management offices. Both programmes will be used to support and develop a career path for administrators responsible for research administration in sub-Saharan Africa.

The National Institute of Allergy and Infectious Diseases (NIAID) supports the study of global research to better understand, treat, and ultimately prevent infectious, immunologic, and allergic

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- 3 The aim of the programme is to ensure a cadre of trained academic research administrators in countries with limited resources to facilitate and/or develop the appropriate administrative infrastructure in their home institutions to effectively manage the grant process and strengthen institutions' abilities to conduct and support research. Support is provided for a maximum of five years and offers training in NIH policies and procedures through a distance learning and NIH residency programme, as well as funding to augment or expand upon existing research administrative infrastructure (e.g., Office of Research, Office of Sponsored Projects). The grant supports activities such as:
- Purchase of office supplies and equipment
 - Purchase, connection, and maintenance of computer hardware and software
 - Administrative assistance
 - Conduct of institutional and/or regional workshops on grantsmanship, research process (and design), statistical tools, research ethics, consortium research arrangements, and research management
 - Travel expenses to gain additional experience in carrying out the functions of the office
 - Membership dues in one professional organization, whose function is related to the goals of the programme.

diseases. The research priorities are focused on (1) expanding the breadth and depth of knowledge in all areas of infectious, immunologic, and allergic diseases, and (2) developing flexible domestic and international research capacities to respond appropriately to emerging and re-emerging disease threats, wherever they may occur. In addition to advancing these scientific goals, NIAID's global research helps to improve the health of millions of people around the world, to protect the United States against infectious disease threats, and to promote international economic and political stability. Together, these efforts establish NIAID as a leader in global health.

The NIAID has six divisions, namely, Division of Acquired Immunodeficiency Syndrome; Division of Allergy, Immunology, and Transplantation; Division of Clinical Research; Division of Extramural Activities; Division of Intramural Research; Division of Microbiology and Infectious Diseases, and the Dale and Betty Bumpers Vaccine Research Centre.

NIAID currently funds activities in 30 African countries and offers funding for a number of capacity development opportunities. In addition, a unique training opportunity available through NIAID, and relevant to this study, is post award training to grantees.

These post-award training workshops are offered around the world for foreign grantees, as well as for U.S. domestic grantees with foreign subcomponents. They are open to principal investigators (PIs), business officials, budget coordinators, and others involved in grant administration and provide information on grant and funding policies, as well as tips and resources to effectively manage awards. Participation in these workshops, which typically run from two to three days, is at no cost to the grantees. Two of these workshops have been held in South Africa and the next workshop is scheduled for spring 2012 in Uganda.

Both the FIC and the NIAID, through their experience in dealing with foreign institutions, particularly in LMICs, highlight the following as some of their challenges:

- There is often a lack of institutional coordination of grants management;
- Language can be a barrier in non-English speaking countries. In these countries, the principal investigator (PI) generally speaks English, but the administrators do not. It is then up to the PI to devote time to work through the grants information to understand the guidelines, terms and conditions, without the support of the administrators;
- The point above, combined with limited experience (institutions with a small number of grants), increases the administrative burden of the PI considerably;
- There is a general lack of understanding on how to budget for true costs;
- Written policies and procedures related to grants are often lacking or incomplete.

Both the FIC and the NIAID highlighted the importance and benefits of a good institutional standard operating procedure for grants management. See <http://www.fic.nih.gov> and <http://www.niaid.nih.gov>.

Information provided by Dr Linda Kupfer, Advisor, Monitoring and Evaluation Office of the Global AIDS Coordinator (OGAC) Strategic Information (SI); Elizabeth Cleveland, Grants Management Specialist, NIH-FIC and Donna Sullivan, Branch A Chief, NIAID

CASE STUDY 3

Relates to Keys 1, 3, 4 and 5

The **Netherlands Organisation for Scientific Research (NWO)** is an independent public agency mandated, among other things, to allocate research funds. NWO's mission is to ensure that Dutch academic research remains world class and to consolidate the Netherlands' current strong position. NWO aims to raise the visibility of research findings in society as new knowledge that can be put to practical use. The NWO comprises several units, namely eight Divisions for Sciences (they develop new research programmes, assess funding requests and monitor projects that NWO finances), the NWO Foundation WOTRO (supporting research in aid of low- and middle-income countries), the Netherlands National Computing Facilities Foundation (NCF), various Temporary Task Forces (aimed at speeding up the development of promising technologies) and eight Research Institutes (focusing on research into earth's oceans, outer space, man, society, nature, technology, the smallest building blocks, and the bedrock principles of science).

Within its mandate to promote research for sustainable development, WOTRO has as its cross-cutting objective the strengthening of research capacity.

The NWO in general does not provide support for indirect costs and all budget items should be linked to the project as direct costs. However, there are two WOTRO programmes that are of particular interest to this study.

The Netherlands–African Partnership for Capacity Development and Clinical Interventions of Poverty-related Diseases Programme (NACCAP) was established by the Dutch government and will formally end in 2012. It has had as its goal the combination of scientific research with sustained investment in research and development (R&D) capacity in Africa. NACCAP is the Dutch contribution to the European and Developing Countries Clinical Trials Partnership (EDCTP).

Capacity building has been an important focus of all the projects funded or supported by NACCAP, with activities at three levels, as suggested by the ESSENCE Monitoring and Evaluation (M&E) Framework. At an individual level, NACCAP provides education and training for individual researchers; at an institutional level, it builds and supports research centres and universities, including research management. At an environmental level, NACCAP encourages policy coherence, strategy development and coordination across sectors and among NGOs, government agencies and international organizations; embedding capacity building in local communities; and consolidating research activities within regions. In addition, one of NACCAP's key goals has been to establish fair collaborative alliances between Northern and Southern partners in order to encourage North–South and South–South collaboration. One of a number of expected outcomes is the expansion of an enabling African environment for research and development (R&D) policy, performance and dissemination of results.

The programme has been designed for 80% of the funds to be spent in Africa on activities executed by African citizens.

Allowable costs include:

- Personnel (salaries and bench fees and/or living allowances);
- New equipment and use of equipment;

- Consumables;
- Joint activities (workshops, seminars);
- Disseminating results;
- Training of African personnel within the African region;
- Capacity development activities, including management costs to develop managerial and administrative capacity, an area which is in need of development in the African context and which contributes substantially to the overall sustainability of research environments.

A NACCAP publication, which highlights the successes and lessons learnt through this programme, is available at: [http://www.nwo.nl/files.nsf/pages/NWOP_8NMLDS/\\$file/NACCAP%20Eindboek.pdf](http://www.nwo.nl/files.nsf/pages/NWOP_8NMLDS/$file/NACCAP%20Eindboek.pdf)

The Global Health Policy and Health Systems Programme (GPHS) is a joint initiative of WOTRO Science for Global Development, the Netherlands Platform for Global Health Policy and Health Systems Research and the Ministries of Foreign Affairs and Health, Welfare and Sports. The programme funds high quality health policy and health systems research. In the first round (launched in 2009) five programmes were funded. The second round gives priority to research that demonstrates how health policy and/ or health systems can be improved and how improved health policy and health systems can contribute to better health, with an emphasis on reaching the United Nations Millennium Development Goal (MDG) 5: reducing maternal mortality ratios and/ or improving maternal health, including enhancing equitable access to reproductive health services. Through this call, three research programmes have now been funded.

The research should be trans disciplinary to enhance effective use and uptake of results. Relevant stakeholders in health policy and systems development and in implementation from beyond the scientific community are expected to be engaged in all phases of the programme. Applications must be a collaborative effort between researchers from one or more low-and middle income countries (LMICs) and from the Netherlands. LMIC researchers may act as the main applicant. One (of the three) projects awarded in the second call has an LMIC main applicant, which will coordinate the project.

Allowable costs include:

- Personnel costs;
- Knowledge and research costs (travelling expenses, durables, consumables, research assistance, training for LIC researchers);
- Specific activities to enhance knowledge sharing that do not require research: costs of joint activities and the dissemination of results;
- Costs for monitoring and evaluation.

Allowable costs for LMICs only:

- Overhead costs (office space, basic facilities, overhead and depreciation costs). Allowed at 8% of the total budget;
- External advisors (for example NGOs or consultants) working in LMICs.

Information provided by Dr Eva Rijkers, Senior Policy Officer, NWO. See also <http://www.nwo.nl>

CASE STUDY 4

Relates to Keys 1, 3, 4 and 5

The **European and Developing Countries Clinical Trials Partnership (EDCTP)** was created in 2003 as a European response to the global health crisis caused by the three main poverty-related diseases of HIV/AIDS, malaria and tuberculosis. EDCTP supports multicentre projects, which combine clinical trials, capacity building and networking. The aim of integrating these three activities is to ensure that the developed capacity is optimally utilized to successfully conduct clinical trials in a sustainable way. The EDCTP mission is to accelerate the development of new or improved drugs, vaccines, microbicides and diagnostics against HIV/AIDS, malaria and tuberculosis, with a focus on phase II and III clinical trials in sub-Saharan Africa.

The EDCTP is based on partnership and it currently unites fourteen participating European Union (EU) Member States, plus Norway and Switzerland, with sub-Saharan African countries. The partnership helps EU Member States to integrate and coordinate their own national research and development programmes and form partnerships with their African counterparts. All EDCTP-funded projects, with the exception of fellowships, ethics and regulatory strengthening grants, are undertaken in partnership with sub-Saharan countries.

The EDCTP is currently part of the European Commission's Sixth Framework Programme (FP6) for research and technological development. The ongoing programme will end in May 2015 and the EDCTP is anticipated to move to the Seventh Framework Programme (FP7).

The EDCTP defines direct costs as project costs that can be clearly identified and specifically related to a particular grant, with the following eligible costs:

- Personnel costs (actual salaries, plus social security charges and other statutory costs included in the remuneration. The rates corresponding to the grantee institution's usual policy on basic remuneration for a particular job and grade should not be exceeded). EDCTP does pay salary top ups to locally employed staff at African public institutions, with specific conditions attached;
- Travel and subsistence (must be in line with the grantee's normal policy);
- Equipment (new or second-hand) and infrastructure upgrades;
- Costs of consumables and supplies (should be identifiable and assigned to the grant);
- Costs entailed by subcontracts;
- Other costs, including clinical trial insurance, audit fees (for grant sites exceeding 250,000 euro), telephone, fax and internet costs, courier, computers and printers.

The EDCTP allows indirect costs/overheads at a rate of 10%, which are automatically calculated in the budget template on all eligible costs. Overheads are seen to include all costs of freight, bench fees, office rental and other internal recharges.

EDCTP changed its overhead costs policy in April 2008 to 10% across all grants. Prior to this date, the overhead rate was 20%. The FAQ section on the EDCTP website explains that 'some grantees indicated that allowing 20% of the value of the grant as overheads did not accommodate them, as there was little benefit from the overheads that were taken over by their institute, which effectively meant the grant was

being conducted with 20% less funding. Now the applicant can itemize up to another 10% and only 10% goes as an overhead, ensuring that the grantee will fully benefit from the grant'. It should be noted that computers and laptops, formerly covered by the 20% rate, are now included as line items in the budget. In addition telephone, fax, internet and courier costs are also itemized in the budget.

Grantees are entitled to request zero% of indirect costs/overheads in the contract budget, in order to access more direct costs..

According to Dr Thomas Nyirenda, EDCTP representative on the ESSENCE Steering Committee, some of the capacity challenges of institutions they fund in sub-Saharan Africa include:

- Optimal use of recovered overhead rates. The impression is that this portion of the grant often 'disappears' in the institution and is not applied to maintain or develop necessary infrastructure and support services. The situation is even more complicated in a centralized system, where funding is channelled through a government ministry to the institution;
- Lack of basic accounting skills To support this challenge, EDCTP offers a financial management short course, the cost of which applicants can include in the project budget;
- Sometimes the competencies are in place, but the basic tools are lacking. EDCTP therefore allows for the inclusion of computers and internet as line items in the project budget;
- Internal communication within an institution is often very poor. There are units/individuals that should work together that do not seem to communicate effectively. Consequently, there is a general lack of a coordinated approach to grant applications and grant management.

The EDCTP sees much room for harmonisation among funders. Non-uniformity in the approach to the funding of indirect costs is one aspect. Offering a standard calculation of indirect costs/rates would give funders an understanding of what it really costs to conduct different kinds of research in sub-Saharan Africa. Currently, the same kinds of research can be costed differently between funders because of differences in allowed costs and this provides no clear guidelines to new funders, who then tend to make up their own rules

In addition, there are other areas where funders can work together to set standards. Policies on remuneration and contractual obligations are two such areas. Each funder will have its own unique aspects but in general a streamlining of efforts would benefit the whole system. A more unified approach by funders could perhaps even allow for grant applications from one funder to be peer-reviewed by another funder.

Information provided by Dr Thomas Nyirenda, South-South Networking and Capacity Development Manager, EDCTP. See also <http://www.edctp.org/>.

EXAMPLE 1

Relates to Key 5

ESSENCE on Health Research was established in an effort to harmonize internationally-funded research programmes and align them with the priorities of disease-endemic countries. The ESSENCE project is designed to both harmonize donor funding practices and to give disease endemic countries a stronger voice in determining the priorities of internationally-funded global health programmes.

ESSENCE is for example sponsoring an ongoing review by the US National Institute of Health's Fogarty International Center (FIC) into funding practices, which aims to identify disparities, redundancies and overlaps between agencies.

In addition, ESSENCE conducted a country-based project in 2009 in the United Republic of Tanzania, where the Tanzanian Commission for Science and Technology led a dialogue between international donors and representatives from all Tanzanian health research institutes, in which they discussed ways to harmonize international research funding to the country. This resulted in targeted funding to Tanzania from some members of ESSENCE.

Information obtained from TDR News, December 2010. Harmonizing research funding through ESSENCE. Available at <http://apps.who.int/tdr/svc/publications/tdrnews/issue-86/essence>

Institutional perspectives and practices

Case studies and examples in this section are divided into two subsections, namely the perspectives and experiences of health research organizations and those of universities.

Health-research organizations' perspectives and practices

The case studies identify the institutes' main funders and describe how they manage their research grants and support their researchers in this process. The studies also highlight budgeting policy and guidelines, how institutional indirect rates are determined, how recovered indirect costs are distributed and, finally the major challenges related to funding and sustainability of research. Case studies are presented for the Botswana Harvard Aids Institute and the Joint Clinical Research Centre (JCRC). An example of the experience of the Infectious Diseases Institute (IDI), based at Makerere University, Uganda, in the establishment of a grants management office, is also included in this section.

CASE STUDY 5

Relates to Keys 1, 3, 4 and 5

Since its inception in 1996, the Botswana-Harvard Partnership (BHP) has partnered with the Botswana government to conduct research and provide assistance in education, training, monitoring, and evaluation to combat the HIV/AIDS epidemic and other pressing public health issues. Since then BHP has grown into a fully-outfitted clinical, research laboratory and training centre (**Botswana Harvard Aids Institute**). The research and training initiatives of the BHP focus on issues related to epidemiology, virology, molecular biology, immunology, genetics and clinical treatment, as well as social and behavioural medicinal issues relevant to the AIDS epidemic in Botswana and southern Africa. The culmination of this research and training will be put into practice to develop interventions appropriate to stemming the epidemic and its societal and economic effects.

Most of BHP's research funding is from the US government through the NIH, NIH-FIC, NIAID, Fogarty and the Centers for Disease Control and Prevention (CDC). Some direct funding also comes from the EDCTP and the Wellcome Trust.

The BHP set-up a grants management office (GMO) in January 2011, headed by a programme research director. The GMOs key roles are to provide tools to assist researchers in their search for funding opportunities, review proposals, negotiate awards, maintain accounts and records, seek reimbursement for expenses from sponsors, and fulfill donor/sponsor reporting requirements. In addition, the GMO monitors projects for compliance with the sponsor's terms and conditions, as well as BHP's policies and federal regulations and standards. It works closely with the financial office to prepare and implement financial and administrative policies and procedures, and monitors sponsor and regulatory compliance issues of interest to the research community. The GMO also provides training to the BHP in the application of new and existing policies and regulations.

The BHP's grant submission policy requires applicants to get their proposals signed off by the authorized

institutional representative. If a proposal is in response to a call for proposals, the documentation and/or the URL of the website must be sent to the GMO at least ten business days prior to the closing date for a review of the terms and conditions.

In order to maintain public trust, the grants management manual provides a general overview of sponsored research, stewardship and compliance at BHP and of the role of the GMO. Specific guidelines are provided for proposal development, including budget development, and setting up, managing and closing out an award.

The budget and budget justification guidelines provide the following definitions for direct and indirect costs:

Direct costs: direct costs of sponsored projects are those that can be directly associated with the project with a high degree of accuracy. Direct costs are essential to the project's fulfilment and include the following:

- *Salaries:* salary figures should be based on the percentage of effort by each individual on the project applied to his/her annual salary;
- *Fringe benefits:* BHP fringe benefits include allowances, gratuities, annual trips home and medical aid. Benefits may vary depending on personnel classification;
- *Equipment:* under BHP financial policy, an item is considered capital equipment when it has a unit cost of \$5,000 or more, and has a useful lifespan of at least five years. Otherwise, the equipment should be considered as materials and supplies;
- *Materials and supplies:* supplies should be itemized in separate categories, such as glassware, chemicals, radioisotopes, etc. Categories in amounts less than \$1,000 do not have to be itemized;
- *Travel:* domestic and foreign travel should be shown separately. List the name, destination, and purpose of trip. Include transportation costs (e.g. coach, airfare), registration fees, accommodation fees, per diem and other related expenses;
- *Publication costs:* costs related to publishing manuscripts written by the project team. Estimate the number of pages, page charges, and give details of names of journals if possible;
- *Consultants:* list each consultant's speciality or service to the project and daily, weekly or monthly rate of reimbursement; show the consultant's total projected cost to the project. Include in the proposal a letter of collaboration and the consultant's curriculum vitae or biographical sketch;
- *Subcontracts:* a subcontract is the contracting to other organization(s) of some scientific or programmatic aspect of the original BHP grant or contract. Include in the main proposal the subcontractor's authorized proposal, letter of intent, statement of work, and budget;
- *Other:* miscellaneous costs typically include items such as long distance telephone charges, subscriptions to relevant research publications, fees, or other project-related costs.

Indirect costs: these are costs incurred for common or joint objectives and, therefore, cannot be specifically identified with a particular sponsored project. These costs can include general administration supplies, salaries, rent and building utilities or maintenance. Where the sponsor allows a specific rate, that rate is used in project budgets. BHP receives 8% on Federal awards, but this is restricted for use related to compliance issues. Other BHP sponsors currently provide 10%, 15% or 25%, all to generally

cover administrative expenses. If the sponsor does not allow indirect rates, costs typically considered indirect costs are included as direct costs in the project budget, following the sponsor's guidelines.

The BHP indirect cost rate is 10.5% and was calculated by a US external consultant, contracted on Technical Assistance funds received from a funder in the US in 2009. The BHP has been advised by some of the other donors that its financial external auditor could be used for this purpose as well. Nevertheless, this is an internal rate used to help guide the budgeting of these expenses and is used for all operational costs.

One of the major challenges is that this rate can only be charged if/when the project spends. This presents a challenge when trying to budget administrative expenses as direct costs, i.e., the timing and appropriateness of the allocation of these costs. BHP have also developed a tool in Excel linked to the financial software they use to help them monitor the allocation of these expenses to ensure that they are reasonably apportioned across all grants. The cost of donated items, such as building space, drugs and reagents from their major partner, the Botswana government, also needs to be taken into account.

BHP would like to work towards an approved rate, and although they are not sure how to pay for the assistance that will be required, they are nevertheless, currently seeking a consultant to recalculate the rate.

The BHP currently has 32 grants and the 10.5% is per grant per expenses for the month. For grants from organizations such as the CDC, where one cannot charge an overhead, an equivalent of the 10.5% is built into the grant as direct expenses for administration support.

BHP identified the following as some of their funding-sustainability-related challenges:

- A lack of consistent funding to start-up projects;
- BHP, as a young organization does not have any discretionary funding, and so needs sponsor agreements to include a provision for advance funding. Current agreements range from advances of one month's expenses to quarterly advance payments;
- Human subjects approval: there is a lack of adequate human resources on a national level to ensure timely review of protocols; ensuring that staff members in the National Human Subjects Regulatory/Ethics Unit are adequately trained to enable them to carry out their duties efficiently; putting systems in place, which facilitate easy submission of material for review (standardisation), reducing paper work through implementation of an electronic submission system. These challenges also apply to the Drug Regulatory Unit (DRU), since it is part of the reviewing process in Investigational New Drug (IND) studies;
- Government support for research: a larger buy-in is required in setting the national agenda for research and providing a percentage of the annual budget for research, investment in infrastructure and capacity;
- The major funding gaps are in the area of Human Resources and funding of drugs for research. There are also funding gaps in infrastructure (building/maintenance and repairs) and in long term data/sample storage required by sponsors. The costs of human resources are very high and cannot be funded fully from grants money. Current sponsors do not pay for drugs, which have to be donated. This can substantially hold up a clinical trial;
- Each funder has its own standards and templates, which significantly complicates the application

process when moving from one funder to the other. In the process of harmonizing, funders can make it much easier for applicants by agreeing on more generic templates and standards, while still highlighting their specific requirements;

- Cost of pre/post-grant training: the NIH and CDC have excellent training opportunities for grantees, but it can be expensive send an employee to the US. More local training and capacity building is essential;
- The difficulty of finding staff with the experience to manage grants and understand the implications that working with grant funding have on operation processes, such as finance and human resources.

The BHP participates in Trials of Excellence in Southern Africa (TESA), a regional network of excellence for conducting clinical trials in HIV/AIDS, TB and malaria, funded by the European and Developing Countries Clinical Trials Partnership (EDCTP); the Botswana-Tanzania-Zambia Capacity Building for HIV Prevention Research Network (TanZamBo), funded by the International Development Research Centre (IDRC) of Canada; and the Southern Africa Consortium for Research Excellence (SACORE), a research capacity-strengthening collaboration among ten institutions in Africa and the United Kingdom, funded by the Wellcome Trust.

These grants provide funding for capacity building and training opportunities for local staff, specifically in research, laboratory-specialized skills and in the finance/grants management teams, so that BHP does not need to rely heavily on external recruitment. The grants also provide an opportunity for capacity building and skills transfer from some of their partners.

An example of this skills sharing was when BHP started to access Wellcome Trust grants. The Trust sponsored BHP staff to go to the main recipient of one of their grants in Malawi, to learn the specific requirements of managing a Wellcome Trust grant. This proved extremely useful to BHP staff. Annual meetings are also held to discuss any follow-up, challenges and the way forward.

Information provided by Ria Madison, Chief Operating Officer, Botswana-Harvard Aids Institute, see also <http://www.hsph.harvard.edu/bhp/>

CASE STUDY 6

Relates to Keys 1, 2, 3, 4 and 5

The **Joint Clinical Research Centre (JCRC)** is an HIV/AIDS care and research institution located in Kampala, Uganda, established in 1990 to respond to and provide a scientific approach to the national HIV/AIDS challenge. The institution is a not-for-profit non-governmental organization (NGO), which was initiated via a collaborative effort of the Ministries of Health and Defence and Makerere University Medical School (currently College of Health Sciences), which provides some of the researchers, with whom the JCRC works.

The centre's core funding sources mainly come from funding bodies which support collaborative biomedical research and/or antiretroviral therapy roll-out programmes. These include the United States Agency for International Development (USAID) under the US Presidential Emergency fund for Fighting HIV/AIDS (PEPFAR), the European Developing Countries Clinical Trials Partnership (EDCTP), National Institutes of Health (NIH-FIC, NIH-DAIDS), Aids Clinical Trials Group (ACTG), INSIGHT-network, Medical Research Council (MRC), Department for International Development (DFID), PharmAccess/Netherlands Government, Uganda Civil Society Fund and Rockefeller Foundation. The centre also generates revenue from clinical, laboratory, pharmacy and training services.

Research is one of the core activities at the JCRC. Through the years, the JCRC has played a leading role in research on HIV/AIDS in Africa, conducting some of the ground-breaking HIV/AIDS trials, including the very first African antiretroviral drug trial, performed in 1992, which demonstrated the lowest effective dose of zidovudine (AZT) in Ugandan subjects. The JCRC has been, and still is, involved in several landmark research trials that have shaped policies and guidelines in Africa and beyond. As a result, various peer-reviewed publications have emerged, and grants awarded over the years. The JRC has accumulated expertise in carrying out locally and internationally respected research, ranging from basic science, operational and clinical research to capacity building projects.

The JCRC participated in both the IEARDA and MEPI programmes funded through the NIH. These programmes have bolstered the quality of research at the institution by improving the skills of selected research staff in various aspects, including grant writing and management, skills in research ethics and responsible conduct of medical research, strengthening of the Office of Research and an elaborate exposure to the NIH grants management process. The IEARDA programme has also enabled the institution to contribute to the overall goal of building research capacity in Uganda through supporting the establishment of three research offices in the country.

The Directorate of Research and Grants at the JCRC is responsible for institutional coordination and management of grants. Grants are submitted to funding organizations through the directorate, after approval to by the executive director or his deputy. The institution will usually provide the grant-writing team unlimited access to institutional resources, such as internet, relevant documents and letters of support. It also identifies and links with potential partners, including conducting the necessary negotiations, budgetary support in terms of providing finance staff to facilitate the entire budgeting process, access to budget templates, audited financial reports etc. The finance and management department provides technical assistance in budgeting, guided by the overall institutional financial and human resources and research policies, working together with the research and development

coordination committee and the selected grant-writing team on a particular application. The finance team has established costing and detailed budget templates to facilitate the budgeting process to meet the differing demands of the funders. These templates are built from the totality of costs for a research organization.

The JCRC's mandate has always been to conduct quality medical research and training, as well as the provision of quality medical/clinical services to deserving patients in Uganda, although with a focus on HIV/AIDS, TB and malaria. Grants and research projects at the JCRC have therefore been guided by this mandate. However, because of the expanding scope of their work that has seen the JRC venturing into other areas such as research in non-communicable diseases, and social sciences, it has now developed a research and grants policy that will provide a framework for the development of guidelines and strategies for research and other grants at the centre.

Indirect/overhead costs at the JCRC include all costs that are not directly related to a single project, but are necessary for the project to be implemented successfully. These include costs related to overall administration of projects (e.g. salary handling, supervision of project staff, advertisements, etc), bills such as telephone, electricity, water, internet; other expenses like rent/office space, compound maintenance, transport, fuel, generator, taxes, institutional letterheads/stamp, courier services if needed, additional stationery; miscellaneous items such as security, sanitary facilities, equipment rentals/ services, clerical work, and many other such costs that may not immediately or directly benefit a specific project, but are essential for its smooth running.

The JCRC's official indirect cost rate of 31% was determined based on audited JCRC consolidated accounts. The model used is in alignment with USAID financial regulations, where the indirect cost rate is computed by the sum of indirect costs divided by the sum of direct salaries and wages.

Indirect costs calculation: A/B = C	
A =	Indirect costs
B =	Direct Salaries & Wages

However, the rate has rarely been enforced, because most funders dictate a much lower rate for African-based institutions, which has tended to range between 6% and 10%. Attempts to negotiate the rate with funders have not been very successful so far, because funders either have fixed percentage overhead rates or do not permit foreign institutional indirect cost rates. Acceptance of an indirect/overhead figure by funders, which individual institutions have scientifically calculated and has been approved by the local auditor-general's office, will be essential for growing and sustaining research going forward.

The indirect costs that are recovered are allocated to a pool, from where they are eventually recovered to meet the cost of the items identified as indirect costs (above). The distribution is allocated according to the various central budgeted costs.

The JRC identified the following as the major challenges related to research funding and overall sustainability of the research environment:

- Limited funding for research, especially for local researchers;

- Low capacity for research (both technical and administrative skills). This may include skills in identifying research gaps, formulating research questions, proposal writing, dissemination of results, policy entrepreneurship, reviewing and understanding calls for applications, etc.;
- Limited opportunities for capacity building and training mechanisms and for research, both at an individual and institutional level;
- Insufficient resources to keep enough full time staff to run a strong independent research/grants office, which continuously sources for upcoming requests for grant applications, provides research application information, administration, grants information and technical support to grants writing;
- Lack of readily available opportunities for training personnel in practical research skills through arrangements like coaching and mentorship.

It is recognized that collaborating institutions and individual researchers are at different levels of research grant writing and award management experience and capability, usually with limited or no clear mechanisms to bridge these gaps. This at times causes challenges and unrealistic expectations.

Some specific institutional demands/needs include:

- Funders to respect the JRC's indirect rate (31%) to prevent the institution from being forced to accept rates that do not take into consideration the local context, causing the institution to use its meagre savings to supplement the implementation of a given project;
- Dedicating or ring fencing a sufficient percentage of the available funds to capacity building strategies, which promote sustainable research development at the participating institution, including infrastructure development;
- Provision of a percentage of the total budget to be dedicated to strategies that strengthen the local research office;
- Provision for annual inflation that will occur during the implementation of the project.

The JCRC is of the opinion that funders can work together, to make the grant process easier for institutions, in particular in low- and middle-income countries by:

- Funders should agree to allow for flexibility on allowable /not allowable costs, based on particular types of grants and also take into consideration the institutional policies of the grantee;
- Timing between request and approval for use of carry over funds needs to be shortened considerably;
- Funders should also standardize reporting mechanisms and processes/requirements, which should in turn be harmonized with the local regulatory (MOH etc) mechanisms.

Information facilitated by Nelson Kakande, principal investigator, JCRC; see also <http://www.jcrc.org.ug/>.

EXAMPLE 2

Relates to Keys 3 and 4

The **Infectious Diseases Institute (IDI)**, based at Makerere University, Uganda, was established in 2002 with a focus on building the capacity of health systems related to HIV/AIDS. The Institute recently established a Research Support Centre. As a component of their grants management the IDI implemented a checklist approach that allows it to understand why it was selected for grant support. This is especially important if the funder offers limited reimbursement of indirect rates. If indirect costs are disallowed or inadequate, the IDI tries to build some indirect costs (core salaries, equipment, rent, etc) into the budget. In addition, it adds 20% to most salaries if feasible, to allow for changes in foreign exchange.

The current process is as follows:

- 1 The principal investigator (PI) produces a one-page concept paper (a format is provided) and sends it to the Institute's grants management unit, no later than 30 days before the external deadline of the proposal. The unit will then:
 - coordinate the scoring of the proposal within three working days;
 - compare the score with the minimum score; and
 - submit the results to a central committee meeting, together with the concept paper.

The scoring is used to guide the decision on whether the grant opportunity should be pursued, and scores are allocated using the following criteria:

- Will the proposed activity be aligned with the IDI's Strategic Plan?;
 - Does the deadline allow enough time to produce a high quality submission?;
 - Projected revenue to the Institute?;
 - Estimated contribution (rough only) to IDI core costs? Covers overheads and cost recovery?;
 - Chance of success (with modifications if necessary)?;
 - Would IDI be the prime contractor and in a position of leadership of the project?;
 - Likelihood of a publication resulting?;
 - What is the opportunity cost of the proposal (in terms of other attractive proposals being turned down or delayed)?;
 - Will this application strengthen or weaken existing partnerships?;
 - If the bid is successful, would any types of capacity at IDI be strained? For example: office space; clinic staff; data entry staff; pharmacy staff.
- 2 The central committee, or the Institute's director, will decide if the proposal is to be supported by the Institute. After this the full proposal can be developed and submitted to the Research and Ethics Committee for review.

The IDI charges an indirect rate of 14.7% that is determined through external auditing.

Normally projects that do not pay for themselves are not supported. It is possible for them not to

contribute to the “core” as indirect costs, but they are not allowed to accept projects that cost the institute money, as mandated by the Board.

Some of the lessons learnt in grants management with the establishment of the Research Support Centre include:

- Negotiate to maximize overheads and cost recovery - get (and defend) audited indirect rate or build overheads into direct costs (as allowable);
 - Need for efficiency in, for example, reporting requirements, financial arrangements (cash flow, bank accounts);
 - Try to gain experience;
 - Build funder confidence through demonstrably strong internal/external audits and systems;
 - Broaden funding base to reduce dependency on particular funding sources ;
 - Fund a grants management office from projects.
-

University perspectives and practices

The case study of the University of Stellenbosch in South Africa illustrates the funding guidelines and budgeting support that is offered to researchers. It also shares their experience with, and the practical implications of, implementing a full costing model at the institution.

The case study of the University of Botswana deals with their grants management and administration process, budgeting guidelines, recovery and distribution of indirect costs, as well as funding challenges.

The case study of the University of the Free State in South Africa illustrates an institutional costing model, while that of the College of Medicine at the University of Malawi describes their experience in establishing a research support centre and how it impacted on indirect cost recovery. The study shares information on how recovered indirect costs are distributed and on their funding challenges.

In addition, this section includes three examples. The first example offers a costing model developed by the University of the Free State, the second summarizes research costing methodologies used in Australian universities and the third details measures introduced in grants administration and the impact thereof on project budgeting in two UK universities.

CASE STUDY 7

Relates to Keys 1, 2, 3, 4, and 5

Stellenbosch University (SU), Western Cape, South Africa is recognized as one of the four top research universities in South Africa. It has one of the country's highest proportions of postgraduate students of whom almost 10% are international students. There are ten faculties: AgriSciences, Arts and Social Sciences, Education, Engineering, Law, Science, Theology, Economic and Management Sciences, Health Sciences and Military Sciences. Research-related activities contributed to 25.5% of the consolidated university income in the 2010 financial year.

At the SU the cluster for International Funding and Capacity Development, which is part of the Division for Research Development, is responsible for the management of international research funding programmes, including the international bilateral programmes administered by the National Research Foundation and the European Union's Framework Programmes. The cluster offers skills training in proposal development, as well as individual support for the development of funding proposals. All proposals are required to pass through this cluster as part of the internal process, where they are screened and feedback given to applicants to improve the quality of proposals. Proposals also pass through the Research Contracts cluster, which checks the budgets. This cluster, in co-operation with the university's finance division, has developed budgeting guidelines that researchers can use in the process of budget development.

The project leader must determine the research costs, based on a full cost basis where applicable, as detailed in the Policy for Costing and Pricing of Research and Research Related Contracts. A template for calculation of costs, price estimation and levy calculation is available at the Division for Research

Development.

SU approached the development of a full economic costing (fEC) model in three phases; 1) development, 2) implementation, and 3) management. The processes that were followed and the lessons learned during each phase are summarized below.

The first step in the development phase is to determine and understand the main reasons for developing an fEC model. Ensuring financial sustainability and complying with the Intellectual Property (IP) Rights from Publicly Financed Research and Development Act No. 51 of 2008 (IPR Act) were found to be the most important reasons.

It was furthermore important to take into account the existing policies of the university, such as their research contracts policy, and IP policy, as well as the national IPR Act to ensure alignment. The current accounting system and research contract processes should also be taken into account to ensure that the fEC policy is practically feasible.

In order to calculate the fEC of an activity/project, the direct costs to the project need to be identified and determined; the indirect costs to the project must also be calculated and the full cost of the project amounts to the sum of these two categories. The university defines direct costs as all those which can be ascribed directly to the project, while indirect or overhead costs are those expenses incurred by the university that are essential to provide the necessary support in order to successfully manage and deliver the specific research project.

Direct costs can include the following:

- Salary and salary-related expenses of personnel involved with the project;
- Salaries/bursaries for students participating as research assistants;
- Consumable material/stock;
- Purchase and maintenance of equipment and components specifically for the project;
- Equipment and software;
- Administrative costs and professional management costs directly related to the project;
- Laboratory costs;
- Consultation services;
- Travel and accommodation costs, as well as day fees (subsistence fees);
- Any other expenses which can be directly ascribed to the project and are not listed above.

Because it is not always possible for a university to accurately allocate all the indirect cost items that need to be recovered for each research project separately, the SU determined an indirect cost recovery rate (ICRR) that can be levied on the research project. The following indirect costs or overheads are usually allocated to a research project and are therefore taken into account when establishing the ICRR:

- Administrative overheads and other costs within the faculty;
- Information and communication services and support;
- Overhead financial services;
- Legal services;

- Human resource services;
- Communication and liaison services;
- Library services;
- Overhead research support services;
- Student administrative services;
- Audit fees;
- Liability insurance;
- Information technology services;
- Maintenance of buildings;
- Security services;
- Buildings and content insurance;
- Cost of municipal services.

It is important that these costs can be traced back to the financial statements of the university and the various costing centres.

If use of facilities can be costed separately, the costs related to that (e.g. maintenance of buildings, cost of municipal services, etc.) can be excluded from the ICRR. The cost per square meter for the use of certain facilities then needs to be determined. Indirect costs will then consist of two items; an ICRR (excluding facility costs) and a facility cost.

The practicalities of calculating indirect rates

The best way to ensure that the university recovers indirect costs associated with each research project is to automate the allocation of the indirect cost recovery on the financial system. When an invoice is created, the financial system should apply the ICRR and either raise a charge to the project or increase the amount that is invoiced. If the indirect cost recovery is not automated and there is not enough control over the way in which the research funding is spent, it increases the risk that project funds are spent before the university journalizes the indirect costs.

Each university needs to decide on the costs on which they will levy their ICRR. The ICRR can be levied on all the total direct costs of the research project or modified total direct costs where certain costs (e.g. equipment, bursaries, subcontractors, etc.) are excluded. The indirect costs that are recovered will differ depending on the approach the university decides to use. The practical implications should also be taken into account when deciding on the approach to be followed. If the ICRR is applied on the modified total direct costs (MTDC), then correction journals need to be posted by someone if the financial system is unable to accommodate different ICRRs.

Example : direct costs included in a research budget (ZAR currency)	
Personnel costs	10 000
Equipment	4 000
Running costs	7 000
Travel costs	15 000
Bursaries	20 000
Total direct costs	56 000

If the ICRR (including facility costs) of the university is 20% on total direct costs, then the indirect costs recovered will be: $R56\ 000 \times 20\% = R11\ 200$.

If the ICRR of the university is based on MTDC (excluding bursaries), then the indirect costs recovered would be: $R36\ 000 \times 20\% = R7\ 200$.

Should a university cost its space and facilities separately, it is important to cost the facilities that support staff, such as the legal advisor and financial personnel, use, as well as the facilities that will be used by the research team. It may be necessary to determine different rates per faculty, as some may have more expensive facilities than others. Within each faculty, a distinction should also be made between the types of facilities that the researcher will use, for example will the researcher work in the research laboratory or only use an office? There may be more expensive equipment in a laboratory than in an office that may influence the costing of the space and facilities. The researcher will need to indicate the total square meter that will be used per person per facility.

Example: direct costs involved in a research budget	
Personnel costs	10 000
Equipment	4 000
Running costs	7 000
Travel costs	15 000
Bursaries	20 000
Total direct costs	56 000
Space and facility cost (based on cost per square metre)	2 000

If the ICRR (excluding facilities) of the university is 15% on total direct costs, then the indirect costs recovered would be: (R56 000 x 15%) + R2 000= R10 400

It is important to have an accountant, who reviews the full costing budgets to ensure that the researcher applied the ICRR on the correct costs. If the university costs its space and facilities separately, the accountant may need to check the reasonability of the square meter calculation. A generic Excel template with built in formulas can be used to facilitate the accurate budgeting of the project.

Clinical trials

The indirect costs to be recovered from clinical trials may differ from other research projects, because a portion of the clinical trial takes place in the hospital, which may or may not be provided at a charge to the university. Even though all the research is not carried out using university facilities, certain indirect costs (e.g. legal services, financial services, etc.) are still essential to provide the necessary support for the researcher to successfully manage the clinical trial. To calculate the ICRR for clinical trials, it may be best to cost the university's space and facilities separately, so that if the clinical trial is conducted at the hospital, the facility cost of the university can be excluded.

Practical implications

The hospital needs to invoice the university for the use of its space and facilities per patient. This hospital fee will then form part of the direct costs of the clinical trial budget.

Some clinical trials may make use of the university's facilities, as well as that of the hospital. In that case the ICRR should be applied on all the direct costs and a separate facility cost should also be included in the full cost budget.

It may be necessary to do a space audit at the hospital to determine the type of space that is being used by researchers at the hospital. Good communication between the management of the hospital and the university is necessary to ensure effective costing and invoicing.

An Excel template specifically designed for clinical trials, which indicates the relevant cost for each patient per visit should be used to facilitate the accurate calculation of the indirect costs. The researcher should also indicate if he/

she will make use of the facilities of the university and/or of the hospital. The relevant facilities cost should then be calculated.

Example: direct costs involved in a clinical trial	
Personnel costs	10 000
Procedural costs	15 000
Running costs	3 000
Patients' travel costs	2 000
Hospital fees	1 000
Total Direct costs	31 000
<i>Space and facility costs (based on cost per square meter)</i>	500

If the ICRR (excluding facilities) of the university is 15% on total direct costs, then the indirect costs recovered would be: $(R31\ 000 \times 15\%) + R500 = R5\ 150$

After the development phase, the draft policy goes through various rounds of approval. The policy is submitted to the university research committee and the university financial committee for input. After their feedback has been taken into account, the draft policy is submitted to the deans and faculty managers of all the academic faculties for input. After incorporating their input, a public forum is arranged where the policy can be discussed and questions answered. Inputs from this forum are incorporated and the final policy is submitted to the Senate for approval.

Lessons learned during the developmental phase

- A collaborative approach is very important in developing the fEC policy;
- Involvement and support of senior management is essential;
- Communication at various levels is vital to establish shared principles and buy-in;
- It is important to consult different divisions and to include feedback where possible;
- Policy must be flexible enough to make provision for different environments within the university;
- It is not always possible for the contract price to be on full cost, therefore one needs to build flexibility into the policy and state the procedure that is to be followed if the contract is at less than full cost;
- The university should have a policy in place that stipulates the way in which the indirect cost recovered will be distributed. The indirect costs recovered can be used to fund those environments from which they were derived. For example, a portion can be allocated to the faculty where the research is being conducted, another portion to the central research fund and a portion allocated to the main budget of the university.

Lessons learned from the implementation phase

- The accounting system needs to be adapted to ensure accurate bookkeeping;
- Discussions with the deans and/or faculty managers explaining how the process will work and ensuring that they have enough time to streamline their processes should take place before the final implementation;
- The necessary support should be provided to the researchers, such as an Excel template, FAQ list or training workshops;
- The same amount of effort should go into both the implementation and development phases;
- Implementing a policy is time consuming;
- A generic template is not always sufficient for all environments (e.g. clinical trial budgets differ from research project budgets). Therefore the policy and supporting tools need to be adaptable, and understanding of different scenarios.

Lessons learned from the management phase

- A database should be kept of all the research contracts that were done on fEC;
- The fEC budgets need to be reviewed and approved by an authorized person. The management of the fEC policy is an ongoing process, in which one needs to be adaptable when required and strict when needed;
- Researchers fear that fEC is too expensive and that they 'will price themselves out of the market';
- It is important to educate researchers and clients on fEC and the IPR Act ;
- A close relationship between Finance, the Division for Research Development and the Technology Transfer offices is of utmost importance. When questions arise, the different divisions should provide a coordinated response;
- There is no "one size fits all" solution - research environments differ vastly from each other.

Information provided by Gretha Cronje, Project Accountant, SU, see also <http://www.sun.ac.za/>

CASE STUDY 8

Relates to Keys 1,2,3,4 and 5

The **University of Botswana (UB)** hosts seven faculties namely Business, Education, Engineering and Technology, Humanities, Health Sciences, Science and Social Sciences. Its vision is to become a research-intensive university by 2021. One of the strategic goals in the University Research Strategy is to increase internal and external research funding across its seven faculties in order to achieve an intensified research performance. The university plans to significantly increase the proportion of research funding derived from external grants and contracts. The University Research Committee through the Office of Research and Development and the Department of Financial Services (Special Projects Office) has joint responsibility for the administration of these resources, to ensure funding agencies that the university is managing their funds according to international best practice.

In working towards achieving this vision the university recognizes that indirect costs should be recovered from externally-funded research grants and contracts and has provided a mechanism for the recovery of some or all of these indirect costs. As the university's research activity from external sources has increased over the years, it is now necessary for its actual overhead rates to be increased (35% of the direct costs of the project), to ensure that the university is not overly subsidizing externally-funded research. Institutional guidelines were developed and approved by the Executive Management Team. The guidelines stipulate the process for proposal clearance (prevents duplication, wasted effort, and inadvertent conflict with institutional priorities), consultation with the Office for Research Development (assist with funding searches, in gathering and interpreting agency guidelines, budget advice, ethical and IP issues), proposal organization and writing, budgeting and sign-off.

The UB defines indirect costs as the central, faculty, school, centre or institute costs that the university incurs to support research, but that is not attributable to specific research projects. These are legitimate costs of conducting externally-funded research or contracts and may include the following:

- Building operating costs, including heating, cooling, power, cleaning, maintenance and landscaping;
- Faculty and departmental services, such as machine and electrical shops, secretarial and office assistance, purchasing, shared equipment, etc.;
- Academic services, such as the library and computing services;
- University-provided administrative services, such as purchasing, finance, and human resources, as well as the university administration itself, Office of the VC/DVCs, deans, school heads, directors and administrative staff;
- Research administration and support, such as the Office of Research Management and Graduate Studies and the Office of International Education and Partnerships.

UB's standard overhead rate is a minimum of 35%. The simplified method described by Flood and Phelps (2003) was used to calculate the rate.

One of the key features in the use of recovered overheads at the UB is to reward the researcher and encourage the development and submission of more grant proposals.

The recovered overheads are distributed and used as follows:

- 45% to the key account of the researcher(s) involved in the grant or contract, to be used for any research-related activity, such as conference attendance, purchase of laptops, hiring replacement staff and/or research assistants, conducting additional studies etc.;
- 25% to the University Research Vote (R01), to be used for internal funding of research;
- 20% to the key account of the school/institute/centre involved in the grant or contract, to be used for the purchase of research-related consumables, hiring of replacement staff, small equipment, teaching aids or other relevant research related activity;
- 10% to the key account of the Office of Research and Development, to be used for statistical, database, and ethics support university-wide, as well as other discretionary research-related activities of the university, including expenses associated with proposal identification, preparation and submission.

The overheads on grants and contracts are recovered by the Special Projects Office within one month of funds being deposited into the university's bank account.

Whilst the university has set a standard overhead rate, it recognizes that there may be reasons to vary this rate in certain circumstances. Since overhead revenue benefits the university, the school/institute/centre and the individual researcher, the waiving of overheads should be regarded as the exception. Under most circumstances, negotiating a different overhead rate is preferred to completely waiving the overhead rate. The university takes into account the policies of different grant-making bodies, which may stipulate a fixed overhead rate either lower or higher than that of the university. The procedure for requesting a variation of the overhead rate is initiated through a memorandum to the Vice Chancellor – Research, Innovation and Graduate Studies by the principal investigator (PI) and supported by the head of school, or centre director and dean of the respective faculty, or by an institute's director. The benefits to the university from participating in an externally-funded grant or contract with a lower than standard or a zero overhead rate must be clearly highlighted.

UB has a web-based research management system (RMS), which provides a single and secure source of accurate research information on all research projects and their outputs. All funding proposals are submitted online through this system for validation, approval and sign-off. The RMS registers all research applications submitted to external donors and allows the Office for Research Development to provide this information as a key research performance indicator in the university's research report. Summaries of funded proposals are made available on the web as part of UB's research activities. This system is also used for project monitoring and evaluation.

Lessons learnt in the processes of calculating indirect rates and developing and implementing institutional guidelines:

- The actual costs should be reviewed periodically so that the institution can determine if it is costing correctly;
- It is such a complicated exercise that it would be extremely helpful to have an expert, who could work with the institution through the process;
- In terms of items that are under-funded, support for graduate students was highlighted. This includes tuition and research expenses as well as research equipment. Although it is seen as

critical for the future growth of UB's research, there is no strong national or institutional support for this and it is often not possible in some grants.

Information provided by Dr Jose Jackson-Malete, Deputy Director, Office for Research Development, University of Botswana; see also <http://www.ub.bw>

CASE STUDY 9

Relates to Keys 3, 4 and 5

The **College of Medicine (CoM), University of Malawi**, established in 1991 as a constituent college within the University of Malawi (UNIMA), is the only medical school in Malawi. The CoM has gradually grown from a programme with an intake of 10-15 students per year and a handful of Malawian faculty, to a programme with a medical student intake of on average 60 per year, with 110 faculty members, of whom approximately 67% are Malawians. To date the college has graduated over 250 medical doctors.

The CoM is both academic- and research-orientated and research is primarily conducted in research groups, called affiliates. Some of the affiliates are autonomous, while others depend on the CoM's systems. The CoM subscribes to UNIMA research and consultancy policy, but interprets that in the development of College-specific policies.

With the increase in research activity, the CoM realized that the available support to develop research and to manage research grants was inadequate. At this time they applied for a grant from the Netherlands Organisation for Scientific Research (NWO) through the Netherlands–African Partnership for Capacity Development and Clinical Interventions of Poverty-related Diseases Programme (NACCAP). Through this grant, and in partnership with the Emma Children's Hospital in Amsterdam and the Liverpool School of Tropical Medicine, the CoM could establish a Research Support Centre (RSC) to coordinate and support all its research.

Buy-in from management and staff was, and remains, critical for the success of the RSC. However, it took time and in fact required continuous effort and a change in mind-set. Even though progress is slow, the success in ensuring buy-in among the researchers is facilitated by the added value they experience when working with the RSC. Now they have a portal through which they can access specific services and support. Buy-in from the CoM management resulted in the RSC being mandated to manage all CoM research grants. The RSC now have a well established staff base and organizational structure. Staff members include a director, scientific operations manager, clinical research associates, trial coordinator, data manager, website/information coordinator, grant administrator, data officer, and administrative assistant.

With the RSC assuming a coordination role for CoM research, the need for a governance framework for its operations became evident. The RSC facilitated the development of a CoM research policy, which set the mandate and operational scope of the RSC. The RSC also established research grants management procedures, which streamlined grant administration into well defined pre- and post-award processes.

As the custodian of all research grants contracts, a vital part of ensuring the success of the RSC was to create a database of all grants and funds coming through the CoM. The RSC aims to be self-sustainable and the grant conditions usually stipulate that 10% of the total grant budget should go to the university for administration and overhead costs. The database has allowed the CoM to calculate how much money was due from unpaid administration fees and it was found that the CoM was recovering only a very small percentage of what it was owed. To address this, a research administration fee distribution policy has been introduced and a Research Overheads Account set up to receive monies due. To manage the recovery of overheads, the database is linked to the IRB. Projects are not submitted to the IRB if overhead fees are due to the CoM. The overhead fee can be waived in exceptional circumstances, (e.g. for student projects) but approval should be given by management.

A policy for the distribution of the recovered overhead costs has been developed. To support the institutional objective of creating an enabling environment for research within its own context, the recovered costs are primarily used to support the following:

- Ethics review committee;
- RSC (including the grants management service, procurement, finance etc.);
- IT and library;
- Research publications committee;
- Postgraduate office (including student projects and the CoM annual research conference).

Resource mobilisation: one of the schemes supported through this pool of funding is a staff retention scheme, where staff returning from studies abroad can receive a salary supplement and participate in a mentorship programme. Staff retention is a real challenge and this scheme aims to improve the situation

Department where the project is hosted: a proportionally larger portion of the funding is distributed to the department for them to use as discretionary funding to support research and to encourage more applications to funding bodies.

Reimbursement of the indirect cost rate by funders remains a challenge. Some funders do not reimburse indirect costs at all, while others place a cap on the allowable percentage. Negotiating with funders for reimbursement of the indirect cost rate has not been satisfying or successful. The overall impression is that funders generally are very blunt, citing the policy and that they are reluctant to engage the institution on this issue. The only time that rates can be negotiated with a higher degree of success (and this amounts to about 1-2% of the time) is when contract research is performed. In an attempt to cover some of the overheads from grants, the RSC will negotiate for the inclusion of relevant activities and items as direct costs to the project budget.

The 10% institutional indirect cost rate was included in the policy, which was drafted a few years ago. This rate was not calculated through a specific methodology and is based on an estimate. The actual cost of conducting a particular research project is therefore not known and the institutional budget carries the shortfall that might exist. While it is recognized that it is important to know what the actual costs are, it would be a very costly academic exercise at this point in time, considering that funders are not open to engaging the institution on the reimbursement of the indirect cost rate.

Funding for personnel costs in particular poses a challenge for the CoM. Due to the challenge to retain staff, human resources have to be bought in at a high cost. Hidden costs, such as health insurance and

recruitment costs, further increase the personnel costs. However, this category is usually capped by funders placing a huge burden on the institution to supplement personnel costs.

Nevertheless, over the past four years, the CoM has experienced a rapid growth in the number of competitive international grants awarded directly to Malawian investigators. This is attributed partly to the increased visibility of research in the college and the support provided by the RSC, which has motivated academics to become involved in grant writing.

In addition, an improved working climate at the CoM contributed to the return of other scientists and medical doctors. Apart from the RSC information service (website and RSC newsletter), word-of-mouth advocacy by returned Malawian academics seems to be a powerful tool in persuading others to consider following suit.

*Information provided by Dr Kamija Phiri, Dean of Postgraduate Studies and Research, College of Medicine, University of Malawi; see also <http://www.medcol.mw>; NACCAP 2004–2011: Lessons learnt. Available at <http://www.wotro.nl>; and Gomo, E, L Kalilani, V Mwapasa, C Trigu, K Phiri, J Schmidt and M Boele van Hensbroek. (2011) Towards Sustainable Research Capacity Development and Research Ownership for Academic Institutes in Developing Countries: The Malawian Research Support Centre Model. *Journal of Research Administration*, XLII (1) 38–45.*

CASE STUDY 10

Relates to Key 2

In support of the implementation of the Intellectual Property Rights from Publicly Financed Research and Development Act, No. 51 of 2008, the National Intellectual Property Management Office (NIPMO) called on all publicly-funded higher education institutions to develop full costing policies in the process of working towards a national full cost model framework. Higher Education South Africa (HESA), which serves as the voice of higher education leadership in South Africa, is coordinating the development of full costing models and has appointed a task team, which through its interaction with all 23 higher education institutions in the country, will propose two or three models to NIPMO by the end of January 2012. The NIPMO Advisory Board will consider these formulae and will, through a process of input and amendment, come up with a national full cost model framework.

Below is a model that was developed by the University of the Free State. It is one of the models that will be proposed to NIPMO for consideration when the national costing framework is developed.

General principles and assumptions of the model include:

- The audited consolidated income statement of the university forms the consolidated comprehensive income statement;
- Overheads are assumed to be the personnel costs and the operating expenses of certain service departments;
- Information about these overheads can be obtained from the university's information-management

system;

- The indirect-cost rate is based on historic cost recovery data collated over a three-year period, that is, the rate is adjusted annually based on the average costs of the previous three years.

The table below shows the basic steps that they propose should be involved in calculating an indirect-cost.

	Year 1	Year 2	Year 3
(A) calculation of proportion of expenses that is specifically funded			
Specifically funded activities (restricted): Total expenses ¹			
Council-funded activities (unrestricted): Total expenses (excluding residences)			
²			
Total A			
Proportion of expenses specifically funded (research and contracts) ³			
(B) Calculation of council-funded indirect costs directly attributable to research			
Indirect costs directly related to research			
Personnel costs			
Other operating expenses			
Total B ⁴			
Institutional indirect costs			
Personnel costs			
Other operating expenses			
Total C ⁵			
Institutional indirect costs (proportion attributable to research) ⁶			
Indirect cost attributable to research			
Indirect costs directly related to research ⁷			
Institutional indirect costs (Proportion allocated to research activities) ⁸			
Total D			
(C) calculation of indirect cost recovery rate			
Indirect cost attributable to research ⁹			
Specifically funded activities (restricted): Total expenses			
Indirect cost recovery rate ¹⁰	%	%	%
Average over the last 3 years			
Adjustment for inefficiencies in the formula ¹¹			
Final indirect cost recovery rate			%

Notes

- 1 From the consolidated comprehensive income statement, in the column for non-council funded expenditure.
- 2 From the consolidated comprehensive income statement in the column for council-funded expenses, excluding the residences.
- 3 Specifically funded activities (restricted): total expenses / Total A.
- 4 Includes personnel and operating expenses of the departments of research commercialization and research development.

- 5 The personnel and operating expenses of the following departments/units: budgeting, finance, health and wellness, health sciences administration, human resources, ICT services, internal auditing, internationalisation, library and information services, logistical services, maintenance, physical resources, protection services, provisioning, strategic communication, student academic services, management (executive level), marketing.
- 6 Proportion of expenses specifically funded (research and contracts) x Total C.
- 7 Same as Total B.
- 8 Same as Note f.
- 9 Same as Total D.
- 10 Indirect costs attributable to research / specifically funded activities (restricted): total expenses.
- 11 An adjustment of up to 5% up or down is acceptable.

Information provided by Pieter du Plessis, Director of Finance, UFS

EXAMPLE 3

Relates to Key 2 and 5

Bezzobs (2009) paper reviewed the research costing methodologies of 17 Australian universities. There were three common areas of agreement for all universities:

- All direct project costs must be recovered;
- All support the Australian Vice-Chancellor's Committee's principles (AVCC principles). These principles set out the responsibilities and expectations that universities and students can legitimately and fairly have of each other, to ensure a high quality learning environment that supports a diverse range of students. The principles are supported by specific codes and guidelines concerning student learning; university teaching; quality assurance in university course development and review; practices for maintaining and monitoring academic quality and standards in research higher degrees; and the provision of education to international students;
- Discretion should be applied in relation to the final project price and whether this price reflects the total project cost. For all universities, the price of projects where the funder is listed on the Australian Competitive Grants Register is priced at or near the direct costs of the project, as the organizations listed often do not pay overhead costs. In such cases, universities have little discretion to determine pricing. This is often the source of contention for universities when costing research. Often the national competitive grant schemes are the primary mechanisms of funding support for academics, and they may be conditioned to costing and pricing at a minimum level. For many academics it is then difficult to make the transition to a pricing model which adequately covers costs.

University costing/pricing models varied with respect to their interpretation of what was included in the indirect costs of research and the multiplier and formulae used. There were three main groupings as far as the costing approach is concerned:

1 Total price/cost charged includes a minimum contribution to indirect cost recovery

This category of universities (e.g. Melbourne, Macquarie, Griffith, Queensland, Sydney and RMIT) have adopted a pricing model where:

$P = (1+Y) \times (\text{Total Direct Project Costs})$ and

Y ranges from 0.15-0.60 and Total Direct Project Costs equals the sum of Total Direct Payroll Costs and all other direct costs.

Flexibility in pricing is dependent on the circumstances in which the project will be awarded. For example, the University of Melbourne requires that the minimum price to be charged for a research project is 1.35 times the sum of all direct costs. However, for business and government agencies, the goal is to charge 1.45–1.60 on top of direct costs.

Macquarie University observed that research projects might not necessarily deploy additional infrastructure resources. Nevertheless, as a consequence of research, these resources would wear faster and hence would need to be upgraded or replaced earlier. Therefore a contribution to the costs of using these resources should be made with a minimum infrastructure component of 15-25% of the total costs, added to the total costs to form the entire budget.

A variation on this theme is where differential infrastructure charges are made depending on the nature of the direct cost. For example, the University of Sydney adopts an approach where there is an infrastructure charge of 30% of direct salary costs and also a charge of 5% of all non-salary components.

The University of Queensland's pricing model is similar, with a two-part infrastructure charge where minimum cost recovery is 1.6 x total employment costs (including salaried staff time), plus 1.1 x all other costs.

2 The application of the Australian Vice-Chancellor's Committee's (AVCC) principles

Some universities (such as Adelaide, Deakin and Western Australia) adopt a conservative approach, in which the costing model strongly reflects the original AVCC guidelines, where:

$P = \text{Total Direct Project Costs} + \text{Total Infrastructure Costs}$

In principle this approach does not differ significantly from the approach described above, and discretion is also allowed as to whether the project price is smaller than the project costs. The main differentiating factor appears to be the value of the infrastructure multiplier and how it is applied. For example, in one case the model is expanded as such:

$P = \text{Total Direct Project Costs} + \text{Total Direct Payroll Costs} + \text{Infrastructure Cost} \times \text{Total Direct Payroll Costs}$

where Infrastructure Cost = 1.8 for lab projects and 1.31 for non-lab projects.

In another case the following was used:

$\text{Project Cost} = \text{Total Direct Project Costs} + \text{Total Direct Payroll Costs} + \text{Infrastructure Cost} \times \text{Total Direct Payroll Costs}$

where there are five Infrastructure Costs possible values depending on location (2.27, 1.9, 2.39) to the Project Cost, an adjustment is made which reflects the 'notional costs' for which the university would be liable, but for its character as a public institution. A Competitive Advantage Factor of between 0.11 and 0.13 is therefore applied to the cost of academic salaries to arrive at the

Competitively Neutral Cost.

3 Attempted real costing of indirect costs

For consulting and contract research:

Project Cost = Total Direct Project Costs + Infrastructure Cost x Total Direct Payroll Costs (only for staff paid from project funds)

where the Infrastructure Cost is fixed at 1.3 and is based on an approximation of the ratio of the annual expenditure of total non-salary expenses from ordinary activities to total academic salaries, and Project Price = Project Cost + 10% margin for reinvestment x Project Cost.

EXAMPLE 4

Relates to Key 3

A guide on managing submissions was developed by the Engineering and Physical Sciences Research Council (EPSRC), as a result of a workshop held by EPSRC with several universities in 2010. A summary of the input offered by two universities is offered below

Liverpool University has built an in-house electronic system, on which all research applications and awards are awarded. It is developing a process within the system for electronic peer review. It will be mandatory for all academics to prepare a brief concept of their proposal and then create a record on the system which will give them a reference number. They then pick their peer reviewers from a set list and submit their proposal. The proposal is then picked up by the reviewers and also the Head of Department (HOD). The reviewers submit their comments on the system, which the HOD reads. If the comments are positive, the HOD submits the proposal back to the principal investigator (PI) to go ahead and prepare a full proposal for submission. The system then alerts the Research Support Office (RSO) that a concept has been created

At present the above process is being trialled and the research support officers pick up the proposal when the Case for Support is uploaded onto the system and contact the academic to drive it forward.

The aim of the concept proposal is not only to cut down on the number of unsuccessful applications being submitted to funders, but is mainly to enhance the mentoring of 'early stage career academics' on their career path to successful funding awards and to be advantageous to the more experienced academic, who for some reason or other has not been successful in the past. Also, all data pertaining to each proposal are stored in an electronic folder, thereby enabling all members of the research support team to have access to this information.

No academic is allowed to submit any proposal without first consulting with the RSO and no academics are allowed to do their own costings. The research support officers also put the financial data into the forms for the academics. On trialling the process, a few academics were initially apprehensive, but eventually realized the advantage of having the unbiased opinion of their peers. In addition, the academics discovered that the research support officers in the RSO, through their knowledge and

experience in all the electronic processes of the various funders, in the UK, Europe and the USA, were also capable of advising them on the proposal's structure, in line with the funders' requirements and found this invaluable.

Due to the fact that the RSO is centralized and the research support officers share their knowledge and experience, an academic contacting the RSO will always find help. The great advantage of the system is that it enables any research support officer or research support administrator access to all of the information relating to a proposal, to deal with any queries, external or internal, in the absence of the individual who initiated a particular proposal.

Recommendation to others

The knowledge exchange between the RSO and academics, as well as instant access to information, is invaluable to the academic community in the university. As a centralized team, the research support officers 'go outside the box' in helping and advising academics, especially on larger bids, by pooling their knowledge and resources with that of the academic staff. The RSO thereby alleviates the burden of administration, allowing the academic staff to concentrate on their scientific work.

Loughborough University introduced templates for first grant proposals and for the justification of resources for Research Council applications. It has also established procedures for the embedded use of application-resumé check lists, which have to be signed off by a PI's Head of Department before institutional submission can be made. The introduction of these templates has helped the university overcome general weaknesses found in applications.

Mandatory use of the application resumé form has ensured clear sign off by heads of departments in terms of resource implications, acceptance of costing and pricing strategy, including any departmental subsidy or other matching funding that might be required to undertake the research. Information captured by this form feeds into an applications database, which in turn allows the university to monitor success rates and cost recovery rates.

*Information obtained from Engineering and Physical Sciences Research Council. 2010.
Best practices guide to managing submissions. Available at [http://www.epsrc.ac.uk/
SiteCollectionDocuments/other/BestPracticeGuideToManagingSubmissions.pdf](http://www.epsrc.ac.uk/SiteCollectionDocuments/other/BestPracticeGuideToManagingSubmissions.pdf)*

The practices of national governments and regional networks

Examples 5 and 6 illustrate how national government in the United Kingdom (UK) and South Africa initiated and supported, or are supporting, the change to full economic costing. Example 7 describes how a group of universities in Belgium facilitated the implementation of a full economic costing model. Examples 8 and 9 respectively describe the role of an association of medical research institutes in Australia and an association of universities in Sweden in motivating for higher levels of funding for indirect costs.

EXAMPLE 5

Relates to Key 2

In the UK, the process of change to full costing was initiated and supported by national government, which introduced a full economic costing (fEC) methodology for its activities, as defined by its transparent approach to costing (TRAC) guidelines. Universities are required to undertake an analysis of all activities in order to report annually on income and expenditure at a high level. In addition, institutions are required to use the analysis to determine institutional cost rates for research, which are then used to cost all research activity. That cost is used to help determine the price of a research project, depending on the funder type: for the UK Research Councils, the price is based on a proportion of the calculated fEC; for UK charities, the price is the directly incurred costs only; for industry, the price reflects market value.

Overall, a university is required to ensure that it is sustainable, and hence should understand how it is funding its research portfolio from the range of sources of income, including both project-specific income from grants and contracts and the 'block grant' for research received on an annual basis from the relevant funding council (a UK Government agency).

Information obtained from European University Association (2008) Financially sustainable universities. Towards full costing in European Universities. Available at http://www.eua.be/Libraries/Publications_homepage_list/Financially_Sustainable_Universities_Towards_Full_Costing_in_European_Universities.sflb.ashx

EXAMPLE 6

Relates to Key 2

A number of high-income countries, particularly the **US, UK and Australia**, have developed national guidelines for research costing. In low- and middle-income countries and specifically in sub-Saharan Africa, government support for research is often not at the desired level. In environments that have a countrywide coordinated approach (UK), or where a group of universities developed a joint methodology framework (The Netherlands), it was found that these universities also benefit from the opportunity to

benchmark themselves against the rest of the sector on a consistent basis and identify, through this analysis, if they work efficiently and effectively or not. This, in turn, enhances internal decision-making processes and actions for improvement and change.

Walwyn (2008) indicated in a South African study that overhead costs for research projects vary between 1.2 and 1.7 times the direct labour costs (researchers and technicians). To claim that overheads are lower than this rate is to perpetuate a misconception about the extent of overhead costs and to force the subsidization of these costs through other activities of the institution. He then recommended that all institutions implement full-cost accounting and a common pricing model, which would create a common understanding about the real costs of research, and stop the cross-subsidization of contract research through other revenue streams within the institution.

The Intellectual Property Rights from Publicly Financed Research and Development Act, No. 51 of 2008 (<http://www.info.gov.za/view/DownloadFileAction?id=94343>) came into effect in August 2010. Its primary goal is to ensure that IP generated from public funds is utilized to the benefit of the people of South Africa. The Act applies to SA government-funded (or partially government-funded) projects and contract research that is not conducted at full cost. Where the full cost of the research is charged to the funder, the Act does not apply. In terms of the Act, a National IP Management Office (NIPMO) has been established.

The relevance to this study is that in support of the implementation of this Act, NIPMO called on all publicly funded higher education institutions to develop full costing policies in the process of working towards a national full cost model framework. Higher Education South Africa (HESA - <http://hesa.org.za/>), which serves as the voice of higher education leadership in SA is coordinating the development of full costing models and has appointed a task team, which through its interaction with all 23 higher education institutions in the country, will propose two or three models to NIPMO by the end of January 2012. The NIPMO Advisory Board will consider these formulae and will, through a process of input and amendment, come up with a national full cost model framework.. In addition the government is supporting the development and implementation of a research information management system, which includes a module on full economic costing. This system is available as a tool to all higher education institutions and science councils.

Information obtained from:

Walwyn, D.R. 2008. *A comparison of the cost of research in South Africa's public research and higher education institutions*. South African Journal of Science, volume 104(11-12).

Portfolio Committee on Science and Technology. 2009. *Government places its faith in new IP Rights Act*. Sabinet Online.

European University Association. 2008. *Financially sustainable universities. Towards full costing in European Universities*. Available at http://www.eua.be/Libraries/Publications_homepage_list/Financially_Sustainable_Universities_Towards_Full_Costing_in_European_Universities.sflb.ashx

EXAMPLE 7

Relates to Key 2

In **Flanders/Belgium** the higher education sector, through a group of universities without a national authority, developed a model for full costing.

Flanders/Belgium has worked towards the implementation of a new general accounting regulation for the university sector, whereby a switch was made from 'cash-based' to 'accrual-based accounting'. The European Union's 7th Framework Programme has put considerable pressure on the Flemish Universities to introduce a full cost system. On a regional level, the Institute for Science & Technology (IWT) has announced the introduction of similar requirements. In 2007, financial management agreed to implement a system of time recording for permanent staff. They discussed a system for calculating the average hourly rate with officials from the European Commission, who were assigned to ascertain if the method conformed to FP7 rules. From 2008 onwards, Flemish Universities jointly started to develop standards for a full cost system, applicable to all university processes.

Information obtained from:

European University Association. 2008. *Financially sustainable universities. Towards full costing in European Universities*. Available at http://www.eua.be/Libraries/Publications_homepage_list/Financially_Sustainable_Universities_Towards_Full_Costing_in_European_Universities.sflb.ashx

EXAMPLE 8

Relates to Key 2

The **Association of Australian Medical Research Institutes** (AAMRI) represents the majority of Australia's independent medical research institutes. AAMRI carried out a study to benchmark the indirect costs of research in Australian independent, accredited medical research institutes, so as to compare indirect cost funding to other national and international sectors. The results were used to propose solutions in the form of federal and state government joint funding arrangements to ensure sustainability and the competitive position of medical research institutes.

The study showed that the indirect costs of research for Australian-accredited medical research institutes are on average 60 cents per Australian dollar of all peer-reviewed research funding. This was found to be consistent with other national and international studies. The indirect cost gap was found to be 30 cents per Australian dollar of peer-reviewed funding, implying that medical research institutes are currently funding this gap from sources which would otherwise be diverted to additional research.

This report therefore recommended an increase in federal and state government funding to fill the gap.

Information obtained from

Association of Australian Medical Research Institutes. January 2010. *Costing medical research*

to reform health outcomes. The case for increased indirect cost funding for Australian accredited MRI's. Available at http://www.aamri.org/library/publication/LEK_Report_Australian_MRI_indirect_cost_funding_JAN2010.pdf

EXAMPLE 9

Relates to Keys 2 and 5

When the principle of full cost coverage was introduced by the **Swedish government** in 2000, the Association of Swedish Higher Education (SUHF) reached an agreement with several funding bodies, including all government-funded research councils and foundations to accept unspecified indirect costs at a rate of 35% of direct costs. About half of this was meant to cover costs for premises. Funding bodies, however, did not accept this agreement. They either maintained that they were unable to cover indirect costs or that the university should agree to cover the indirect costs, when they receive a contribution from external sources. Universities considered 35% insufficient and several studies undertaken showed that indirect costs (including premises) tend to be above 50% of direct costs. In 2006, SUHF therefore invited funding agencies to appoint auditors and other specialists to join a group of university experts to develop a new common costing model for indirect costs. The model would facilitate sound internal management and provide accurate accounts and a better monitoring of the full costs of various activities.

In November 2007, the new model, and a manual for its use, was presented to the General Assembly of SUHF, which recommended that its members – all Swedish universities – should implement it as soon as possible. The model is based on the division of all activities within a university into core and support activities. Core activities are made up of cost centres, which for instance can be research projects with external funding. Support activities, giving rise to indirect costs, are attributed to three 'levels' within a university (central, faculty and departmental level). In the model, indirect costs are divided into a number of defined functions (management, administration of education and research, finance and personnel administration, infrastructure and services, libraries). Through standardized procedures, all these indirect costs are allocated to the cost centres. The model is applicable, both in calculating the total costs of a planned research project and in presenting the accounts after completion of the project. The implementation is planned to take place in a coordinated way.

Information obtained from European University Association. 2008. [Financially sustainable universities. Towards full costing in European Universities](http://www.eua.be/Libraries/Publications_homepage_list/Financially_Sustainable_Universities_Towards_Full_Costing_in_European_Universities.sflb.ashx). Available at http://www.eua.be/Libraries/Publications_homepage_list/Financially_Sustainable_Universities_Towards_Full_Costing_in_European_Universities.sflb.ashx

Acronyms

BHP	Botswana Harvard Partnership
CDC	Centers for Disease Control and Prevention
DFID	Department for International Development
EDCTP	European and Developing Countries Clinical Trials Partnership
ESSENCE	Enhancing Support for Strengthening the Effectiveness of National Capacity Efforts
EUA	European University Association
FAQ	Frequently-asked questions
fEC	Full economic costing
FIC	Fogarty International Center
HESA	Higher Education South Africa
IDI	Infectious Diseases Institute
IDRC	International Development Research Center
IEARDA	International Extramural Associates Research Development Award
ICCR	Indirect cost recovery rate
IRB	Institutional Review Board
iRIM	Initiative on Research and Innovation Management
IT	Information technology
JCRC	Joint Clinical Research Centre
LIC	Low-income country
LMIC	Low- and middle-income countries
MEPI	Medical Education Partnership Initiative
NACCAP	Netherlands-African Partnership for Capacity Development and Clinical Interventions of Poverty-related Diseases Programme
NIAID	National Institute of Allergy and Infectious Diseases
NICHD	National Institute of Health and Human Development
NIH	National Institutes of Health
NIPMO	National Intellectual Property Management Office

NWO	Netherlands Organisation for Scientific Research
OECD	Organization for Economic Co-operation and Development
OGAC	Office of the US Global AIDS Coordinator
PEPFAR	President's Emergency Plan for AIDS Relief
RSC	Research Support Centre
SIDA	Swedish International Development Cooperation Agency
UNDP	United Nations Development Programme
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
WHO	World Health Organization
WOTRO	Foundation for the Advancement of Tropical Research

References and recommended reading

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Additional recommended resources related to each key

KEY 1 Defining and categorizing direct and indirect cost items

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