

Sida/SAREC Bilateral Research Cooperation: Lessons Learned

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Sida Evaluation 06/17

**Department for Evaluation
and Internal Audit**

This report is part of *Sida Evaluations*, a series comprising evaluations of Swedish development assistance. Sida's other series concerned with evaluations, Sida Studies in Evaluation, concerns methodologically oriented studies commissioned by Sida. Both series are administered by the Department for Evaluation and Internal Audit, an independent department reporting directly to Sida's Board of Directors.

This publication can be downloaded/ordered from:
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This publication is one of six studies in a larger assessment of the Swedish research cooperation conducted in 2006. The six studies are synthesised in a separate report.

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The views and interpretations expressed in this report are the authors' and do not necessarily reflect those of the Swedish International Development Cooperation Agency, Sida.

Sida Evaluation 06/17

Commissioned by Sida, Department for Evaluation and Internal Audit

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Registration No.: 2006-000615

Date of Final Report: August 2006

Printed by Edita Communication AB, 2006

Art. no. Sida30352en

ISBN 91-586-8381-X

ISSN 1401—0402

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Table of Content

- List of Abbreviations** 2
- Executive Summary** 3
- 1. Introduction** 7
- 2. Programme Context** 8
 - 2.1 Support to Development Research 8
 - 2.2 Support for National Research Capacity Building 8
 - 2.3 Developments within the Programme 9
- 3. Evaluation Methodology** 10
 - 3.1 Methodology for Data Gathering and Analysis 10
 - 3.2 Time Frame of the Evaluation 11
 - 3.3 Constraints and Limitations 11
- 4. Country Programmes** 11
 - 4.1 Bolivia 11
 - 4.2 Mozambique 12
 - 4.3 Nicaragua 13
 - 4.4 Tanzania 13
- 5. Findings** 14
 - 5.1 Effectiveness 15
 - 5.2 Impact 20
 - 5.3 Relevance 25
 - 5.4 Sustainability 27
 - 5.5 Efficiency 29
 - 5.6 Programme Design and Management 31
- 6. Lessons Learned and Recommendations** 39
 - 6.1 Lessons Learned 39
 - 6.2 Recommendations 41
- Appendix 1. Terms of Reference** 44
- Appendix 2. References** 48

List of Abbreviations

CNU	Consejo Nacional de Universidades (Nicaragua – the National Council of Universities)
CoET	Centre of Engineering and Technology
CONICYT	Consejo Nicaragüense de Ciencia, Tecnología e Innovación (Nicaragua – Nicaraguan Council for Science, Technology and Innovation)
FoS	Faculty of Science
H&SS	Human and Social Sciences
ICT	Information and Communication Technology
IKR	Institute of Kiswahili Research
ITP	Institutional Transformation Process
LOT	Language of Tanzania (Project)
M&E	Monitoring and Evaluation
MDGs	Millennium Development Goals
MONAP	Mozambique-Nordic Agricultural Programme
MOSTIS	Mozambique Science, Technology and Innovation Strategy
NGO	Non-Governmental Organization
OECD	Organization for Economic Co-operation and Development
S&T	Science and Technology
Sida	Swedish International Development Cooperation Agency
SAREC	Department for Research Cooperation
SNIES	Information System of Higher Education
UDSM	University of Dar es Salaam (Tanzania)
UEM	Universidade Eduardo Mondlane (Maputo, Mozambique)
UMSA	Universidad Mayor de San Andrés (La Paz, Bolivia)
UMSS	Universidad Mayor de San Simón (Cochabamba, Bolivia)
UNA	Universidad Nacional Agraria (Nicaragua – National University of Agriculture)
UNAN-León	Universidad Nacional Autónoma de Nicaragua en León (Nicaragua)
UNAN-Managua	Universidad Nacional Autónoma de Nicaragua en Managua (Nicaragua)
UNI	Universidad Nacional de Ingeniería (Managua, Nicaragua – National University of Engineering)

Executive Summary

The main objective of the Swedish Development Cooperation Agency, Department for Research (Sida/SAREC) is to strengthen the research capacity of developing countries and their access to knowledge in areas of central importance for poverty-reducing development. Sida/SAREC has its own modalities, but forms part of the Sida portfolio of programmes and Swedish development cooperation efforts in general. Hence the programme should also ‘create conditions and support processes that lead to poverty reduction in partner countries’ (Sida objective) and ‘contribute to make it possible for poor people to improve the quality of their lives’ (Swedish development co-operation objective).

SAREC was originally set up for research cooperation. Apart from support to international research it soon became evident that a first step was to strengthen research capacity, particularly in poorer countries. The first 10 years of the support are characterized by support to national research councils. An evaluation of this period showed that, in most cases, these bodies lacked the capability to prioritize research based on scientific criteria. A countermeasure during the next period was to strengthen research capacity through research training using the so-called sandwich mode, which is still in use. Over time, it became obvious that training of researchers had to be supplemented with investments in research infrastructures and scientific equipment. Catering for the needs of scientific information support to libraries and archives was included in the approach. Together, these should contribute to the establishment of research environments that would be attractive work places for the researchers trained in the bilateral programmes. Through these additions, the support gradually became more institutional than individual. In the beginning of the 1990s, a further shift was made to favour more comprehensive support with the aim of inculcating research cultures at national public universities.

The purpose of this evaluation is to assess the support given to bilateral research cooperation activities that aim to strengthen research capacity of developing countries. Sida decided to build on the evaluations made of the Sida/SAREC research cooperation with four countries: Mozambique, Tanzania, Bolivia and Nicaragua. The evaluation was carried out in the period March–June 2006.

The programmes in the four countries are in various stages of development. A lot has been achieved in terms of capacity building of individual staff members, research infrastructure and, to a lesser extent, improvements in research management. To what extent these achievements are more or less than what was planned or could be expected is difficult to assess because it has not been common practice in the Sida/SAREC bilateral research programme to be overly quantitative about planned outputs or desired effects.

The research projects in the four countries are relevant from an institutional perspective because they respond to justifiable needs identified by the staff of the institutions. It is less easy to establish their developmental relevance. Much of the Sida/SAREC-financed research may have a bearing on poverty reduction, but that link is usually indirect.

The results of the Sida/SAREC research projects do not easily find their way to outside users in the public or private sector, and only in a limited way are they being applied in processes that lead directly to poverty reduction. It is likely that a more direct link with poverty reduction objectives may be achieved during the articulation and selection of research projects without compromising the quality of the research and research training, or the long-term impact.

The programme underwent a change from a fragmented to a more focused approach over the last ten years, and this move has positively influenced the impact of the activities at the institutions as well as their efficiency. The combination of support to research activities, management, infrastructure and

policy development has generated added value at the institutions in the four countries and has contributed to accelerated capacity building.

Unfortunately, the more focused approach has not yet led to greater collaboration between researchers involved in the Sida/SAREC supported research. Collaboration between Sida/SAREC-financed research projects at the institutions seldom takes place, and also opportunities to collaborate with regional partners are underutilized.

It is also unfortunate that in all four countries the interfacing of the Sida/SAREC-financed research activities with other Sida activities in the country seems to be weak. This is a missed opportunity for Sida as a whole because it often could make good use of the capacity generated through the Sida/SAREC bilateral research programme.

Proper interfacing between the various Sida programmes is not easy because there are differences in programme perspectives (short-term solutions versus long-term investments), approaches (sector and budget support versus project support) and management structures (delegated versus centralized management). These differences help to explain, but do not fully justify, the poor synergy and lack of collaboration. With better coordination between the various programmes which are implemented at the country level, it should be possible to improve this situation.

Although sustainability gets more attention in the planning and implementation of the research projects, still more systematic attention should be given to this aspect. Generally speaking, the financial sustainability of many Sida/SAREC research activities is worrying. The incentives to carry out research at the institutions often remain heavily dependent on continued external (Sida/SAREC) support. Additional funding, e.g. from government and industry, is needed. Funding from industry will not only satisfy economic needs of the research projects, but may also lead to new and interesting research activities.

Efficiency gains have been made in some agreements because of improved management structures and administration of the research programmes, detailed yearly planning, and follow up. The benefits have been clearly observed in the Nicaraguan institutional agreements. However, at UEM in Mozambique these structures and practices still have to be developed and/or strengthened.

In the majority of cases, the collaborations with Swedish partners function surprisingly well. There are many engaged and committed partners on the Swedish side. In three countries, the team observed some problems in matching demands for capacity building with the supply in Sweden. Some Swedish partners proved less interested than anticipated, schedules of some graduate courses in Sweden were inflexible, and in a number of cases, the Swedish partners failed to take good care of the PhD students and their welfare during their time in Sweden. The problems cited above point to a tension between the demand-driven nature of the programme and the implicitly preferred practice that Swedish universities should normally be partners in the research projects. This tension should be acknowledged and addressed.

The programme is generally well managed. The staff at Sida/SAREC Stockholm are dedicated and have proved they can make a difference in the success of a country programme. However, a few issues have not been sufficiently addressed, such as research dissemination, both academic and for practical purposes, university-industry cooperation, and the sustainability of project activities.

The evaluation also noted some examples of the lenient attitude of Sida/SAREC when it is obvious that research projects run behind schedule or the management of funds raises questions. This may mesh well with the 'allow for making mistakes in the framework of institutional learning' attitude, but it easily creates conflicts with justified concerns regarding efficiency and accountability. Sida/SAREC

should define and guard clear borderlines between what is still acceptable from a 'learning' perspective and what is clearly unjustifiable from an accountability perspective.

Monitoring of projects and programmes is not systematically attempted, making it hard to obtain a good overview of what is actually going on in the agreements and making it difficult to steer projects on the basis of reliable monitoring and evaluation (M&E) data. Annual reports are very descriptive and do not contain an analysis of achievements (apart from published papers) or on change. There is a need to define benchmarks and indicators for monitoring progress, particularly in relation to the annual reporting.

The effects of the programme on gender issues differ between countries, disciplines and institutions. Some positive effects have been reported in the Science and Technology projects in Bolivia. At the UEM and in Nicaragua the situation regarding gender issues is generally weak. The best practice is reported from the UDSM in Tanzania where gender issues feature prominently on the agenda of the institution and many activities.

The evaluation has not been able to collect much data on the impact of Sida/SAREC-financed research on the fight against HIV/AIDS or on addressing the far-reaching consequences of the disease on the staff, students and systems at the institutions. The prevalence of HIV/AIDS is very high in sub-Saharan Africa compared to Latin America, for example. Mozambique has increasingly recognized HIV/AIDS as a national problem and donor funding has become available. HIV/AIDS is mentioned in the new Science, Technology and Innovation strategy document (MOSTIS) as one of the key areas to be addressed. Three Sida/SAREC funded projects do research in HIV/AIDS.

Also, little information is available on the benefits of international and regional research programmes supported by Sida/SAREC for the bilateral research projects. In some projects it is mentioned in the project documents, but this information seems to be included only incidentally. On the basis of the limited information that the team has gathered on the subject, it is difficult to judge what the real explaining factors are. Whatever the reason might be, the added value of linking the programmes is obvious.

Overall, the evaluation is positive about the achievements of the Sida/SAREC bilateral research programme and the way it is being managed. The Sida/SAREC approach is rather unique for its long-term commitment to countries and partners, its multi-pronged approach to capacity building, and its willingness to get involved in university transformation processes necessary for its development. It is characterized by eagerness and motivation in joining a mutual learning process, by being flexible in different ways within agreed frames, by stimulating ownership of universities for the investments made, and by investing in the main asset of developing countries: the human talent.

In stimulating the sense of ownership of the Southern institutions within financial matters, Sida/SAREC is prepared to take a risk. These risks should, however, be minimized by providing training in financial administration and management as a standard practice. Closer supervision by Sida/SAREC is needed in order to be able to respond promptly to signals that research projects are not performing or that funds are not being properly spent. In order to successfully fight local corruption practices, the research projects require rather strong hands-on management. Researchers need the discipline of regular reporting, and of having to manage their budgets. With proper, carefully organized research administration systems in place, the scope for corrupt practices definitely reduces.

Sida/SAREC fully acknowledges the long-term commitment that is needed to build sustainable research environments. The disadvantage of this long-term and unrelenting support is that sustainability is not always treated with a sense of urgency, and poor institutions may not be sufficiently stimulated to look for alternative sources of funding.

The evaluation team strongly recommends that the Sida/SAREC programme should continue, as it has proven to be unique and valuable with many strong characteristics. It should retain the strong

points and improve in the weak areas that have been observed by the evaluation team. There is scope for considerable improvement in the impact of the programme if:

- cooperation with real-life activities is increased
- better synergy with other Sida efforts is realized
- the focused approach is further refined.

The long-term perspective is to be maintained but some limits to the duration of the support should be agreed upon with the partners.

Given the strong mutual interdependence between higher education and research, it is recommended that the programme strengthens its activities within the interrelationship between research training and education programmes. This will broaden the recruitment base for PhD training, integrate research methods into education and feed research findings back into the curricula. This support is already included in a number of agreements on an ad-hoc basis, but should become more of a standardized practice.

Policies about the implicit or explicit interests of involving Swedish universities in the bilateral research programme should be clarified. The implications of their implicit or explicit involvement should be discussed with all relevant stakeholders and be factored into the decision-making on this issue.

In order to further increase the developmental relevance of its research projects, Sida/SAREC should, without neglecting long-term goals, consider giving a higher priority to projects that are able to directly or indirectly improve conditions for the poor, including projects that are able to increase economic growth in general, while securing an equitable distribution.

On a more practical level it is recommended that Sida/SAREC:

- places a full-time coordinator in the partner countries during the first phase of a bilateral research agreement to better link the Sida/SAREC programme to national needs and priorities, to ensure that the local universities plan and implement their research projects in consultation with local stakeholders and end users, and to advise on and monitor the research management activities and research implementation;
- in dialogue with its partners, develops and introduces a comprehensive monitoring and evaluation framework and operational system that will enable Sida/SAREC and the partners to adequately guide, manage, monitor and report on activities and performance at project and programme levels;
- assists partner universities in organizing a transparent internal screening process of research proposals including an international/regional review system that will assess the proposals before they are sent to Sida/SAREC;
- stimulates individual research projects to prepare for a future without extensive support. As early as the planning stage, the research staff and institutions should be encouraged to plan for sustainability of the planned project results.

1. Introduction

The purpose of this evaluation was to assess the support given by the Swedish Development Cooperation Agency, Department for Research (Sida/SAREC) to bilateral research cooperation activities that aim to strengthen research capacity of developing countries. The assessment had to be made in relation to the overall goal of Swedish development cooperation, i.e. to contribute to an environment supportive of poor people's own efforts to improve their quality of life. The evaluation was commissioned in the context of an overall assessment by Sida of the objectives and results of SAREC research cooperation and contribution management, to be carried out during 2006.

The evaluation was to provide an independent view on the bilateral research cooperation, i.e. university support, both as an input to the overall assessment of SAREC activities and in order to identify lessons that can be learned and applied to SAREC's continued work in this field. The evaluation covers the support given during the period 2000 to 2005. The detailed terms of reference of the evaluation are included in Annex 1 to this report.

The report on the evaluation is based on the findings of four country studies and discussions about the programme among the team members.

The team consisted of:

Ad Boeren, team leader

Tom Alberts, evaluator of the Mozambican bilateral research cooperation programme

Thomas Alveteg, evaluator of the Nicaraguan bilateral research cooperation programme

Erik Thulstrup, evaluator of the Bolivian bilateral research cooperation programme

Lena Trojer, evaluator of the Tanzanian bilateral research cooperation programme

David Wield has contributed additional information on the collaboration between Sida/SAREC and the Eduardo Mondlane University in Mozambique.

The team would like to thank the staff at Sida/SAREC, and all those in Sweden and the countries in which field studies were carried out who, with great interest, made their time available for open discussions on the programme and the projects and provided the team with documentation, data and other relevant information. We would like to thank the leadership of the institutions in the countries visited for their excellent cooperation in the organization of the visits.

A special word of thanks is addressed to Ulla Andrén of the Sida Department for Evaluation and Internal Audit for the stimulating interest shown in the progress of the evaluation and for the excellent organization of the meetings of the team in Stockholm and Sigtuna.

2. Programme Context

2.1 Support to Development Research

Sweden started Research Cooperation with Developing Countries in 1975. The support is today administered by Sida's Department for Research Cooperation, SAREC, which is responsible for support to research and also has an advisory role in relation to research funded as part of other Sida activities.

Sida has given high priority to research cooperation as an important strategy to enhance the capacity of developing countries. The overarching objective of Swedish development cooperation is to reduce poverty.

The overall objective of the Sida/SAREC research cooperation is to strengthen the research capacity of developing countries and improve their access to knowledge in areas of central importance for achieving poverty reduction. The two complementary objectives stated in the original policy for Research Cooperation are still valid:

- To facilitate research of relevance and utility for development.
- To build capacity for research in developing countries.

The modalities to reach these two goals have been to provide financial support through bilateral research cooperation for relevant international research organizations, regional research networks and, finally, national research bodies. The thought behind this division is that these three levels would reinforce each other through the international scientific communication processes pertinent to the academic system.

Approximately one-third of Sida's spending on research cooperation is allocated in the form of bilateral support for (research) institutions in partner countries, and this is the focus of this evaluation¹.

2.2 Support for National Research Capacity Building

National research capacity is not only vital to a nation, it also enables the country to share and contribute to the stock of global public knowledge. If research capacity could be created in at least at one university in each low income country, the curriculum of secondary and tertiary education might be adapted to the country's development strategies. Research-based curricula would, at the same time, bring in relevant international knowledge and encompass local perspectives (Sida, 2006a).

In the view of Sida, a focus on *strengthening universities* as the primary bodies for research and research training would provide a good foundation for the development of knowledge, human resources and knowledge strategies on a larger scale. This remains the focus of Sida research cooperation in countries where such a basis has not yet been established. Depending on the strength of the national university system, initial strategies will focus resources to one or a few universities rather than diluting it to many weaker universities. The philosophy is that at least one research university should be able to cater for the needs of the country and eventually become a resource for the creation of a more extended university system and for the development of national innovation systems (Sida, 2006a). Research cooperation should be designed to strengthen a national knowledge system, including links between research and education and between research and society in general (Sida, 1998).

¹ Other programmes supported by Sida/SAREC are the *Regional research programmes, Special programmes and initiatives, International research programmes* and *Sida's Research Council*.

Box 1. University research and poverty reduction

Some developing countries have been able to progress from very poor to relatively wealthy societies within a few decades. Examples are Singapore, Taiwan, South Korea and more recently China and India, which through research and education efforts have managed to continuously increase the technology level in their industrial products and services so that they can compete in the global market. Presently, many countries, e.g. Brazil and Pakistan, are trying to do the same. In all these cases, a strengthening of university research, especially in science and technology, has been a main component of the strategy. Although science and technology research may in some cases provide direct assistance to poor population groups (for example within health, agriculture, and the environment), it is the creation of wealth through the upgrading of technology and industry that has helped reduce poverty most effectively. It may seem surprising that most smaller countries have never tried to follow the example of Singapore and that many donors and development banks have not supported such strategies more actively. Since young people in many of these countries clearly have a lot of talent, this is an opportunity for accelerated development that is worth trying.

The main avenue for strengthening research capacity in a country through Swedish development cooperation starts with an overview of the partner country's research system, encompassing research organizations, financing modalities, research strategies, etc. Following an overall assessment of policies, structures and organizations, key institutions are identified and a support package is negotiated. Support is given both to individual research activities as well as for creating research environments. In addition, aid is provided for training, infrastructure (libraries, laboratories, ICT, etc.) and support functions, including development of policies for research and for strengthening of administration and management in both ministries and universities.

The research cooperation includes faculty-based research programmes in several subjects, including the natural sciences, engineering, agriculture, medicine, social sciences and technology, and the supporting structures at the universities. The support is long-term and usually involves Swedish institutions.

At present there are programmes of bilateral research cooperation with the following 12 countries: Burkina Faso, Ethiopia, Mozambique, Rwanda, Tanzania, Uganda, Bolivia, Honduras, Nicaragua, Laos, Sri Lanka and Vietnam. The total bilateral disbursements in 2004 were SEK 223.2 million. In 2005, more than 200 projects were taking place, with over 120 contracts with Swedish research groups/departments involved.

2.3 Developments within the Programme²

Sida/SAREC looks back on the 30 years of Swedish engagement in bilateral research cooperation as a learning process. The first 10 years could be characterized by support to national research councils. An evaluation of this period showed that, in most cases, these bodies lacked the capability to set research priorities based on scientific criteria. Decisions were merely political and did not safeguard the quality of the knowledge produced. A countermeasure during the next period was to strengthen research capacity through research training using the so-called sandwich mode, which is still in use. In the sandwich mode, students spend time at Swedish universities for coursework, analysis and writing-up, while the empirical research is formulated with a local perspective and with data collected from the local context.

At first, research students were identified among staff at ministries, research institutes and university departments. Over time it became obvious that the training of researchers had to be supplemented with investments in research infrastructures and scientific equipment. Catering for the needs of scientific information support to libraries, and archives, was included in the approach. The sum of these should contribute to the establishment of research environments that would be attractive work places

² The text in this paragraph is largely taken from Tomas Kjellqvist's position paper on university support and national research development, 2005.

for the researchers trained in the bilateral programmes. Through these additions, the support gradually became more institutional than individual. As a result, choices had to be made regarding the selection of grantees. At the beginning of the 1990's a shift was made to favour more comprehensive support with the aim of inculcating research cultures at national public universities. The university as a research institution was given higher priority than research institutes because of its connection to higher education. Supporting the university was regarded as a more sustainable investment, with the possibility of engaging in long-term processes that, among others, would lead to the establishment of local research training programmes.

It also became clear that a properly working research management system is necessary at the level of research implementing organizations in order to ensure that research is conducted in line with governmental and university strategies, that researchers generate their own research topics and are able to attract funding from available sources. The research management should also guarantee a properly working financial administration of internal and external research grants, and assist researchers in finding proper channels for research outputs through scientific journals and to potential users in the public and private sectors. Hence, Sida has developed a number of instruments to establish and strengthen such units at universities.

3. Evaluation Methodology

The Sida Department for Evaluation and Internal Audit (hereafter referred to as Sida) planned and organized this evaluation at the request of the Swedish Government. Sida decided to build on the evaluations made of the Sida/SAREC research cooperation with four countries: Bolivia (2006) Mozambique (2003), Nicaragua (2003) and Tanzania (academic audit 2005).

The team leaders of these studies were invited to revisit their respective countries with a set of evaluation questions. A fifth evaluator was contracted to act as overall team leader, to organize and coordinate the methodological aspects of the evaluation study and to prepare the final report on the basis of discussions with the country evaluators, an analysis of the country reports and other relevant documentation (see Annex 2 containing a list of references).

3.1 Methodology for Data Gathering and Analysis

The team members collected their information using an agreed evaluation framework which incorporated the specific questions in the Terms of Reference. This framework was discussed during a team meeting in Stockholm prior to the field visits. Sida was present during this meeting and commented on the evaluation framework and approach.

In the countries, the evaluators collected relevant documentation and conducted individual and group interviews with beneficiaries of the bilateral research programme, i.e. institutional managers, teaching and research staff, and students. Interviews were also held with staff of relevant ministries, and the Swedish embassies.

The country evaluators reported on their findings using a standard format. After returning from the field visits they sent their draft reports to the stakeholders in the country for comments.

A second meeting of the team was organized to discuss the main findings, conclusions and recommendations of the country studies. Building further on these insights, the team then discussed the lessons that could be learned, and the strengths and weaknesses of the Sida/SAREC bilateral research programme.

The country evaluators commented on the draft main report that was composed by the overall team leader before it was submitted to Sida.

3.2 Time Frame of the Evaluation

The team was contracted in February 2006. The first team meeting took place on 8 March in Stockholm. The country visits were conducted in March and May. The team gathered in Sigtuna from 5–8 June 2006 to discuss and analyse the findings from the country studies. The draft main report and the four draft country study reports were submitted to Sida on 26 June 2006.

3.3 Constraints and Limitations

The selection of the four countries for field visits was made by Sida. The team has not attempted to establish the extent to which this selection is representative of the whole set of country programmes. The support to Tanzania and Mozambique, as well to Nicaragua, has a long history which has a bearing on the composition of the support, and the way it is organized and managed. Changes in Sida/SAREC policies and approaches have influenced the development of the Sida/SAREC support to the organizations and institutions involved. Compared to these three countries, the programme in Bolivia is of fairly recent origin and started off with an approach which now is propagated as the current programme strategy and which is aptly described in *Guidelines for applicant organizations. Support to national research development* (Sida, 2006a).

The team members were contracted individually by Sida. Apart from the overall team leader, the members had previous experience in evaluating country programmes and research projects funded from the Sida/SAREC bilateral research programme. Two of them are very familiar with the programme and its management due to present or previous close affiliations with Sida/SAREC. This close relationship carried a risk of bias in the team's judgement of the country programmes and the programme as a whole. However, the discussions within the team were open and substantial, and the team looked at the strengths and weaknesses of the programme from various angles. It is therefore believed that the observations of the team are well-founded as well as realistic, and that the overall assessment is balanced and representative of what happens on the ground in the countries visited.

4. Country Programmes

The evaluation consisted of four country studies which resulted in four study reports. For a good understanding of the presentation and analysis of the major findings of the country studies in the chapters that follow, the following sections provide a brief history and description of the research cooperation programmes in the four countries. It is also worth mentioning that all four countries have poverty reduction strategies and have achieved significant reductions in their external debts (HIPC debt initiative³).

4.1 Bolivia

In order to help Bolivia take better advantage of the opportunities offered by research-based knowledge, Sida/SAREC has supported university research in Bolivia since 2000. This programme was based on an earlier, limited involvement in Bolivia; during much of the 1990s, Sida/SAREC modestly

³ The IMF *Heavily Indebted Poor Countries* debt initiative.

supported two social science research institutes in the country. When this support was about to end, a staff member of the Swedish Embassy in La Paz suggested that a university programme should be initiated, and this led to the present programme.

Following the suggestions of the Embassy staff member, the support has been directed to the national level, through the Vice-Ministry for Higher Education, Science and Technology, and (primarily) to the two largest Bolivian universities, Universidad Mayor de San Andrés (UMSA) in La Paz and Universidad Mayor de San Simón (UMSS) in Cochabamba, both public universities.

Agreements were reached with the two universities and the Vice-Ministry about the programme content; there was little discussion with stakeholders (e.g. industry) outside this group. The main purpose of the support to the Ministry was to help it establish a national science and technology (S&T) policy. The support was actually being used to develop research policies and to work on a national system for science and technology, including the National Plan for S&T and the National Information System of Higher Education (SNIES), but little of this was implemented.

The universities are receiving support through a university research fund at each university and grants for development of university research management. In addition, support is provided for a number of individual research projects at the two universities; the individual research projects are in a sense the core of the programme. The programme currently supports nine projects in the humanities and social sciences and eleven in science-based fields. Finally, support has been provided for a master's programme and the establishment of an ICT network at UMSA.

The Sida/SAREC support for research in Bolivia for the period 2000–2005 was SEK 2.6 million for the Vice-Ministry, SEK 42.3 million for UMSA and SEK 40.5 million for UMSS. For 2006, UMSA will receive SEK 18 million and UMSS SEK 10 million. In addition, a total of SEK 20 million will be provided for the ICT network at UMSA. This kind of investment is presently not required at UMSS.

4.2 Mozambique

Swedish co-operation with Mozambique has a long history. The Swedish government supported Frelimo during the armed struggle. After independence the Swedish government massively supported the new government from the beginning in 1975.

Swedish support to the University Eduardo Mondlane (UEM) had several sources; Sida's general support to the University began in 1978. Over the period 1978–2005, Sida and Sida/SAREC, through various channels, provided close to SEK 280 million to the UEM.

Towards the end of 2003, Swedish support to UEM was subject to external auditing as a result of Mozambican auditing concerns. As a result of the uncovered corruption problems, Sida/SAREC support to UEM was halted, but it was not until 2005 that disbursements were affected and dropped from SEK 14.2 million in 2004 to SEK 3.6 million in 2005.

Table 1. UEM Sida/SAREC collaborative support (SEK '000)

	1978–80	1981–85	1986–90	1991–94	1995–97	1998–2000	2001–05	2006–09
Total	1,395	11,765	29,070	44,300	28,669	79,178	84,133	175,555

Source: Sida

The long-term aim of the collaboration between Sida and UEM has been to support the development of research capacity through relevant research at the major university in order to build up a core of researchers. In the latest agreement (2006–2009), the aim has been rephrased and focuses on the strengthening of the university's national role in training academic staff, including master's and doctoral level for the entire higher education system.

The collaboration has, for around 20 years, focused on building up capacity in a range of areas, at the same time as supporting university-wide research infrastructure (ICT, library, management systems). There has been a wide range of projects, but based on a clear principle to build up research capacity by building research training and infrastructure at the same time. In addition, there was support to UEM research policy making processes which began in 1978. However, the research policy has not been updated in the recent period. Also, the fact that the UEM had no Vice-Rector for Academic Affairs for the five years from 2000–2005 have held back the coordination of research capacity building. Whilst the number of qualified staff with doctorates increased, the overall ability to manage research programmes has not.

During the period 2001–2005, the support to the UEM included 22 research training projects spread around most faculties and also involving various Swedish partners, plus 11 elements of Open and Central funding – to start new research areas in particular faculties and for central support for research management and facilities like ICT and libraries. The key characteristic of most research projects is their interdisciplinary and problem-oriented nature. In addition, a total of SEK 11 million has been dedicated to the university open research fund since 1998 with the aim of increasing flexibility and providing incentives for young researchers. In total, 84 research projects benefited from the open fund during the period 1998–2005. Of the 84 projects, a fair few provide continued support for research teams within similar programmes.

4.3 Nicaragua

Sida/SAREC's bilateral research cooperation with Nicaraguan universities started in the early 1980s. Today it includes support to the National Agricultural University (UNA), the National University of Technology (UNI), the National Autonomous University in León (UNAN-León), the National Autonomous University in Managua (UNAN-Managua), and to the National Council of Universities (CNU).

The Sida/SAREC cooperation was not initiated at the same time in all four universities, but has rather developed gradually, adding new areas of research and new agreements. This means that in practice it is not one, but rather four separate bilateral programmes, organized in slightly different ways at each university. Separately, the Council of universities (CNU) is supported by the programme. The support to the CNU is directed to research policy development, promote curriculum reforms and establishment of accreditation system for higher education, and a small competitive research grant fund.

In addition to this, in April 2006 a support was granted to the Nicaraguan government's liaison office for science, technology and innovation (CONICYT). Furthermore, Sida/SAREC is currently supporting the development of ICT infrastructure at the universities.

To some extent, the Nicaraguan programme reflects the development over the years of Sida/SAREC's own approach to research capacity building, from support to individual research projects to the promotion of sustainable research environments. The focus of the cooperation has shifted over time from support in finding solutions to a specific problem, to a system approach towards building a sustainable research environment. The total value of Swedish support for the period 2004–2008 is SEK 120 million.

4.4 Tanzania

Research Cooperation with Tanzania started in 1976 with support to a research council. In 1985, an evaluation showed that academic capacity in the country was far too low, and that the council could not perform its functions. As from 1986, support to research capacity building focused on individuals at universities, research institutes and ministries. At the beginning of the 1990s it came clear that such fragmented support could not contribute to the creation of sustainable research environments. A university reform at the University of Dar es Salaam (UDSM) made it possible for Sida to support a

strategic plan for institutional research capacity building at that university. As the Government of Tanzania is now extending this process to the entire sub-sector, the logical sequence is to move to a systemic approach to capacity building as opportunities emerge.

The main objective of the cooperation has been to facilitate the development of research capacity at the UDSM through:

- promotion of the university reform programme at UDSM
- support of the setting up of structures for Research Management
- research cooperation between the UDSM and the Swedish universities
- research training within research cooperation projects.

The intended outputs were the following:

- strengthened and empowered human resource for more active participation in the development process of Tanzania
- broadened Tanzania's knowledge base
- strengthened links between research and other institutions in society.

The agreement for the period January 2001–June 2004 amounted to SEK 84.5 million, supporting 15 research projects. The current Sida agreement on research cooperation amounts to SEK 155 million for the period July 2004 to June 2008, and covers research cooperation in the fields of health, science, engineering, marine sciences, linguistics, business and architecture / land surveying at the UDSM. A total of 13 projects are being supported. The cooperation involves a number of Swedish universities as cooperation partners. Sida support disbursed to Tanzania corresponds to 15–20% of the total budget for the UDSM.

5. Findings

The terms of reference of this evaluation list five evaluation domains for the study: effectiveness, impact, relevance, sustainability and efficiency. In addition, the team has been asked to assess the extent to which the set-up of the programme and its management may have influenced the effectiveness, efficiency and impact of the bilateral research programmes. The findings of the evaluation on these six study areas are presented and discussed in this chapter under separate headings. Since these areas are interrelated, overlaps in discussing the separate domains are difficult to avoid. Cross-references are used to limit disturbing repetitions.

In the evaluation, the team has followed the OECD (2002) definitions of the five evaluation domains. Briefly, they read as follows:

Effectiveness is the extent to which the development intervention's objectives were achieved, or are expected to be achieved, taking into account their relative importance.

Impact is the positive and negative, primary and secondary long-term effects produced by a development intervention, directly or indirectly, intended or unintended.

Relevance is the extent to which the objectives of a development intervention are consistent with beneficiaries' requirements, country needs, global priorities and partners' and donors' policies. Retrospectively, the question of relevance often becomes a question as to whether the objectives of an intervention or its design are still appropriate given changed circumstances.

Sustainability is the continuation of benefit from a development intervention after major development assistance has been completed.

Efficiency is a measure of how economically resources/inputs (funds, expertise, time, etc.) are converted to results.

5.1 Effectiveness

The objective of the Sida/SAREC bilateral research programme is to strengthen the research capacity of developing countries and their access to knowledge in areas of central importance for poverty-reducing development. Sida/SAREC has its own Board and its own support modalities, but forms part of the Sida portfolio of programmes and Swedish development cooperation efforts in general. Hence, the programme should also ‘create conditions to support processes that lead to poverty reduction in partner countries’ (Sida objective) and ‘contribute to make it possible for poor people to improve the quality of their lives’ (Swedish development cooperation objective).

Ideally, effectiveness can be measured against verifiable indicators which have been specified at the beginning of a programme or project. The Sida/SAREC bilateral research programme inclines towards a *process approach*, allowing for flexibility during implementation in the face of changing circumstances, needs and lessons learned. In the programme it has not been and is still *not common practice to be overly quantitative about expected outputs or planned effects*. Benchmarking of the starting situation before an intervention takes place is not undertaken systematically. However, even in a process approach benchmarking can be a good tool to regularly check if ‘the process’ is progressing towards the long-term goals of the cooperation.

The ‘starting position’ of a Sida/SAREC programme in a country is determined in another way during a fairly rigorous identification process. A first exploration is made by Sida/SAREC in consultation with the Swedish Embassy. Next, an external consultant or national body is commissioned to perform an analysis of the research landscape and the research financing in the country. Then a dialogue takes place between Sida/SAREC and the highest authority regarding research in the country (ministry or council) to prioritize themes and institutions that could be included in the Sida/SAREC bilateral research programme. A financial audit of the selected institution(s) is performed, or use is made of a recent financial audit performed on behalf of another donor. At the institution(s), a workshop is organized between the institution and Sida/SAREC to discuss how the Sida/SAREC support should be organized, which disciplines need to be supported and whether a common theme can be identified.

Obviously, *institutional development plans and policy documents* play an important role in the identification of real institutional needs instead of parochial demands. Many of the partner institutions in the Sida/SAREC programme lacked and still lack good policy frameworks, including a research policy. Although the research projects at these institutions do help to build research capacity, this may not always have institution-wide backing. It is fair to say that the research projects in the programmes were suggested by more progressive minds and not by those that were opposed to change.

Of the partners, UDSM in Tanzania is probably ahead of the others in terms of developing and updating institutional policies and strategies, as well as linking the institution’s thrust to national development priorities. Also, UMSS in Bolivia can be mentioned as a positive example, because it has a Master Plan for research, which has been reviewed by international experts, and is implemented through a modern administration with management and accounting systems and support in the form of ICT. At the UEM, research policy processes were supported by Sida/SAREC in the 1980s and 1990s with promising results, but the policies have unfortunately not been updated for some time.

Agreements with countries or institutions are usually quite generally stated. More details, specific goals and time-lines can be found in the project assessment documents. Project documents, however, usually do not contain logical frameworks. It is not compulsory. Sida/SAREC claims that the articulation of the proposals is based on a logical framework analysis.

Given this approach and practice, it is not easy to accurately 'measure' the extent to which programme objectives have been achieved in an accurate or quantitative manner. The documentation on the agreements in the four countries is not very accessible in terms of giving a quick insight into the question of whether the results are better or worse than planned or expected.

Overall it can be said that research projects and other activities which are being carried out in the four countries are fully *in line with the objectives of the bilateral research programme* as they make a contribution to strengthening the research capacity of developing countries. The success of these projects and activities in achieving their objectives varies considerably between institutions and within institutions. The reasons for this are manifold, and the ones of a more general nature will be discussed below. The research projects are doing fairly well and it is positive to note that interdisciplinary research is on the rise.

Box 2. Indicators of achievements in graduate research training

Bolivia

The 9 projects in the Humanities and Social Science had by the end of 2005 started or completed graduate programmes for 58 students. Of these, 29 were PhDs, near the goal of 27 in the agreement with Sida-SAREC. The number of publications in international journals was only 12, still far from the (unspecified) target, while 52 papers had been published in local and national journals, and 87 papers presented at conferences.

The 11 projects in science-based fields had by the end of 2005 started or completed graduate programmes for 48 students. Of these, 25 were PhDs, near the stated goal of 26. Also, 45 technicians, 22 females and 23 males, had been trained. By mid-2005, the number of publications in international journals was only 27, still far from the (unspecified) target, while 37 papers had been published in local and national journals, and 47 papers presented at conferences.

Tanzania

The Sida/SAREC bilateral research programme has supported 182 candidates (60% female) to do postgraduate research since 1998, and 73 of these have graduated (at September 2003) and are employed at Government departments, agencies, NGOs or at UDSM. The research cooperation programme included a total of 47 PhD students and 115 master's degree students during 2001 – 2003. These students have been enrolled either in collaborative research programmes or been granted scholarships to participate in local master's degree training. More than 200 reports and articles were produced during the 2001 – 2003 period, approximately half of the articles in international scientific journals.

Mozambique

Three post-Doctoral degrees, 11 PhD degrees, and 26 Masters degrees have been granted so far from the Sida/SAREC collaboration support period 2001–2005. A further 36 PhD and 10 MSc students are continuing their training. In this period, around 120 publications and 40 conference presentations have been produced from the research projects supported. A further 33 publications have been submitted for publication.

Nicaragua

The number of PhDs have increased in the last five years. Before then only 3 PhDs had graduated from the SAREC programme in Nicaragua (both at UNAN-León). Particularly at UNA, the number of PhDs has increased since the year 2000, and the average time for completing a PhD degree is down to approximately 4.5 years. UNAN-León has seen a similar development during the last agreement period (2004–2008), and particularly the newly recruited students are advancing much faster than for the 'older' students. The two PhD programmes at UNI are running approximately six months behind schedule. Since July 2005, the students have been allocated full-time to research activities (i.e. no teaching duties) to recover some of the 'time lost'. At UNI, two are expected to graduate in 2006. The UNAN-Managua is the youngest programme and there is therefore no clear picture of the results yet. Nevertheless, the two first PhDs graduated in 2005 and 2006.

There is little doubt that in the four countries the *research capacity building at the institutions would not have taken place to the extent achieved to date without Sida/SAREC support*. It is fair to say that in Bolivia and Nicaragua no systematic research capacity building would have taken place without Sida/SAREC support. In Mozambique and Tanzania, other donors are actively supporting research (capacity building), but

none at the same scale as the Sida/SAREC programme. At the UDSM in Tanzania, Swedish support accounts for 80% of the university's research funding. According to the UEM, Sida provides the largest part of the donor support it receives, and comprises up to 45% of the total external funds. All stakeholders in the four countries spoke highly of Sida/SAREC support, despite the fact that not all activities are equally successful. The achievements in the four countries differ due to local circumstances and the length of Sida/SAREC support.

In *Bolivia*, the support for the Ministry of Education has led to some studies and plans, but implementation has been lacking. On the whole, Sida/SAREC support has not produced much at the national level, although the progress on the design of the national plan may prove useful when the political situation is stabilized. At the two universities, research management is improving. Although no quantitative measures were given at the project start, it is clear that the management reforms at the two universities have not yet been fully completed. The situation seems to be particularly difficult at UMSA, while there is substantial progress at UMSS. A particularly important development has been the establishment in 2003 of a research fund at UMSS, financed by Sida/SAREC. A similar activity was started in 2006 at UMSA. Provision of small research grants to research teams, based on proper and well-documented applications, is not only more efficient, it is also much more educational than research investments that are selected and financed directly by bureaucrats, for example. The application process helps improve the research culture and seems to be working well at UMSS, where the important research team building now seems to be taking place.

The research projects in Bolivia are fairly successful. Although research careers (the job situation) in the country may not seem particularly attractive at the moment, the newly strengthened research activities at UMSA and UMSS have been able to attract an impressive number of dedicated and very talented young people. Laboratories in science-based fields have been upgraded according to plans and have for the first batch of projects been transformed into an up-to-date standard, a fairly unique situation at Bolivian universities. The training of staff has been extensive, but according to the plans has generally run on schedule. The first students from PhD programmes are graduating in 2005/6.

In *Nicaragua*, the team noticed a qualitative leap in the agreements since the previous evaluation in 2002. Generally, the four universities are progressing well towards the objectives, though there are differences between them. There are several positive indications that some of the programmes are getting closer to Sida/SAREC's long-term objective of the cooperation.

At UNAN-León, the research capacity has reached a level where they are now able to attract competitive research funds from other sources than Sida/SAREC. Both at UNA and UNAN-León, there are a number of PhDs graduates who can now take on supervision of new students on the programme together with their Swedish counterparts ('closed sandwich'). All four universities have started or are initiating MSc programmes, designed by the experiences gained by the staff taking part in the Sida/SAREC cooperation. Researchers from the Sida/SAREC research projects have on several occasions over the past five years been invited as experts in their field to take part in national commissions, for example, to draft new legislation. UNI has also played an important role in the development of internet in the country, and has been a catalyst for innovation clusters in this area.

In relation to the specific objectives for institutional development 2004–2008, UNAN-León approved a research policy (in 2003), and the remaining three institutions have all prepared draft policies and strategies ready to be presented to each university council. Both the administration and management of research have become more efficient. The audit systems have improved.

Regarding the research training objectives (2004–2008), new models with a focus on inter-disciplinary research groups have been implemented at UNAN-León and UNA. Generally, all research programmes seem to have gained pace compared to during previous agreement periods. Links are getting stronger between the Sida/SAREC supported research groups and counterparts outside the university. Some of the groups have well-developed links and/or collaboration arrangements.

In *Tanzania*, the support to reform and management of UDSM has been successful in achieving the strategic objectives and is now regarded as a recurrent activity within UDSM. As a result, Sida/SAREC has phased out support for the reform programme during phase 2, 2001–2004. The human resource development comprises an increased number of postgraduate staff assuring quality for all the three core activities at UDSM (teaching, research and service to society). This development also seems to comprise a way of overcoming a problematic age profile. Depending on the specific situation at a given faculty or unit, Sida/SAREC has shown the flexibility necessary to keep and increase the activities. The major issue has been to allow staff members to join master's training programmes rather than a PhD programme, when no recruitment base for PhD training existed. The bilateral research programme has opened up avenues for other initiatives such as regional collaboration, curriculum development and collaboration with stakeholders outside the university.

The support in *Mozambique* has produced results at the project level, but has not led to major achievements at the institutional level. In spite of the fact that financial management has affected activities in the period 2003–2005, the majority of the projects have fulfilled, or are approaching, the goals stated in their applications. PhD training suffered from delays and only 11 of the 47 PhD training programmes were completed within the planned timeframe. Some projects were less successful in completing their goals due to unexpected external factors, but still demonstrated strong incentives to attain the best possible results. Institutional support to research leads to achievements such as courses on research methodology, work on research policy development, evaluation of MSc training at UEM, scientific seminars, staff training and support to maintenance of equipment and other minor activities. The research environment at UEM, however, remains weak. Teachers at UEM often have several jobs, leaving them little time for attending to teaching. Incentives for research are weak and post-doc research activities are not common.

When it comes to the contributions which the research projects and activities make towards poverty reduction, the picture is less encouraging. Despite the fact that projects and activities, in the judgement of the evaluators, tend to be relevant to the local and institutional context, *the results of the projects do not easily find their way to users in society or in the private sector, and only incidentally are they directly applied in processes that lead to poverty reduction.* One reason for this may be that Sida/SAREC is not emphasizing direct poverty alleviation in the selection of research projects at the institutions. Another possible reason may be that wealth created from increased knowledge does not come instantly, but is an indirect consequence (see Box 1). Contributions to poverty alleviation are assumed to be implicit in the priorities of the institution and the country. The evaluation team is of the opinion that a more direct link with poverty reduction objectives can be achieved during the articulation and selection of project activities without compromising the quality of the research or research training.

The factors which seem to affect the results of the Sida/SAREC programmes at the institutions have to do with institutional cultures, the presence of effective institutional policies and administrative arrangements. Also, the level of interfacing of the research cooperation programme with other Sida programmes in the country, national policies and other donor programmes plays a role.

Except for the UDSM in Tanzania, the institutions in the three other countries do *not yet have a widespread research culture*. They are teaching universities which, through Sida/SAREC support, have the opportunity to develop research capacity. The signs of a weak research culture are the absence of a research agenda, research management systems, research funds, incentives and rewards for doing research, and enabling working conditions and duty rosters for the staff. In Nicaragua and Bolivia, attitudes and practices at the universities are starting to move in the right direction thanks to the programme. But in both countries, more so than in Tanzania and Mozambique, there is still a considerable lack in research infrastructure, and a limited number of trained staff to do research.

At the UEM, Sida/SAREC support enabled the construction in the 1980s of a fragile research system, and this developed well for a number of years until the mid-to-late 1990s. This system was very influential in shaping UEM's later successful university strategy process in the early 1990s, which became a well-known model for other African university development strategies. However, it suffered during the five years without an Academic Vice-Rector. This left projects hanging with a weak ability either to link them to others or to build research teams.

Box 3. The difficult transition from teaching to research university

Bolivian universities have a history as teaching universities and fast-growing student numbers in recent years have forced them to remain in this role. Research activities are weak and graduate programmes rare. However, in order to produce graduates that satisfy labour market needs in a high-technology 21st century and to support development in Bolivia, university research must be strengthened and integrated with the educational activities. Sida/SAREC cooperation provides opportunities for doing so at the two largest universities in Bolivia with a total of almost 150,000 students. Many university researchers are excited about the new opportunity and a huge mass of talent among the students provides an excellent background for the reforms. However, the traditional low priority given to university research and excessive university bureaucracy present severe obstacles to the programme. While teaching universities, doing the same thing year after year, may function under slow and inefficient administrations, research universities require fast and efficient actions from their university management. While one of the two universities in Bolivia is adjusting to the new demands, a severe conflict between researchers and university bureaucrats is building up at the other. It remains to be seen whether Sida/SAREC support can turn this situation around for the benefit of Bolivian development.

A major obstacle in achieving greater effectiveness is the absence of institutional and individual capacity to prepare research proposals and to find external research funds. The institutions and research projects do not pay enough attention to this, thereby jeopardizing the longer-term effects of the training. Apparently at UDSM, the importance of this issue has now been recognized and is given high priority.

It is unfortunate that in all four countries *the interfacing of the Sida/SAREC-financed research with other Sida projects and programmes in the country seems to be weak*. This is a missed opportunity for Sida as a whole because it could make good use of the capacity generated through the Sida/SAREC research programme. And it is a missed opportunity for the Sida/SAREC programme since other Sida activities in the partner countries create opportunities for inserting research that will be applied and contribute more directly to poverty reduction. It seems that after the identification and formulation of an agreement, the interest from the Swedish Embassy and Sida/SAREC for each other's programmes fade away. Possible reasons for this are discussed in section 5.6. It is not only the links with other Sida programmes in the countries that are weak, but the links with programmes of other donors are almost non-existent.

At the UDSM in Tanzania, which has now developed a strong internal policy planning tradition, *the links between research activities and national priorities are evident*. Institutional policies are based upon, or link up with national development policies. In the other countries this is not the case, or less obvious due to the absence of national policies, institutional (research) policies, or both. In Mozambique the link between research activities and national priorities exists, although implicitly. With the new science, technology and innovation strategy (MOSTIS) in place, this link can be clearly demonstrated. This strategy, in draft form at present, has detailed descriptions of the key programmatic areas (in agriculture, health, energy, marine science, construction, water, mineral resources, environmental sustainability, ethnobotany and biotechnology) which include those where Sida/SAREC – UEM collaboration is already funding research.

Finally, it is not standard practice in the Sida/SAREC bilateral research programme to fund the development of master's degree programmes in the framework of research capacity building efforts. However, in Tanzania, Nicaragua and Mozambique, opportunities for this have been created as no recruitment base for PhD candidates existed. The team finds this a good strategy. Research capacity building must be grounded in a strong and mutually beneficial relationship between research and teaching programmes, in which research enriches the content of education and good candidates are prepared for doing research. The importance of this relationship is underlined by Sida itself when it states: "There is a strong mutual interdependence between higher education and research. Universities are responsible for the training of researchers. The university based research benefits from flexible contacts between disciplines and by the interaction with students. The research university offers education which fosters a critical and questioning mind" (Sida, 1998). The team believes that the effectiveness of Sida/SAREC efforts are increased *when research capacity building is effectively linked with support to graduate teaching programmes*. This will be discussed in more detail in the chapter on programme design.

5.2 Impact

In research cooperation programmes, impact may be found in improved knowledge and changed attitudes of researchers, policy-relevant research results, applicable and user-relevant research results, and increased individual and institutional research capacity, among others.

The previous paragraph mentioned that good results and *considerable achievements* have been reported for the research projects in Bolivia, Nicaragua and Tanzania. In Mozambique the achievements have to some extent been negatively influenced by local corruption practices involving Swedish development funds and the lack of academic leadership.

The building of sustainable research capacity is a long-term affair and the impact will take time to materialize. *Capacity development passes through stages* and the impact will be broadened and be more far-reaching when the capacity is fully developed. The Bolivian country report contains a very useful description of the development stages of research capacity development projects, such as those supported by the Sida/SAREC bilateral research programme. It is usually assumed that the support for a given research capacity project will last 10–15 years, and that the project develops considerably during this period. Three 'development' stages may be distinguished:

Stage 1. At first there is a great need for academic training, especially in the form of degree programmes and for upgrading of laboratories and equipment in basic science fields. The projects do not yet produce extensive outputs, but a great deal of research management training takes place; this often includes practice in competitive research funding, international publishing, etc.

Stage 2. Later on, the projects often see a reduced need for research degree programmes, and the laboratories have become much more satisfactory, although progress in research

may call for some additional equipment. However, the need for funding for active research, for example by newly returned PhDs, is increasing fast. Whenever possible, such funding could be given through small grants. The projects are now becoming much more productive; they have expanded the number of national and international research partners and regular publishing in international journals takes place. Based on this strength graduate programmes may be established or upgraded, possibly in cooperation with other groups in the country that work in a similar field.

Stage 3. Finally, the projects become strong and independently productive. The cost of the research activities may increase slightly compared with Stage 2; repair and maintenance of equipment starts to appear as an additional cost. Sida/SAREC is gradually reducing its support for projects at this stage. In return, the projects have started locating other kinds of research financing, for example from national or regional public sources, industry, international organizations, other bilateral donors, through MSc or PhD programmes, or even through loans from development banks. With their documented productivity and experience in proposal writing, etc., the successful projects will be highly competitive in this connection.

Looking at the projects of the programmes in the four countries, it seems that most projects in Nicaragua and Bolivia are at stage 1 or entering phase 2. The same applies to most projects at the UEM in Mozambique. At UDSM in Tanzania a number of projects are somewhere between stage 2 and 3. They are cooperating with national and international research partners, have revived journals and have established good working relations with external partners in government, society and the private sector.

The change of approach within the programme from an individual and fragmented to a focused approach has definitively had positive consequences for the effectiveness of the programme activities and the impact of their results. The combination of support to research projects, research management, infrastructure and policy development has generated added value at the institutions in the four countries. The team in Nicaragua was impressed by the progress made over the last few years and had the impression that in this period more had been achieved than in the preceding 15 years.

In general, the research projects generate a lot of enthusiasm among staff and students and, as is reported from *Bolivia*, attract a great number of dedicated and talented young people. Unfortunately this enthusiasm is not met with supportive understanding about the importance of research in the institution at large. It also hurts the PhD students who are not always given proper opportunities for their work during sandwich visits in Bolivia.

The impact of research capacity building in *Nicaraguan society* as a whole is still relatively small. There are however a number of good examples in several areas, where the impact is perceivable. Research groups at several of the universities have been established and though not yet 'sustainable' they are in a process of reaching a certain level of capacity to address relevant research issues in the country. The cooperation has had a positive impact on the quality of undergraduate and postgraduate education at the four universities. The SAREC-trained researchers are increasingly asked to give expert advice through participation in working groups, for example, when drafting new legislation.

Box 4. Chemical Engineering and Instant Coffee in Nicaragua

Café Soluble S.A. is an independent company, producing instant and roasted coffee for the market in Nicaragua and El Salvador. Its main competitor is Nestle, but Café Soluble has managed to maintain a considerable share of the local market. The Director of Processing, Mr Fabio Luna (PhD), and the Manufacturing Manager, Ms Marcia Vidaurre (TkLic), are both from the SAREC programme at UNI. Through their contribution, the company obtained ISO 9000 certification six years ago. The company maintains its links to the university and they have employed several engineers (BSc) from UNI. Undergraduate students are regularly invited to do their thesis field work at the company's plant in Managua.

The computer engineering research group at UNI has played an important role in catalyzing development of the internet structure in Nicaragua. The engineers are also frequently contracted for consultancy work. The cooperation between the Occupational Health team at UNAN-León and the Workers Union is promoting better conditions for workers in factories in Nicaragua.

The large majority of the Sida/SAREC-supported research teams have established good links with stakeholders in society. There are examples of links to governmental organizations, private companies, and NGOs. These contacts can be used for identifying and/or finding solutions to problems where elements of research is needed, for dissemination of results, and for consultancies or extension services.

Considerable impact can be reported about the Sida/SAREC programme at UDSM in *Tanzania*. Sida/SAREC support constitutes about 80% of all research resources at UDSM and has had an impact on human resource development, the status of research equipment and facilities, improved teaching, the revival of journals, and management of the university. The Tanzania report cites many examples of the impact of the Sida/SAREC programme at institutional, departmental and societal level.

It is noteworthy that a number of research units at UDSM have managed to develop direct links to ministries concerned of specific societal problem solving. There is a clear tendency that the impact of the research support to UDSM is to find governmental bodies in Tanzania recognizing existing local expertise to be used instead of expensive international consultancy. The concept and practice of local innovation systems with UDSM as a strong stakeholder is evolving due to support from Sida/SAREC. The interest of the World Bank is an indicator of the latter.

The support from Sida/SAREC to the transformation processes of UDSM (ITP) has been the foundation for UDSM to enhance its reputation and increase its appeal not only to prospective students and researchers, but also to private and public bodies. The fact that UDSM currently holds 13th place on a ranking list of African universities is a strong indicator for results of the ITP.

At the UEM in *Mozambique* a set of competent researchers have emerged but they need further pushing towards international prominence. There are not many really senior staff yet with good PhD supervisory skills. Most researchers have very punctuated careers, taking a long time to get PhDs and then with long gaps in post-doctoral periods. There are very few career long researchers. The promotion system at the UEM does not seem to allow for research careers.

The relations with the Research Institutes in the country, which themselves are weak, with no real centres of excellence, are very weak.

Except for Bolivia, where the programme is still young, the projects in the other countries have resulted in *regionally published articles*, either in print or on the Internet. In Tanzania, Nicaragua and to some extent Mozambique, the research activities have led to the *reform of a number of curricula*. In Bolivia this also occurred, but not in a formal manner.

International research cooperation and research networks have evolved as a result of Sida/SAREC activities in Bolivia and Tanzania, and to a lesser extent in Mozambique and Nicaragua. In the latter two, more would have been expected considering the long period of collaboration.

Sida/SAREC has been instrumental in the development of *policies and strategies for research* at the UDSM, the UEM, the Nicaraguan institutions and in one of the two participating Bolivian universities.

Sida/SAREC collaboration in Mozambique has had a shaping effect on research policy, particularly regarding relevance and the role of research at the institution. The positive influence of policies and strategies for research is clearly visible at the institutions where they are operational. Policies and strategies for research form an indispensable part of a good research environment.

In Bolivia and Nicaragua, the problem of *brain drain* is not yet acute, as the number of well-trained researchers is still low. This situation is different in Mozambique and Tanzania, but the team did not hear alarming stories about brain drain. It would appear that trained people find employment in the country if they do not stay at the university. In Tanzania, the brain drain seems to be a domestic problem at, for instance, the Centre of Engineering and Technology (CoET) or Computing Centre, where students get jobs before they have graduated because of the high demand for their competences in society. This is certainly the case for a number of postgraduate students as well. For staff members, consultancy assignments are an incentive to stay with the organization. At the Faculty of Science (FoS), the research environment is an important asset used to keep trained staff on board.

With regard to the contribution of the Sida/SAREC bilateral research programme to promote *gender issues*, the results are mixed. At the UEM in Mozambique, only 26% of the students and 23% of the UEM staff were women in 2003. In the document 'Output from Research Projects 2001–2005' prepared by the UEM, no systematic information is provided regarding gender issues. The issue is included in the UEM strategic plan and faculties have made special efforts to increase the number of female students. In spite of these measures, gender parity problems remain unsolved at the university. Gender objectives will not be reached unless additional funds are allocated and more action is taken to increase the number of women students, researchers and teaching staff (Sida, 2006b).

In Bolivia there is a remarkable difference in gender balance between the humanities/social sciences (H&SS) and the science-based fields of studies (see Box 5). There is little doubt that the H&SS research projects have many outstanding female talents among their undergraduate students, and a failure to mobilize such talent makes the research less efficient.

Box 5. Bolivia: An excellent gender balance in the science-based projects

The gender balance in the 11 S&T projects in Bolivia is unusually good at all levels, if 50% females and 50% males is considered the ideal distribution. Among the teachers/researchers involved were 20 women and 27 men, while among the graduate students and those recently graduated with research degrees (MSc and PhD), 29 were women and 19 were men. Among the technicians trained under the project were 22 women and 23 men. In total, 71 women and 69 men were involved in the 11 S&T projects. This is a much better gender balance than the international average in science-based subjects.

Unfortunately, the projects in humanities and social sciences are far behind. Not only is the ratio between males and females involved in these projects dramatically skewed in favour of men (roughly 2 to 1), this difference is conspicuous across the board at all levels of involvement in the programme, and at both universities. Even more worrying is the fact that among the individuals enrolled on graduate programmes, there were 42 men and only 16 women.

At the UDSM in Tanzania, gender issues feature prominently on the agenda of the institution and in many activities. One illustrative example of impact of Sida/SAREC support linked to an explicit UDSM policy is the gender programme (see Box 6). Through a number of equity initiatives implemented across the institution, a Gender Centre is now in place. Gender balance among students has improved, including in the sciences and engineering. Engineering moved from 7% to 21% in two years, and the willingness to change the environment to be conducive for both students and staff is ongoing. In general, gender balance among the staff is on the rise, though mainstreaming efforts need to be put in place. The Gender Centre is working on this.

Box 6. The gender programme at UDSM, Tanzania

The impact of the gender programme can be traced at various levels. The Sida/SAREC support has enabled UDSM to build awareness and acceptance of the need for gender equality processes at UDSM and has allowing them to put in place various interventions aimed at Gender Mainstreaming. It has also built skills for processes of gender mainstreaming by enabling the training of a number of key UDSM actors and decision makers to incorporate gender perspectives in their policy and decision-making processes. This includes adherence to the basics of gender budgeting. The bursar and some key staff in planning and finance have undergone training for gender budgeting.

One impact is further enhancement of conceptual and theoretical knowledge on gender equality. This has enabled the University management and its stakeholders to accept and implement a number of progressive initiatives i.e. review of UDSM major policies from a gender perspective, to set a specific gender programme across the University to facilitate and oversee the implementation of gender equality measures.

An impressive impact is that the programme now has graduated to a 'Gender Centre' which is a clear growth on the acceptance of the need for serious institutionalization of the gender mainstreaming process/strategy.

Other impacts and outputs are the presence of an anti-sexual harassment policy and a university-wide gender policy. Work practices and criteria for employment e.g. in the medical field have been adapted to make it easier for women to join the faculty. The UDSM Charter, which is in the making, clearly identifies the need for gender equality. Research funds (though small) have been dedicated to mobilize female academics into research and publishing, to create a support environment, as well to provide them with the necessary basis to expedite their promotion to senior positions within the Academy. An advocacy and communication strategy for gender initiatives at UDSM is in place.

The evaluation has not been able to collect much data on the impact of Sida/SAREC financed research in the fight against *HIV/AIDS* or in addressing the far-reaching consequences of the disease on the staff, students and systems at the institutions. In the Nicaraguan agreements, *HIV/AIDS* related issues are not considered in the programme design. The universities do not have special strategies in place to support affected staff.

As was noted in the 2003 UEM evaluation report, *HIV/AIDS* has become increasingly recognized as a problem in Mozambique. Mozambique's Strategic Plan for Higher Education underscores this:

University graduates are a very scarce national resource in Mozambique. So every effort must be undertaken in order to maximize their numbers and productivity. The incidence of a threatening disease like *HIV/AIDS* in the country is therefore potentially devastating.

The prevalence of *HIV/AIDS* is very high in sub-Saharan Africa compared to Latin America, for example. It is wreaking havoc with the development of these African countries. Mozambique has increasingly recognized *HIV/AIDS* as a national problem and donor funding has become available. Whether a reasonable balance has been struck between various health issues affecting the poor is open for discussion. Malaria remains a serious problem as well as that of access to clean water. There are Mozambican programmes for combating *HIV/AIDS* as well as activities within UEM. Three Sida/SAREC funded projects carry out research on *HIV/AIDS*. *HIV/AIDS* is mentioned in the new Science, Technology and Innovation strategy document as one of the key areas to be addressed.

Little information is available on the benefits of international and *regional research programmes* supported by Sida/SAREC for the bilateral research projects. In some projects, it is mentioned in the project documents, but it seems to be of an incidental nature. On the basis of the limited information that the team has gathered on the subject, it is difficult to judge what the real explaining factors are. An educated guess would be that not enough efforts are being undertaken to link the research projects to the opportunities of these programmes. These links (opportunities) include, for example, identification of research topics, the exchange of information about research activities, and the use of the regional research programmes as a training ground for young researchers from bilaterally funded research projects. Clearly, the added value of linking research projects to these programmes is obvious.

5.3 Relevance

The identification process of the Sida/SAREC bilateral research programme in the countries ensures that national and institutional policies and priorities are being given due consideration in the selection of partner institutions and research projects. Even without fully functional research policies at national and institutional level, the portfolio of projects in the four countries seems relevant in the face of local and institutional needs. Hence the articulation and selection process of project proposals (which involves screening by internal committees, Sida/SAREC and external advisers) seem to result in projects which are *relevant because they respond to justifiable needs*.

Whether they are the most relevant in terms of *responding to developmental needs* is another matter. The objective of creating academic research capacity is not always easy to combine with research output that is immediately applicable. Much of the Sida/SAREC-financed research may have a bearing on poverty reduction, but that link is usually indirect.

In *Bolivia* the team found that much of the research in the Sida/SAREC-funded research projects represents development awareness as they deal with real life problems, including problems in very poor regions. But usually these research interests have not been fully implemented in the form of more extensive cooperation with research users, such as industries and authorities, as well as other parts of society, especially poor and indigenous communities. In general, the application of academic knowledge in real life is difficult, especially in developing countries and university-industry cooperation is not particularly common in these countries, where university research often remains within the ivory towers. The relations that are established with indigenous people are often one-sided and concentrate more on academic interests (from a mono-cultural perspective) than on a dialogue about traditional knowledge, methods, etc. In conclusion it may be said that the programme in Bolivia is on track towards the development goals and priorities of Sida as well as towards the Millennium Development Goals; the opportunities for real-life impact must just be used better.

In *Nicaragua*, research topics were generally selected on a basis of identified needs for finding solutions to problems in the country and were then converted into applied research areas. The Nicaraguan plan for poverty reduction (Government of Nicaragua, 2001) does not specifically address research, but several of the Sida/SAREC programmes' research areas seem relevant for achieving the objective of 'broad-based economic growth and structural reform' that includes rural electricity and telecommunications coverage, and the objective of 'greater and better investment in human capital' that addresses preventive health care, child nutrition and strengthening population policy. The occupational health programme at UNAN-León has a direct bearing on preventive health, and the database and management information system for health data are highly relevant experiences. Some programmes, such as the computer programme at UNI, have developed in a direction that was not foreseen at the beginning. The programme on radio communication later proved to be important when the internet development started.

The team is positive about the relevance of the Sida/SAREC bilateral research programme at the UDSM in *Tanzania*. Relevance is explicitly expressed and situated in different areas and with different focuses. The most obvious one is the strong link of UDSM research and teaching activities with national and institutional policies. The research work done at faculties, colleges and units is said to be often directly linked to MKUKUTA, the national strategy for growth and reduction of poverty that was launched in 2005. The management of the UDSM sees relevance for society as a key word for the character of the university.

A clear sign of the relevance of the research at the UDSM is the growing recognition of local expertise at the UDSM by stakeholders in society. With the capacity achieved, direct links to a number of Ministries and Ministers are now in place at the Centre of Engineering and Technology (CoET), for example.

An example from the side of the Humanities is the development of dictionaries, including their wide impact in the region and in East Africa as a whole. The books of the Institute of Kiswahili Research (IKR) are used globally. The multidisciplinary Language of Tanzania project, important also for IKR, is constituting great relevance for the Tanzanian local languages.

However, in other areas the relevance is not yet what it should be, partly due to local circumstances. The relevance of the research at Faculty of Science (FoS) is weak when it comes to economic impact of results. The weakness of the local industries is one of the explaining factors. The liberalization of industry in Tanzania has also not led to using local (Tanzanian) expertise. On the other hand, at this point FoS is not keen to be heavily involved in consultancy, as this will not develop research capacity at the faculty in a systematic way. Also, the country demands FoS to prioritize the production of teachers rather than doing research in industry.

In *Mozambique*, relevance to the national development process has always been a part of the process by which projects are proposed and assessed. Projects in science and engineering, for example, have tended to focus on local product enhancement and on sustainability issues, such as renewable energy and environmental science.

The recent programme includes fourteen projects. Of these, three concern HIV/AIDS issues (from health, social/cultural perspectives), and no fewer than seven focus on environment and sustainability (including appropriate construction methods, natural resource processing, water management and soil fertility). Others concern local animal and food process improvement.

All proposed projects for the period 2006–2009 fit closely with the new national science, technology and innovation strategy (MOSTIS).

Box 7. Research and poverty alleviation/MDGs in Mozambique

The UEM is part of the body which implements the national poverty alleviation strategy, which is under the Prime Ministers office. The UEM has produced, as part of its reporting on its Open Fund (a university managed scheme funded by a set of donors including Sida/SAREC), a list of 24 Open Fund projects with impact on poverty alleviation. The research programmes, which have a multidisciplinary approach, represent the contribution of the university to guarantee food security, use of renewable energy, sustainable use of natural resources, and improvement of the quality of life. The university Open Fund has, as one of its criteria, the 'contribution to solve urgent and important problems of the population'.

Of the Sida/SAREC research projects which were funded in the period 1998–2005, seven were linked to environmental sustainability, one to schools education/gender, and one to public health/HIV/AIDS.

Summarizing, the team observes that most Sida/SAREC-financed research contributes 'to create conditions and to support processes that lead to poverty reduction in partner countries' (Sida objective) and 'to make it possible for poor people to improve the quality of their lives' (Swedish development co-operation objective), but in many instances *the effects will be indirect and long-term*.

In order to further increase the developmental relevance of its programmes, Sida/SAREC should, without neglecting long term goals, consider giving higher priority to research projects that are able, directly or indirectly, to improve conditions for the poor, including projects that are able to increase

economic growth in general. Thus, Sida/SAREC should encourage research projects to *open up for cooperation with users of research*, from the fostering of intercultural relationships with indigenous or poor groups to participation in innovation clusters.

5.4 Sustainability

Sustainability has a number of distinct, but related dimensions:

- *Academic*: has the institution sufficient staff capable of carrying out the education and research duties?
- *Institutional*: has the output of the project been integrated in the structure and system of the institution?
- *Organizational*: has the institution the vision, strategies and management to support and build upon the results of the project activities?
- *Financial*: do the institutions or do individual projects have access to the financial means required to continue the project activities when Sida/SAREC support comes to an end?

As mentioned in the section on impact, *research capacity building goes through stages*. In the first stage the emphasis is on the training of researchers who can carry out research at the international level in cooperation with experienced researchers elsewhere. Complete research capacity in a given field is reached (second stage) when researchers are able to perform all aspects of research and related training in the field, from the planning process to the dissemination of results at the international level, and they have the funds and facilities to do research. At the third stage, national research capacity is reached when a country is able to prioritize research activities; to efficiently provide support for selected research projects; to monitor and evaluate research; to train, attract, and keep good researchers in the country; to create conducive research environments; and to apply research outcomes – both in the form of research training and results – for national development. There is no sharp threshold for these capacities. Each level is reached gradually, and sometimes slowly.

For example, many industrialized countries are still far from creating a satisfactory national research capacity. Moreover, it is worth emphasizing that research capacity created at the first and second level are more difficult to sustain if a sufficient degree of national research capacity has not been established.

Of the four countries, the Sida/SAREC programme has the longest history in Mozambique and Tanzania. In those years many staff members have been trained at the PhD level and have kept or gained employment at their university. In Nicaragua and especially Bolivia, the *critical mass of researchers* is still small, but increasing. However, in Bolivia many of the new PhDs fear that they will not be able to obtain satisfactory employment at the universities. Due to the difficult financial situation at the universities and the lack of manpower planning, the well-trained young PhDs that would be able to significantly improve education and research culture and productivity in Bolivian universities may not be properly employed after their return. It is particularly serious at UMSS, because of the large number of graduate students without full-time university employment as well as the existing regulations and budget conditions. This is one of the reasons that UMSS has changed the *selection procedures for graduate students* and has sent more senior staff members for graduate training instead of younger, more talented students.

While *working conditions and salaries* for full-time employees in Bolivia and Nicaragua are at an acceptable level, this is not the case in the African countries, especially not in Mozambique. Salaries are so low that university staff have to take side jobs in order to make a decent living. Without the necessary *financial incentives*, in terms of research funds or consultancies, and *academic incentives*, in terms of credits for doing research and conference visits, the conditions for continued research after obtaining a PhD are not favourable.

At least at the UDSM the *research environment* seems to be taking shape, with research policies and strategies in place, possibilities for staff to be engaged in externally funded research activities, the revival of in-house scientific journals, and functional links with users of research. The support from Sida/SAREC has contributed a lot to improve academic quality, which is a condition for funding especially when it comes to funding by parties others than the donors involved in basic capacity building. Achievements of this kind can be recognized in certain parts of UDSM research activities, especially those actively approaching the private and public sector in Tanzania. The academic quality includes capacity to produce fundable proposals, internally and externally. It is apparent that research management and academic leadership are vital competences at departmental, faculty and central level of the UDSM. Sida/SAREC has been active in supporting capacity building at the faculty level as well as in the long term transformation process of the UDSM.

This improved research environment has strongly enhanced the *academic standing of the university* and has attracted the attention of outsiders. It has led to academic collaboration with universities abroad and created demands for advice and contract research from government and the private sector. These developments form important conditions for achieving sustainability in all four dimensions. However, *heavy dependence on contract research and donor funding is not a healthy basis to maintain quality in the research capacity*. The national government should make sufficient funds available for academic, but relevant research at the universities and research centres in the country.

At the institutions in the three other countries, a *research culture is still lacking* – although in Nicaragua and at UMSS in Bolivia institutional policies are being drafted – and the driving force is the research interest of individual staff and students rather than the management of the institution. The lack of institutional incentives to do research is apparent.

In Nicaragua, the highly politicized election system at university and faculty level is a continuous threat to stability – and sustainability. None of the research groups are currently sustainable without the Sida/SAREC financial input. The vast majority still depends solely on Sida/SAREC for funding. Interesting to note, though, the infectious diseases group at UNAN-León has managed to attract funds in competition with other Central American universities for a partnership with Glaxo-Wellcome for a three-year research project regarding development of new vaccines.

Despite some of these incidental success stories, the *financial sustainability of the Sida/SAREC research activities is worrying*. Many of the research projects in Bolivia, Nicaragua and Mozambique are still satisfied with the support from Sida/SAREC and do not actively seek other sources of financing.

The programme does not seem to *systematically address the sustainability issue in the planning and implementation of projects*, with the exception of the ICT support projects to universities, in which the universities have been forced to include sustainability in their plans, as a crucial component of the project design. The universities had to make provisions for salaries, maintenance and repairs, consumables, and required services (such as Internet connectivity). According to the report on the evaluation of 12 of these projects (Greenberg, 2006), the success rate of the few projects that have been completed is reasonably good. For projects just completing, there seems to be cases where sustainability has not been met, but will with relatively minor programme extensions.

These lessons from the ICT projects should be taken to heart in all other Sida/SAREC activities, and the team is convinced that the sustainability issue should be incorporated in the planning and implementation stages of all Sida/SAREC-financed research.

In general, with regard to sustainability of projects, care should be taken that:

- it is properly embedded in the plans, systems and processes of the organization
- the recurrent costs and replacements costs for the project's activities are included in regular budgets

- the project activities are linked to the research and education agenda of the organization
- staff are motivated and have the time to continue the activities implemented under the project.

In a way, this constitutes the enabling environment which Sida/SAREC is trying to build in the institutions.

Other aspects which positively influence the sustainability of projects include good collaboration with internal and external partners and smooth project implementation. Personal commitment of the collaborators, a shared vision, and a healthy balance between mutual interest in the collaboration are important driving forces for successful implementation. During the identification stage of projects these aspects should get ample consideration.

It is important that the ongoing projects keep track of their general progress in terms of project stages. If they fall behind their plan, action must be taken. Presently, the older projects must make sure that they are entering the second stage in all relevant respects. In general, from an early stage, the projects must keep in mind that they will have to develop alternative financing for a future without Sida/SAREC support.

Additional funding, e.g. from government, industry and agriculture, will not only satisfy the economic needs of the research projects, but may also lead to new and interesting research activities. From the start, the programme should be more oriented towards getting financial resources from outside sources (e.g. the industrial sector), but there are several factors that make this difficult to achieve: often local industries are small and without the financial capacity to support research activities and/or they do not have that tradition – and may even hold prejudices against universities. Furthermore, in low income countries the industrial sector that has expanded most during the last 10 years is the transnational manufacturing industry, with little interest in national priorities or interest in wider investments in the country.

5.5 Efficiency

The assessment of efficiency is easier to handle when interventions have concrete and measurable outputs and inputs, and have predictable timeframes. Building a bridge is an example of a concrete intervention with measurable inputs and outputs and a construction period that can be calculated with certain accuracy. Research capacity building is a different kettle of fish. The long-term goals maybe fairly well described, but the road to them is far from straight. There are many intervening factors which determine the speed and success of the process. These are of a political, economical and administrative nature at donor, country and institutional levels. These factors determine to a large extent how economically resources/inputs (funds, expertise, time, etc.) are converted to results.

As pointed out before, the process approach that characterizes the Sida/SAREC programme, complicates the assessment of efficiency of projects and activities. In this approach, which seems sensible in capacity building programmes at this level, under-spending might be caused either by a more economical use of resources or a delay in implementation. It all depends on the specific situation and circumstances.

In this evaluation, the leading questions with regard to efficiency include the design of the programme and the measures that have been taken during planning and implementation to ensure that resources were efficiently used.

The aforementioned *change from a fragmented to a more focused approach has not only positively influenced the impact of the programme at the institutions, but also the efficiency.* Increasingly, staff capacity building is being embedded in a strengthening of the research environment of the institutions. In this way, the investments in

individual capacity building have better chances to render the wanted output. Broader support increases the budget, but helps to institutionalize the research capacity building, with positive effects on sustainability of the intervention. Overall, it enhances the efficiency of the programme.

However, the more focused approach has not yet led to greater collaboration between Sida/SAREC-financed research projects at the institutions. Also, opportunities to collaborate with regional partners are underutilized. The evaluators think that *better collaboration between research projects and between researchers* would not only increase the effectiveness of individual activities, but also might lead to efficiency gains.

It is Sida/SAREC policy to place the responsibility for the *financial management of funds as far as possible with the Southern institutions*. This is a laudable principle. At the same time, it may create problems when local and institutional administrative rules and procedures are stumbling blocks in the efficient and proper handling of external funds. In the four countries, there are strict and rigid public administration rules which slow project implementations down considerably. In Nicaragua, the public rules allow a bypass, which is legal and that is used by the Sida/SAREC programme, and at UMSS in Bolivia, a bypass system is used, although the legality is in question.

Efficiency gains have also been made in the programmes because of *improved management structures and administration of the research programmes*, detailed yearly planning and follow-up. The benefits from these practices have been clearly observed in various projects. In Nicaragua, there is also a positive change towards recognition of the role of researchers as equal to other duties as teaching among university staff and faculty leaders. At UNAN-León the existence of research policy and operational guidelines for the research centres, and delegation of responsibilities to the research groups have contributed to improve efficiency. Sida/SAREC's investment in library support and ICT infrastructure has also started to have an impact on the efficiency of the research training. The research administration has improved considerably at all four universities. In 2002, when the last evaluation was made it was not uncommon that research activities were delayed by several months due to late disbursement of funds (internally by the university) or insufficient planning of activities. Apparently this is no longer the case.

In the majority of cases, *collaboration with Swedish partners* functions well. There are many engaged and committed partners on the Swedish side. In Bolivia almost all links seem to be working satisfactorily. In the three other countries the team observed some problems in matching demands for capacity building with the supply in Sweden. Some Swedish partners proved less interested than anticipated, schedules of graduate courses in Sweden were inflexible, and in a number of cases, the Swedish partners failed to take good care of PhD students during their time in Sweden. Given this situation, the UDSM staff in Tanzania suggested that more room should be given for identifying collaborating partners in Sweden, but also outside Sweden, preferably in the region.

In a small number of research projects, the universities already work together with partners in the region. This makes sense for subjects where the Swedish expertise is not compatible or good enough, where there are language problems, and where there are well-qualified institutions in the region. These arrangements seem to work well.

The experiences within the Sida/SAREC programme, and those from other, similar partnership programmes, indicate that successful partnerships are built on personal and institutional commitments from both sides, a shared strategic vision, rigorous planning of goals and expected outcomes, smooth project implementation and *mutual interests*. Although the start of the collaboration originates in the needs of the Southern organization, and the collaboration must be capable of accommodating these needs, it helps when the (Swedish) collaborating organization can also realize some of its own interests within the collaboration. This can take the form of joint research, staff and student exchange, publications, or the creation of academic networks. The principle of mutual interests lays the foundation for long-lasting collaboration which may survive also after the projects are no longer funded by a donor agency.

The *sandwich model* is the common approach in PhD studies. It has the advantage that candidates do most of their research on subjects that have local relevance and maintain contact with their home institution. The cooperation with the graduate advisers at the partner university in Sweden or the region provides much more than graduate training for the research projects; it also provides guidance, e.g. on equipment purchases, and connections with the international networks in each field. The disadvantage is that some candidates take a long time to finish their studies, often due to heavy educational duties when at home. This is particularly the case at institutions which have not yet developed a research culture and which lack the flexibility to accommodate the time needs of the researchers. The Nicaraguan projects seem to be successful in reducing the average time need to complete a sandwich PhD. A better understanding of the importance of research, better management practices and an increased sense of ownership are the main contributing factors.

The selection of older candidates for PhD studies also contributes to prolonged studies, but cannot always be avoided given the staffing situation at the institutions. In many cases older staff could be given alternative, non-degree training opportunities, more short-term, and/or closer to home.

Overall, the institutions in the South are very positive about the *working relationship with Sida/SAREC staff* and about the *flexibility within the programme*. Problems can be openly discussed and adaptations are made when the partners and Sida/SAREC agree on solving specific problems or removing stumbling blocks. The Sida/SAREC desk officer plays an important role in this process. In Tanzania, the Sida/SAREC programme has benefited enormously from the enthusiastic, professional and long-term involvement of one desk officer. This was mentioned by many participants in the Sida/SAREC programme at UDSM. ‘Respectful partnership’ was used to characterize the relationship between UDSM and Sida/SAREC.

Although the Sida/SAREC involvement in Tanzania is not an exception among the Sida/SAREC bilateral research programmes, agreements in some other countries have suffered by a *rapid turn-over of desk officers*. This is not always easy to avoid given the type of work and the professional profile and career ambitions of the desk officers, but it may hurt the relationships with the partners and reduce the institutional memory of the programme.

5.6 Programme Design and Management

This section sets out the observations regarding the extent to which the set-up of the programme and its management has influenced the effectiveness, efficiency and impact of the bilateral research programmes. First the programme characteristics and implementation dilemmas are discussed, then the strengths and weaknesses of the programme are listed.

Programme characteristics

“Sweden has been one of few donor countries that have acknowledged the need to strengthen research capacity at an institutional level, rather than granting training of individuals and research project support. Recently major actors in the donor community have rediscovered the significant role of science and technology for development. From the Swedish experience, Sida suggests three areas where universities and national knowledge systems need to be strengthened: Research Policy, Research Environments and Research Management. The first and the last require that donors cooperate to assist developing countries in their setting up of conducive mechanisms for research. External support for the strengthening of Research Environments should be aligned with National Policies and Research strategies both at national and university level. In Sida’s experience, cooperation between universities in developing countries and Sweden has been found to strengthen both local research environments and international scientific information exchange” (Kjellqvist, 2005).

The *Sida/SAREC bilateral research programme is rather unique* among donor programmes which aim to strengthen higher education and research institutions, or create capacities elsewhere in developing

countries through international cooperation. First of all, it is one of the longest-running programmes with fairly unchanged objectives, but with evolving strategies on the basis of lessons learned and new insights. This *consistency in the policy framework* not only indicates trust in the underlying concepts, but also gives confidence to all stakeholders involved in the programme. Sida/SAREC is a very reliable donor partner. Although the core of the programme has not changed, the approach of the programme has been modified over the years.

The Sida/SAREC bilateral research programme uses a *long-term strategy* and recognizes that *long-term commitment* is needed to build up research capacity in poor countries with usually weak institutions. The strategy recognizes the need for a *phased development of the capacity*, based on the starting position of the partner organization or institute. This is a very sensible approach. The programme at UNA in Nicaragua may serve as an illustration of this scenario. Twenty years ago when the collaboration between UNA and SLU started, the Swedish counterpart made clear, that a long-term strategy was needed in order to build up the capacity of the then technical agricultural college to a university with its own research capacity. First, a ten-year phase to build up the quality of teachers to the MSc level (22 teachers took MSc degrees) and then start PhD training. This strategic vision from the outset has also characterized the cooperation throughout these twenty years, and has obviously given good results. Nine out of the twelve students that started between 1995 and 2000 have taken a PhD degree, and all are working with at the university. In recent years, the various research areas have been merged into research groups as an effort to support the creation of a critical mass of research. Strong links to education has given good results in terms of curriculum development and improving quality of the undergraduate and postgraduate training.

The programme is to a great extent *demand driven*; the selection of institutions in the partner countries is based on demands and priorities in these countries, and agreements with institutions are based on their needs. The cooperating partners in Sweden or elsewhere help to build the capacity that has been identified by the Southern partners. This principle, in combination with increased devolution of responsibilities for project administration and management to the institution in the partner countries, increases their *ownership* of the agreements and projects.

Another characteristic of the programme is the *variety of support modalities* which it incorporates and which enable the programme to embark upon a process of organizational and institutional strengthening. The aim is to create viable and sustainable research environments, and the programme modalities make it possible to meet this challenge from different angles at the same time. The strengthening of capacities for research management and administration forms an indispensable part of the approach.

These characteristics make the Sida/SAREC bilateral research programme a comprehensive model which is more effective than the more scattered strategies often used by other donors. Its strength is the planned development of research capacity within an institutional, sometimes even national, context using various modalities which, when applied in concert, complement and reinforce each other. The rigorous identification process which Sida/SAREC uses, based on the national and institutional needs in the South, provides a good basis for *coordination* of various internal and external opportunities. Other donors could benefit from the groundwork done by Sida/SAREC programmes and introduce their specific modalities to strengthen the capacity building process that is going on. Sida/SAREC could be more pro-active in soliciting other donors to venture into these opportunities.

Implementation dilemmas

The overall objective of Sida and Swedish development cooperation is *not always easy to combine with the specific objectives of the Sida/SAREC bilateral research programme*. The criteria that are used to select countries and partners for programme support may be different for poverty reduction than for research capacity building. Certain countries or regions in a country may be the right choice for bilateral support on the basis of poverty criteria, but may not offer any realistic prospects for development through research

capacity building. A minimum of basic infrastructure and capacity is needed as a stepping stone for capacity building. And within individual countries, the choice of partners with some basic capacity and prospects for development makes more sense than the selection of weaker institutions in a remote and poor part of the country. The consequences of selecting weak partners in very poor countries are usually very long and bumpy histories of cooperation.

Striking the right *balance between research relevance and research capacity building* also presents a dilemma. The Sida/SAREC programme gives priority to academic quality when it comes to the selection of research projects. PhD candidates are trained to become professionals who can do academic research. As often observed in this evaluation, the real life application of the research outputs is lagging behind, the link with end users is generally weak, and the capacities to acquire funds for other research activities are insufficient. In order to strengthen the relationship between research capacity building and poverty reduction, it is necessary that research has concrete developmental relevance and that it can be applied in practice. This has implications for the type of research that is being undertaken, and the way it is being identified, evaluated and selected. In these processes, local stakeholders and local/regional experts need to play an important role.

Another area of tension is the *different implementation and management approaches* in the Sida country programmes and Sida/SAREC bilateral research cooperation programmes. The bilateral research programme has a typical 'project' approach, while Sida programmes in partner countries focus on sector support in coordination with other donors. Projects are no longer in fashion in the sector support line of thinking. What is more, the bilateral research programme is managed from Stockholm, while the sector programmes are managed by the Swedish embassies. Another factor is the difference of 'cultures'. The merger of Sida and SAREC into the new Sida in 1995 has brought together organizations, but not the programmes they implement. Sida/SAREC has retained much of its independence and methods of operation. This is understandable as research capacity building in developing countries usually involves international cooperation between academic institutions. It requires a skilled intermediary office to make sure that constructive matches between partners are made and to facilitate their collaboration. Inter-institutional cooperation is one of the modalities to build local research environments, but it is an important one.

One aspect which interferes with the principle of demand-drivenness of the programme is the rather *implicit principle that cooperation between universities should preferably take place with Swedish partners*. It is not compulsory, but encouraged by Sida/SAREC. Involvement of Swedish researchers in these research projects is an important strategy to keep interest for development cooperation in Sweden alive. It is also believed that Swedish higher education and research can benefit substantially from their involvement in these programmes. However, in some cases it has been found that it was not easy to find suitable and interested partners in Sweden. This tension that exists between demand-drivenness of the programme and the desired involvement of Swedish universities should explicitly be acknowledged.

The long-term commitment of the bilateral programme is essential because this type of capacity building is complex and takes time. But the long-term, *unrelenting support may also lead to projects that are forever donor-dependent*, especially at poor institutions. Phased support in combination with clear sustainability strategies are needed to avoid never-ending support. Sida/SAREC works according to a phased development strategy and is giving more attention to sustainability issues than before. The ICT projects give a good example of planning for a sustainable future. However, looking at the history of the programme and its long-term engagements with some universities, it seems that the phased development strategy was not always linked to a clear focus in terms of the aims, scope, intensity and duration of the interventions. In the 'new generation' agreements a more focused approach has been adopted which seems to lead to better results in terms of effectiveness and efficiency.

The emphasis of Sida/SAREC has been and still is on PhD training as the core of research capacity building. This certainly makes sense for younger staff that will take up teaching and research positions. But the country studies have shown us that it is not always possible to identify younger staff with a solid connection to the institutions and that alternative research training opportunities for older staff would also make useful contributions to a strengthening of the research culture at the institutions. It makes sense to *broaden the group of university staff to be trained* so that they can perform key tasks in a well-functioning research environment. It may involve training in financial management, research management, technician training, writing of research proposals, scientific papers, etc.

Strengths and weaknesses

In the previous sections, some weak and strong points of the programme have surfaced in the discussion of the five evaluation domains and programme characteristics. In this section, the emphasis will be on strengths and weaknesses in the implementation and management of the programme. Some aspects have already been discussed in previous sections and will only be mentioned briefly.

Implementation

There are several strong elements in the implementation of the research cooperation programme. Generally speaking, the programme ensures the involvement of *highly specialized academics* in individual research projects. For the Southern institutions this opens the door to high-level training and research collaboration. Research quality can only be reached through international exchange of ideas.

Interdisciplinary research is being stimulated and this has positive effects on the relevance and applicability of research, and leads to fruitful collaborations between researchers and between faculties.

The growing attention for the research environment has led to *activities that improve administrative processes, research management, and policy development*. This not only benefits the researchers and the research climate at the institutions but also strengthens administrative processes in the institution as a whole. Research capacity building is embedded in institutional strengthening processes.

Box 8. UEM – Mozambique: the importance of building a research system

The need for a research system goes well beyond the need for a research policy and research leadership. The research system at UEM has not developed. A research system requires academic capabilities (quality of entrants, choice of sandwich partner and supervisor, and so on) and academic quality. The academic quality of Mozambican researchers at UEM is high. But the research system also requires organizational capabilities, often quite basic (account control, procurement systems, research management and so on). Although the skills are basic at one level, it is the general leadership ability to 'get things to happen' that marks out a good research environment and leader from weaker ones. They are not bureaucratic skills and require a good relationship and respect between different types of administrator, academic manager and researchers. Young researchers often learn these skills 'on the job' by learning how to solve day-to-day problems, so that their research can move forward. The idea of local sandwich programmes is one way of making sure these skills are developed in UEM. It is these organizational capabilities that have not been sufficiently developed at UEM.

Institutional strengthening is further stimulated by *transferring responsibilities* for financial management and administration to the organizations in the South and by allowing them, as far as possible, to follow their own local administrative procedures.

These positive effects of these developments and changes are most evident in the more recent agreements as is described in Box 9.

Box 9. UNAN-Managua: a new approach from the start

The programme started in 1999 and is the most recent of the SAREC cooperation's in Nicaragua. Two of the founders had been part of an earlier research training between the Technical University in Luleå, Sweden, and the ex-state institute of mining in Nicaragua, (INMINE). According to the interviews this experience was of good help when designing the PMIA programme. From the start, the programme had clear aims and vision to create the first centre for geosciences in Nicaragua – and to build links and add synergy effects through cooperation between the new Centre for Geosciences (CIGEO) and the already established Centre for Aquatic Research (CIRA) at the same university.

A clear system approach, local ownership in terms of design and selection of counterparts, and a transparent system for selection of students, all contributed to the fast development of the programme. After only six years it has produced more PhD graduates than some of the programmes that started in the 1980s.

The managerial set-up of the latest programme was better designed than previous ones. From the start, the UNAN-Managua programme has benefited from a well-designed structure, and clear division of responsibilities between managers (centres, faculty, university level) and researchers' centres. The earlier programmes have all at some stage struggled to find appropriate formulas, and have had to learn as they go to develop improved management structures of the programme and the research in general. According to the interviewees there was a shift in SAREC in about 2000, when the local ownership and decision-making was emphasized in management and implementation of the programmes. This has continued to be stressed by SAREC, and under the last agreement (2004–2008) the funds for cooperation have been managed by the national counterparts (with exception of supervisors' fees).

There seems to be an emerging trend to *link research activities to content improvements in the educational activities*. The shift from projects to broader research programmes in the new agreements provides better opportunities for forging links between knowledge production and capacity building.

The process of *competitive bidding for research funds* which takes place in a number of institutions is a useful learning process. It forces researchers to conceptualize and write good research proposals. It not only promotes research, but also helps to develop research administration routines. The ideal set-up is a transparent and professional selection process which makes use of independent external referees for the evaluation of proposals, as it is done by UMSS in Bolivia.

Finally, as already mentioned, it is a positive trend that institutions in the South can look for suitable research and training *partners in the region* whenever it makes sense and is more cost-effective.

The team, on the other hand, also observed a number of weaker points in the implementation of the programme. In all four countries, the *coordination of the Sida/SAREC programme with the Swedish embassies and other Sida programmes was clearly insufficient*. Opportunities for complementarity and synergy of activities have not been explored seriously enough.

Too little attention is being given to ensure proper *collaboration and communication between Sida/SAREC financed research projects within each agreement*, although the team observed some encouraging examples of collaboration. The individual research projects should establish forums within their research field or geographical area for cooperation on both academic and practical matters. This should include an exchange of information on how to handle not only the university bureaucracy, but also field visits, visits abroad, etc.

The *selection of research projects* at most institutions is not transparent enough and there is too much interference from persons whose responsibility lies elsewhere. Partners who still lack transparent screening and selection systems find it easier to transfer the decision-making to Sweden, but this does not help them strengthen their own capacities in this respect. The open research funds are a good initiative that not only stimulates research, but also improves research management systems and procedures. Sida/SAREC should see to it that these systems and procedures are developed and applied. This fits in with the policy of giving a greater degree of ownership of programme matters to the Southern partners. Also, the use of regional peer reviews in the institutional selection processes should be promoted. At UEM, Sida/SAREC did encourage and help develop a system for research management in the 1990s but, unfortunately, it has deteriorated badly. Now the Reconstruction Plan is operational, it is

envisaged that proposals will be submitted to Sida/SAREC for final discussion and approval only after the screening and selection procedure has been performed at the university.

It is not easy to develop various aspects of a research environment in a congruent and simultaneous way. The provision of equipment and other infrastructure is easier to handle than the training of a PhD candidate or the transformation of a management structure. It would make sense to start the various components in an order that will ensure the highest effectiveness in the implementation for each. At one of the Bolivian universities, the research activities fare well, but are constrained by a slow managerial transformation process. The bureaucratic traditions have collided violently with the interests of the active researchers and the vast majority of projects consider bureaucratic delays and other inefficiencies to be the main problem in their work.

Management

A major strength in the management of the programme is the *staff of Sida/SAREC* at headquarters in Stockholm, which is made up of dedicated and qualified people. They have a genuine interest in the programme and are prepared to discuss the question of effective ways to reach objectives with the partners in the South. Specific support is given in a flexible way according to identified needs.

The management of the programme is characterized by an *open-minded learning approach*. This is evidenced by the openness to external evaluations of research projects and country programmes.

Another strong point, already mentioned before, is the encouragement given by the programmes to Southern institutions to manage their part, including the financial aspects of it. Gradual *shifts of responsibility* from Sida/SAREC to the partners are foreseen in the new agreements. Better programme management at the UEM is expected to be achieved through the introduction of programme coordinators responsible for programme development, management and monitoring. In this set-up, Sida/SAREC retains the main responsibility for follow-up of the programme.

In order to successfully fight local *corrupt practices*, the research projects require strong hands-on management. Researchers need the discipline of regular reporting, and of having to manage their budgets so they don't run out of money, etc. With proper, carefully organized research administration systems in place, the scope for corrupt practices definitely reduces.

In Mozambique it is also foreseen that the *Swedish embassy should become more involved* in programme management. This is definitively necessary, but to make it work, the Swedish Embassy should have the mandate, funds and commitment to properly execute this task. If this can be organized, it may positively affect the synergy between the research projects and other Sida activities in the country. Alternatively, a longer Sida/SAREC presence during the initiation and start-up phases of a new agreement could be considered in order to forge better links with national organizations and relevant stakeholders, with other Sida programmes and with programmes of other donors.

Some of the weaker points are related to or are consequences of some of the strengths already mentioned. In *stimulating the ownership* of the Southern institutions in financial matters, Sida/SAREC is prepared to take risks. The experiences in the four countries also include examples of the sometimes *lenient attitude* of Sida/SAREC when it is obvious that projects are running behind schedule or when the management of funds raises questions.

At the UEM, the university management and staff are now well aware of the fact that the institution will soon experience a deep crisis if nothing is done to ensure the adoption of a strategic planning and proper management culture. The lack of project coordinators' financial and accounting skills has been a structural cause of many problems. Sida/SAREC and the UEM try to remedy this with the preparation of a Finance Manual, provision of training for UEM staff responsible for finances and accounting within the projects (2004), and the appointment of a financial controller for the Sida-funded projects.

As a result, the financial audit reports 2004 and 2005 apparently showed clear improvements in the management of finances (Sida, 2006b).

Monitoring and evaluation systems at universities and Sida/SAREC are often insufficient. The annual reports are very descriptive – describing what has been done – but do not contain analysis on more quantitative achievements (apart from published papers) or on change. The programme lacks a clear, relevant and useful monitoring and evaluation framework and strategy to monitor and report on performance at project and programme levels. As a result, there is no clear basis for properly judging the performance and the value of the programme.

Table 2. Observed strengths and weaknesses of the Sida/SAREC bilateral research cooperation programme

Strengths	Weaknesses
Design	
<ul style="list-style-type: none"> • Long-term commitment. • Linked to national policies and Swedish development objectives. • Demand-orientation. • Ownership promotion in the South. • Several support modalities (flexibility and complementarity), broad range of activities are supported. • Organizational transformation processes form part of the approach. 	<ul style="list-style-type: none"> • Dual-purpose character of the bilateral research programme (development cooperation and development/promotion of Swedish expertise) is not made explicit. • Research capacity building has not sufficiently taken into account the strengthening of the higher education sector or taken into consideration the application of research. • Poverty reduction considerations may lead to selection of organizations with poor capacity development potential and no prospects for sustainability. • Long-term commitment may create single donor dependence.
Implementation	
<ul style="list-style-type: none"> • Shift from fragmented to a focused approach. • Identification and selection process ensures adherence to institutional demands and programme objectives (relevance). • Interdisciplinary research is increasingly taking place. • Involvement of highly specialized academics for individual research projects. • Attention is given to improved administrative processes, research management, and policy development. • Emerging trend to link research activities to content improvements in education. • Local administrative procedures are being followed where possible. • Competitive bidding for research funds is a useful learning process. • Sida/SAREC allows collaboration with partners outside Sweden. 	<ul style="list-style-type: none"> • Coordination between the bilateral research projects and other Sida programmes in the partner countries is insufficient. • Poor collaboration and communication between Sida/SAREC-financed research within some of the bilateral research agreements. • If selection processes at institutions are weak, Sida/SAREC and Northern reviewers tend to dominate approval process of research projects. • Management strengthening activities do not always keep pace with the implementation of research or training activities. • Dissemination and application of research outputs do not get enough systematic attention. • Sustainability aspects do not get systematic attention from the start of projects. • Linking demands in the South with supply in Sweden is sometimes problematic.

Management

- Dedicated and qualified staff at HQ in Stockholm.
 - Joint learning approach.
 - Sida/SAREC is open to external evaluations of research projects and country programmes.
 - Specific administrative support can be given according to identified needs.
 - Southern universities are charged with responsibilities for management of funds and programme activities.
 - Sida/SAREC presence during initiation and start-up phase of a programme in a country is often insufficient.
 - Monitoring and evaluation systems at universities and Sida/SAREC are insufficient.
 - Lenient attitude in the face of implementation delays and signals of misuse of funds.
 - Poor dissemination of quantitative information about specific research projects and programmes to the public.
 - No strong commitment by Sida/SAREC and Sida to link up programmes.
 - Rapid turnover of Sida/SAREC desk officers undermines institutional memory.
-

At UEM in Mozambique, a research monitoring system was apparently put in place in the 1990s to track and report on projects, and this system was used as a model in the 1990s by other universities to establish their systems (Diniz, 2001). The system broke down in the early 2000s, but is being recreated at present and will be used for the next collaboration period.

To remedy some of the flaws in the M&E system, Sida/SAREC is piloting a new monitoring instrument: the monitoring team which was tested in Uganda. A team of consultants visits an institution prior to the review and planning meetings to assist the projects in completing their reports on time and to monitor the progress in the research activities.

In the new agreement with the UEM, it is envisaged that the monitoring previously carried out by Sida/SAREC will be adopted by UEM and collaborating universities. It is expected that this will provide the UEM with scientific and managerial independence and increase its responsibility for programme realization. At the same time, assistance will be provided so that the UEM can strengthen its research management structure, particularly administrative capacity building at the faculty level.

Sida/SAREC does not sufficiently *disseminate the quantitative results of its activities* or information on specific research projects to the public. This type of information, provides insight into how the taxpayers' money has been spent and what impact it has had. More openness about the activities would strengthen Sida/SAREC's image and increase public support for its programmes.

Table 2. is a summary of the strengths and weaknesses which the evaluation team observed in the Sida/SAREC programmes, as discussed above.

6. Lessons Learned and Recommendations

6.1 Lessons Learned

- The research projects in the four countries are relevant from a institutional perspective because they respond to justifiable needs identified by the staff of the institutions. The identification process which the programme uses and the screening process of research projects result in research activities that, in most cases, can be linked to national priorities and policies.
- It has been less easy to establish the developmental relevance of the research activities. Although many of the Sida/SAREC-financed research activities may have a bearing on poverty reduction, the link is usually indirect. And it was found that the results of the Sida/SAREC research projects do not easily find their way to outside users in the public or private sectors. Both aspects need to be improved to enhance the developmental relevance of the programme's interventions. It is likely that this can be achieved during the articulation and selection of research projects without compromising the quality of the research and research training, or the long-term impact.
- Research capacity building should not take place in isolation. Apart from embedding it into a conducive institutional research environment, it should also be of high relevance to and preferably interrelate with teaching programmes. Research capacity building must be grounded in a strong and mutually beneficial relationship between research and teaching programmes, in which research enriches the content of education and good candidates are prepared for doing research.
- The programme underwent a change from a fragmented to a more focused approach over the last ten years, and this move has positively influenced the impact of the activities at the institutions as well as their efficiency. The combination of support to research activities, management, infrastructure and policy development has generated added value at the institutions in the four countries and has contributed to accelerated capacity building.
- The more focused approach has not yet led to greater collaboration between researchers involved in the Sida/SAREC-financed research. With some exceptions, collaboration between Sida/SAREC-financed research projects at the institutions seldom takes place. Apparently the programme set-up does not include any mechanism or incentives to stimulate collaboration between the Sida/SAREC supported researchers. There is a need for this as better collaboration between research projects and between researchers would not only increase the effectiveness of individual activities, but might also lead to efficiency gains.
- In all four countries, the interfacing of the Sida/SAREC-financed research with other Sida projects and programmes in the country leaves much to be desired. Proper interfacing is not easy because there are differences in programme perspectives (short-term solutions versus long-term investments), approaches (sector and budget support versus project support) and management structures (delegated versus centralized management). These differences help to explain, but do not fully justify, the poor synergy and lack of collaboration.
- Project forms of support can be effectively linked to programme approaches with the consequent effect of strengthening the positive aspects of both modalities. With better coordination between the various Sida programmes being implemented at the country level, it should be possible to achieve more synergy.
- The Sida/SAREC approach to capacity building offers ample opportunities for coordination with other bilateral donors. Such coordination would speed up and improve the capacity building en-

deavours. In practice, coordination with programmes of other donors leaves much to be desired. Sida/SAREC could be more pro-active in soliciting other donors to link their modalities to ongoing research capacity building efforts.

- It is evident that policy frameworks at national as well as institutional levels are a pre-condition for effectively linking the identification and selection of research projects to development priorities as well as institutional capacity needs. It is also evident that the quality and commitment of the institutional management has a major influence on successful programme implementation. If the situation at the institutions is unstable and the management weak or unreliable, the prospects for building and sustaining capacities of any sort are slim.
- Since the early nineties, Sida/SAREC has supported the development of research policies and research management systems in order to ensure that research is embedded in the institutional system and contributes to institutional priorities. Support for research policy and management development is one of the strong points in the programme and helps to improve effectiveness of the programme activities at the institutional level. However, the case of the UEM points out that it takes joint commitment and follow-up to make these systems and procedures sustainable.
- A long-term commitment is needed to build sustainable research environments, and the Sida/SAREC programme fully acknowledges this. Research capacity building is a long-term process and goes through stages, involving a range of interrelated activities, from individual staff development to building conducive national research environments.
- However, without a clear vision and a focused approach, a long-term commitment may develop into a never ending story, especially in countries that are poor, at institutions that are weak, and when prospects for alternative financial support are slim. It mellows the feel of urgency to pay attention to the sustainability of results, as there will always be the possibility to add another phase to the agreement.
- Although sustainability gets more attention in the planning and implementation of the research projects, still more systematic attention should be given to this aspect throughout the project cycle. Generally speaking, the financial sustainability of many Sida/SAREC research activities is worrying. The incentives to carry out research at the institutions often remain heavily dependent on continued external (Sida/SAREC) support.
- The delegation of responsibilities to the organizations in the South stimulates ownership, as has been observed in some of the partner organizations. This has certainly paid off at some of the partner organizations. It has not just benefited the researchers and the research climate at the institutions, but has also strengthened administrative processes at the institution as a whole.
- Stimulating the ownership of the Southern institutions within financial matters carries certain risks which Sida/SAREC is prepared to take. These risks can be minimized by providing training in financial administration and management and by closer supervision by Sida/SAREC.
- A proper assessment of the results of interventions at project and programme levels requires a comprehensive monitoring and evaluation framework with accompanying instruments and procedures. Such an M&E framework and system has not yet been adequately developed within the programme, which makes it hard to obtain a good overview of what is actually going on in the agreements and therefore makes steering of interventions difficult.

6.2 Recommendations

General

- It is strongly recommended that the Sida/SAREC programme should continue, as it has proven to be a unique and valuable programme with many strong characteristics. It should retain these strong points and improve in the weak areas that have been observed by the evaluation team. There is scope for considerable improvement in the impact of the programme if cooperation with real-life activities is increased, better synergy with other Sida efforts is realized, if the focused approach is further refined, and if the link between research training and education programmes is further strengthened.

Design

- Given the strong mutual interdependence between higher education and research, it is recommended that the programme broadens its focus and strengthens its activities within the interrelationship between research training and graduate teaching programmes. This will widen the recruitment base for PhD training, integrate research methods into education and feed research findings back into the curricula.
- This support is already included in a number of agreements on an ad-hoc basis, but should become more of a standardized practice.
- In order to enhance inter-project collaboration, a mechanism or set of incentives should be included in the programme's set-up to stimulate collaboration between the Sida/SAREC supported researchers.
- Policies about the implicit or explicit interests of involving Swedish universities in the bilateral research programme should be clarified. The implications of their implicit or explicit involvement should be discussed with all relevant stakeholders and be factored into the decision-making on this issue.

Implementation:

- Every new agreement should be based on a focused and phased development strategy with a long-term but time-bound horizon. It should spell out how a series of connected interventions and projects will lead to the expected outcomes in terms of sustainable research capacity in an enabling research environment. Exit scenarios need to be agreed upon at an early stage to properly round off the support within a timeframe that is realistic and acceptable to the collaborating partners.
- It is recommended that Sida/SAREC places a full time coordinator in the partner countries during the first phase of a bilateral research programme. The tasks of this coordinator would be to ensure linkages between Sida/SAREC and Sida activities from the start of a programme, to link the Sida/SAREC programme to national needs and priorities, to ensure that the local universities plan and implement their research projects in consultation with local stakeholders and end-users, and to advise on and monitor the research management activities and research implementation. In countries with a relatively small Sida/SAREC portfolio, the coordinator could have a regional mandate, covering Sida/SAREC programmes in various countries.
- In order to strengthen the observed weak links with other Sida activities, it is further suggested that Sida activities should make better use of research findings and capacity that are being produced by Sida/SAREC-financed research. Sida should work more on integrating the capacity created by the Sida/SAREC programme in its research projects for real life applications. On the other hand, once the capacity has been strengthened and Sida/SAREC support is still there, the bilateral research programme should attempt to better plan research activities in relation to Sida activities.

- In order to bridge the gap between the short-term research needs of governments and donors, and the long-term nature of research capacity building, governments and donors should not only have an interest in using available research capacity, but also in building a future resource base for research.
- To this effect, Sida/SAREC and other research donor agencies should join forces and better inform embassies and national governments about the needs and opportunities in knowledge societies and try to convince them of the importance of a stronger interest in long-term development. Sida should work closely together with other donors and development banks in order to convince national governments to establish joint policies on research and innovation with the public and private sectors.
- Sida/SAREC should be more active in coordinating its programme with other bilateral research funding donors. The Sida/SAREC approach provides interesting and feasible opportunities for complementary and synergetic use of various support modalities.
- This coordination should take place as closely as possible at the implementation level. In other words, institutions should be stimulated to take a leading role in this process. The coordination should not only focus on research capacity building, but should also take into consideration the selection of research topics based on their relevance and possible applications.
- In order to further increase the developmental relevance of its research projects, Sida/SAREC should, without neglecting long-term goals, consider giving a higher priority to projects that, directly or indirectly, are able to improve conditions for the poor, including projects that are able to increase economic growth in general.
- Sida/SAREC should therefore encourage research projects to open up for cooperation with users of research, from the fostering of intercultural relationships with indigenous groups to participation with industry in innovation clusters. This should be done to strengthen the links between the public, private, NGO, and academic sector, thereby adding value to the research capacity created through the Sida/SAREC cooperation.
- Sida/SAREC should encourage collaboration with academic as well as real-life partners in the region whenever obvious gains in effectiveness and efficiency can be achieved. Special support for project participation in innovation clusters and innovation systems (including university-industry forums) should be considered.
- It is also recommended that Sida/SAREC further promotes international knowledge exchange, including participation of Sida/SAREC partners in regional research organizations.
- Sida/SAREC should stimulate universities to organize a transparent internal screening process of research proposals and to develop an international/regional review system that will assess the proposals before they are sent to Sida/SAREC. The screening and selection procedure at UMSS in Bolivia provides a good example.
- In the process of building good research environments at institutions, a comprehensive capacity building programme needs to be implemented with a variety of training and collaborative inputs, for a variety of staff. Sida/SAREC should provide the means for organizing workshops that improve policy formulation and research management practices, that develop appropriate communication strategies with society and industry, that help disseminate research outputs, and improve the ability to write proposals, research papers, etc.
- Sida/SAREC should also look into the critical period when a number of PhDs graduate despite the fact that their research group has not yet achieved the ‘critical mass’ needed to generate new research funds or projects in their own right. If necessary, some post-doctoral work may be financed.

- The projects, together with Sida/SAREC, should in any case ensure acceptable working conditions for the new PhDs trained under the programme, so that they are not forced to leave the university or country in order to put their education to good use.
- Sida/SAREC must create opportunities for older university staff to upgrade their research skills without having to enter graduate programmes. These would often be impractical for them, and they would only take up places that could better be occupied by young talented researchers.

Management:

- Sida/SAREC should, in dialogue with its partners, develop and introduce a comprehensive monitoring and evaluation framework and operational system that will enable Sida/SAREC and the partners to adequately guide, manage, monitor and report on activities and performance at project and programme levels.
- In this process, the content of the annual and long-term reporting on the programme should be improved: whenever feasible it should define indicators, conduct benchmarking exercises, and analyze results of progress at programme level. The monitoring and reporting should refer to planned results and outcomes instead of inputs and activities.
- This also applies to the institutions involved in the programme and their reporting. It is as important that universities involved in a programme are stimulated to define their own indicators in relation to internal goals of the university and external to society (e.g. in relation to priorities within the industrial sector, or poverty reduction programmes).
- In the research projects, there is a need for the collaborating partners to set up a simple instrument that will monitor the researcher's work, will remind researchers of when reports are due, and what information is required for each project.
- Simple systems of reporting on research activities may help to improve the monitoring of the research projects. In this respect, open web-based systems of reporting offer the partner organizations and Sida/SAREC interesting opportunities to simultaneously improve reporting systems and research systems.
- In cooperation with the universities, Sida/SAREC must carefully follow the project progress through the stages and give proper warnings if a project falls behind schedule. It is also important that the team leaders of the projects are formally integrated into the evaluation and monitoring process.
- Sida/SAREC should have a dialogue with partner universities about weak projects, and give them one or two years to improve the performance before phasing out the project. In those cases where problems at the central level produce severe obstacles to the research, individual projects may be relied upon if they have shown that they can accept a greater responsibility.
- Sida/SAREC should react promptly to signals of implementation delays and questionable use of funds. It must assist universities to improve their internal auditing systems, and to improve their reporting to Sida/SAREC. With proper, carefully organized research administration systems in place, the scope for corrupt practices definitely reduces.
- Sida/SAREC must also increasingly stress how important it is that individual research projects prepare for a future without extensive support. In this connection, all opportunities for cooperation with both the public and private sectors, international organizations, and other donors must be considered. As early as the planning stage, research staff and institutions should be encouraged to plan for sustainability of the planned project results.

Appendix 1. Terms of Reference

1. Evaluation Purpose

The evaluation purpose is to assess the support by the Swedish Development Cooperation Agency, Department for Research, SAREC, to the bilateral research programmes aimed at strengthening the research capacity of developing countries. The assessment shall be made in relation to the overall goal of Swedish development cooperation, i.e. to contribute to an environment supportive of poor people's own efforts to improve their quality of life.

The evaluation is commissioned in the context of an overall assessment by Sida of the objectives and results of SAREC research cooperation and of the management of its contribution, to be carried out during 2006.

The evaluation shall provide an independent view on support to bilateral research cooperation, i.e. university support, and will be used both as an input to the overall assessment of SAREC activities and to see what lessons can be learned for SAREC's continued support in this field. The focus of the evaluation should be on the impact and relevance of the support given to universities to strengthen the research capacity of developing countries.

The idea is to build on the evaluations made of SAREC research cooperation with Mozambique (2003), Tanzania (academic audit 2005), Bolivia (2006) and Nicaragua (2003), and subsequent developments in these programmes.

2. Intervention Background

SAREC has supported the strengthening of national research capacity in developing countries for 30 years. The support has primarily been given to universities with long-term scientific cooperation in partnership with Swedish institutions. The research cooperation includes both faculty-based research programmes in agriculture, medicine, social sciences and technology, and the supporting structures at the universities.

Support has mainly been given to research activities and for creating research environments. In addition, aid has been provided for training, infrastructure (libraries, laboratories, ICT, etc.) and support functions, including development of policies for research and the universities' administration and management. The evaluation shall focus on the support given during the period 2000 to 2005.

3. Stakeholder Involvement

The evaluation should be based on the studies of SAREC research cooperation with Mozambique (2003), Tanzania (academic audit 2005), Bolivia (2006) and Nicaragua (2003), and subsequent developments of these programmes.

The team leaders of these studies will be invited to revisit their respective countries with a set of evaluation questions. These evaluators are expected to inform the parties concerned in advance of their visits, so those who want to participate in and contribute to the evaluation can do so. The evaluators will also be expected to report and disseminate their findings to those interviewed in the course of the field work.

The final evaluation report will be published and distributed within the Sida Evaluation series.

4. Evaluation Questions

Effectiveness

To what extent have the bilateral research programmes achieved their objectives? In what way have the university's development priorities and needs and institutional capacity been taken into account in setting the programmes' objectives? How have research collaboration objectives been set (results and outcome in terms of trained staff, publications, scientific quality, policy development, quality of project management and collaboration)? What has been reported about the results and outcome of the collaboration and the adoption of research results (transfer system and users of research result)? What are the reasons for achievement or non-achievement of objectives? How are research partnerships influenced by the internal and external environment in which they operate? What can be done to make the support more effective?

Impact

What are intended and unintended, positive and negative effects of the university support? To what extent do the research partnerships contribute to improved knowledge and changed attitudes of researchers, policy-relevant research results, applicable and user-relevant research results, increased individual and institutional research capacity? To what extent does the support counteract drawbacks such as brain drain and the effects of AIDS? Has SAREC support to international and regional research programmes and networks benefited the universities? Is the training and capacity building through international organizations receiving SAREC support, such as CGIAR, CODESRIA, COHRED, IFS, ISP, ICTP, TWAS, TWOWS and WHO⁴, discernable at the universities? What do the stakeholders perceive to be the effects of the support?

Relevance

Does the university support conform to the needs and priorities of the countries concerned? Is the university support consistent with the Millennium Development Goals, the goal of Swedish development cooperation and Sida policies and priorities? Is it consistent and complementary with activities supported by other donors to strengthen research capacity?

Sustainability

Is the university support well integrated in the local environment? Is ownership by the university satisfactory? Has the transfer of responsibility to the universities been adequate? Does the university have human and financial resources to operate and maintain investments made and continue research activities? Is the capacity for policy development administration and management sufficient in a changing environment? Which other factors influence the sustainability of results, and in what way?

Efficiency

Has the university support been managed with reasonable regard for efficiency? What measures have been taken during planning and implementation to ensure that resources were efficiently used? To what extent can the costs of the university support be justified by its results?

Programme design and management

To what extent has the set-up of the programme and its management influenced the effectiveness, efficiency and impact of the bilateral research programmes?

⁴ Consultative Group of International Agricultural Research (CGIAR), Council for Development of Social Sciences in Africa (CODESRIA), Council of Health Research for Development (COHRED), International Foundation for Science (IFS), International Science Programme (ISP), Abdus Salam International Centre for Theoretical Physics (ICTP), Academy for Science for the Developing World (TWAS), Third World Organization for Women in Science (TWOWS), and World Health Organization (WHO).

5. Lessons Learned and Recommendations

Continued university support

What lessons can be learned and what recommendations can be made for continued university support? Are there alternative models for interventions that could be more efficient? Is there a need for Sida to revise its strategy on how to strengthen the research capacity of developing countries?

Areas where important lessons may be learned include analysis of capacity and institutional development, adaptation to local context, over-optimism in planning, ways to deal with poor governance, flexibility and innovation in dealing with collaborating partners, the use of Sida and partners knowledge, monitoring and evaluation of outcome and results, as well as coordination within Sida and with other donors.

6. Methodology

The evaluation will be a joint effort of five independent experts in the field. The team will meet in Stockholm on 8 March 2006 to draw up the final terms of reference and a work schedule for the study. Mr Ad Boeren will be the team leader of the evaluation.

The team leaders of the studies on SAREC research cooperation with Mozambique 2003 (Tom Alberts), Tanzania academic audit 2005 (Lena Trojer), Bolivia 2006 (Erik W. Thulstrup) and Nicaragua 2003 (Thomas Alveteg) are then expected to revisit their respective countries with the set of evaluation questions. Each person will then write a brief country report to form the basis of the evaluation report.

The team will meet in Stockholm from 6–8 June 2006 to make an analysis of the material and to produce an outline of the final report. Mr Ad Boeren will be responsible for preparing the draft and final evaluation report to be presented to Sida.

The evaluators should use the documentation available about the university support by Sida and the universities. This includes project proposals, applications, progress and evaluation reports, as well as policies, plans and other related documentation.

The evaluators are also expected to conduct interviews with selected persons that are directly or indirectly involved in the university support, and have contacts with other institutions which have been involved in the projects. This may include e-mail discussions and surveys.

7. Work Plan and Schedule

The team will meet in Stockholm on 8 March 2006 to prepare the final terms of reference and the work-schedule for the study. The team leaders will revisit their respective countries in April–May, and then meet up again from 6–8 June 2006 for analysis, to learn lessons and to put forward recommendations.

8. Reporting

The timing of the presentation of the brief country reports will be agreed between the evaluators and the team leader of the evaluation. A draft evaluation report should be submitted electronically to Sida no later than 26 June 2006. Sida will provide comments within two weeks of receipt of the draft. The final report, not exceeding 50 pages excluding annexes, should be delivered to Sida no later than 26 July 2006. Subject to Sida's decision, the report may be published and distributed within the Sida Evaluation series.

As far as possible, evaluators should adhere to the terminological conventions of the OECD/DAC Glossary on Evaluation and Results-Based Management. The evaluation report should also take into

account the report format presented in Annex B, and a completed Sida Evaluations Data Work Sheet should be presented along with the report.

9. Evaluation Team

The evaluations will be conducted by Tom Alberts, Thomas Alveteg, Ad Boeren, Erik W. Thulstrup and Lena Trojer. Mr Ad Boeren will act as team leader.

Appendix 2. References

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