

Research Co-operation

I An Outline of Policy, Programmes and Practice



SWEDISH INTERNATIONAL DEVELOPMENT
COOPERATION AGENCY

Department for Research Cooperation, SAREC

FOREWORD

This is a translated and slightly edited version of *Guidelines for Research Co-operation* adopted by Sida in 1998 in order to harmonise policies and practices. The Policy build on experiences generated by SAREC, the special agency for research co-operation created in 1975 and, since 1995, Sida's Department for research co-operation.

As we are approaching 25 years since the research co-operation programmes were established, we feel that it is time to invite a broad discussion on the current principles and practices. A major seminar will be organised in June 2000 in order to discuss the support for national research capacity. A similar event in November 2000 will look into the support for thematic research programmes at regional and international levels. The discussions will address the best way to design and link these efforts for maximum impact. Seminars will also be held to review the role of research within Swedish development co-operation and its links to Swedish research.

This English version is made available in order to share experiences and to invite comments and debate from all interested parties. It is presented in two documents:

- I An Outline of Policy, Programmes and Practice, and
- II Trends in Development and Research.

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Introduction

Background

The conditions for supporting research programmes as part of Swedish international development co-operation changed considerably during the mid-1990s. Five specialised co-operation agencies, including SAREC, then merged into one organisation, Sida, the Swedish International Development Co-operation Agency. Sida has given high priority to research co-operation as an important strategy to enhance the capacity of developing countries. Even though a separate budget line has been maintained for research, programmes of research co-operation are being incorporated into the country strategies. The research co-operation is planned and implemented in line with four basic action programmes and a number of sector policies, which govern Swedish development co-operation in general.

Research at Sida

Currently (the year 2000), Sida provides research funding of more than SEK 700 million per annum. Of this amount, SEK 670 million is distributed through the Department for Research Co-operation, SAREC. The remainder is used for a broad spectrum of contributions, from the funding of specific research tasks to research programmes that are part of various development projects.

A rough distinction can be made between the following types of research funding:

1. The funding of research as a sector within development co-operation. Such support is mainly channelled through the Department for Research Co-operation, SAREC.
2. Research activities funded as integral elements of development programmes.
3. Funding of research for internal use, e.g. as a basis for methods development.

The purpose of the policy is

- to provide general guidance for all research funded by Sida;
- to provide specific guidance for the research co-operation through SAREC, including co-operation between SAREC and other departments at Sida and
- to clarify and summarise the central ideas and methods, which build on experience gained, and guide future support for research co-operation.

1 Policy for research co-operation

This section summarises conclusions and standpoints drawn from the situation analyses and experiences described in chapters 2-4 and the separate overview Trends in Development and Research. It constitutes the policy and guidelines for Sida research funding.

Sida's overall policy and orientation can be found in the document *Sida looks forward*. Working methods are outlined in *Sida at work*. A supplementary *SAREC at work* is being produced for internal use. Special guidelines are available for applying institutions and researchers within the different support programmes.

1.1 Points of departure

Research for development

Positive and sustainable development, including the eradication of poverty, requires the development and use of new knowledge: Knowledge, which can provide poor farmers on marginal soils with the opportunity to obtain a greater yield without destroying soil and water resources; knowledge, which makes it possible to combat HIV/Aids with educational and health care resources that are a fraction of those available in wealthier countries; or knowledge, which promotes conflict resolution, a democratic culture and democratic institutions in societies in order to prevent wars, dictatorships and ethnic conflicts.

New knowledge is also required to provide a basis for development work beyond the solution of acute problems. How, for instance, can rapid urbanisation and expanding industrialisation be reconciled with environmentally acceptable energy supplies? How can new technology facilitate the build up of competitive industries in the poorest developing countries?

However, development of knowledge *for* developing countries could never be more than a minor contribution towards their sustainable development. The latter requires development of knowledge *within* and *by* the countries and their active participation in international research. Like the developed countries, developing countries must draw on knowledge generated by the R&D in other countries or internationally. Only a minor part of such efforts focuses on issues of central relevance to developing countries, or on global issues common to us all. It has been estimated that only around 5 per cent of the USD 50 billion invested each year in health research address the most acute health problems affecting the poor in developing countries, i.e. the majority of the world's population. Only a minor

part of this research is carried out in developing countries, many of which have a very limited capacity for research.

While this imbalance needs to be addressed, internationally available knowledge can only provide a modest contribution to sustainable development. It also requires the development of knowledge with and within the developing countries. Ultimately, development depends on the capacity of a country to steer its development in the desired direction, including the capacity to participate in international co-operation on equal terms. A vital part of this capacity is the ability of society to absorb, develop and apply knowledge. As globalisation, information technology and the development of knowledge accelerate, increasing demands will be made on societies to become knowledge societies, i.e. to have the capacity to assimilate external knowledge and to profit from and apply this knowledge.

The term "knowledge society" means more than the quality and scope of a country's education and research systems. It also refers to the quality of the interaction between education and research and society at large. Capacity for research is an important part of a country's knowledge system, essential to even the poorest countries. Without qualified researchers, a country cannot participate in and benefit from the results of international research, nor create a basis of knowledge on the conditions within the country and analyse these. Global issues require local solutions. Problems, such as lack of water or a high infant mortality rate, are linked to various local conditions and must be met with a combination of general and local knowledge.

However, universities and research institutions are not merely producers of knowledge for the solution of problems. They are also important cultural institutions and constitute one of the most important forums for critical analysis and debate on various social conditions. Research is also important for the quality of higher education.

Hence, allocations for research made within Swedish development co-operation should include both the production of knowledge to address specific development problems and processes and support for the build up of a research based knowledge system. This requires special attention and is an objective in itself, along with other development efforts.

Strategic use of resources

To achieve the optimum impact, Sida research funding should be focussed and directed to areas where it has a comparative advantage and where it may play the role of catalyst:

Focus - Support should be concentrated to a limited number of geographic or thematic areas. Such focus allows for synergies and added benefits through interaction.

Comparative advantage - Sida should focus on areas of comparative strength in terms of experiences, methods and special competencies, and on areas where there is a strong Swedish resources base that can be of relevance and interest to developing countries.

Catalysis effect - In addition to the direct contributions made by Sida, operations should also focus on influencing and contributing to the mobilisation of other resources than those at Sida's disposal. The development of ideas, dissemination of information and results, innovative contributions, co-operation with other financiers and active participation in various international forums can generate considerable synergy effects. To encourage creativity in this respect, Sida staff must be given time and opportunity to pursue special fields of knowledge and not be completely absorbed by day to day administration.

Another important form of catalyst work is to contribute to making research results available and applicable, for example through research overviews and syntheses directed towards both the research community and users of research, as well as through harmonisation with other contributions made by Sida.

1.2 Goals

The goals for Swedish international development co-operation are laid down by the Swedish Riksdag (Parliament). The overall objective of research co-operation through SAREC is to strengthen the research capacity of developing countries and to promote development-oriented research.

The contribution to strengthening research capacity involves:

- assisting developing countries in their building up of research capacity in the form of good research environments, training of their own researchers, development of methods for planning and prioritising research, and allocation of resources for this.

The promotion of development-oriented research involves:

- assisting developing countries by providing financial and scientific resources for the purpose of producing new knowledge in areas important to developing countries and by disseminating research results that might be of importance for their development.

Sida should also promote scientific co-operation between researchers in Sweden and those in developing countries in order to pursue the above objectives. This involves:

- supporting co-operation with Swedish research when requested and relevant within bilateral and thematic research programmes, and
- the allocation of special grants for Swedish research. Sida operates as a research council for Swedish development research. The goals of this programme are described in Section 6 below.

Research components funded as integral parts of development programmes (In addition to the special programmes for research co-operation funded through SAREC) are governed by the goals of the projects and programmes concerned. The aim of such contributions may be:

- to produce knowledge of direct significance for the implementation of the development programme;
- to support project evaluations and impact studies and
- to develop research capacity of direct significance to the long-term impact of the development programmes.

1.3 The development of research capacity

General

The goal of strengthening the research capacity of developing countries should be taken into account in all contributions, even those that have the primary purpose of promoting the production of research findings.

Support for national research development through bilateral research co-operation

Bilateral research co-operation is the main form of support for the development of research capacity. It involves countries with which Sweden has long-term and broad programmes of development co-operation (the partner countries). Here, conditions exist for obtaining an overview and insight into the countries' research and education systems and for promoting co-operation between

research and other development contributions. Given sufficient resources, research co-operation should be part of Swedish long-term development co-operation with all partner countries, where basic conditions for such co-operation exist.

The co-operation should be tailored to strengthen the structure and organisation of research in the partner countries and support the country's own funding and administration of research. Important issues regarding higher education and research should be taken up in high level negotiations. In countries with weak research structures, support for the development of general policies and institutions for research should be considered.

Development programmes should be planned so that opportunities to strengthen national provision of competencies are considered. Research co-operation should be designed to strengthen a national knowledge system, including links between research and education and between research and society in general. Special attention will be given to research universities, which have a central role in the development of a basis for research, as well as for the production of qualified manpower, including teachers for tertiary and secondary education.

In countries with a weak and fragmented organisation for research, Sida shall focus on support to research universities with a central position in the national system for research and education. This support shall be designed as programme support for the development of universities or faculties. Support for individual research programmes will be coupled with support for activities relevant to the institutional development of faculties or universities as a whole.

Programme support for the development of universities or faculties assumes that there is a basis for broad, long-term co-operation, i.e. that the partner country is prepared to allocate national resources for such development and that its policies for higher education and research provide appropriate conditions for such co-operation. If these basic conditions do not already exist, Sida may consider the opportunities for supporting change in such a direction and allocate resources appropriately - or limit the research co-operation to projects linked to regional programmes with a defined research objective.

In view of the growing group of research-trained persons in partner countries, special attention will be directed to their opportunities to engage in research locally. Employment opportunities in higher education and research are important, as well as opportunities to carry out research in these institutions. One important factor is the capacity to organise research training. Doctoral students are important for the implementation of research as well as for the

capacity of the institution to "reproduce its own capacity". Whenever possible, the Swedish support will focus on the development of local programmes for research training.

In countries with established research, the Swedish support is directed towards the goal of producing new knowledge, and towards maintaining links with Swedish research.

Capacity building through regional and international programmes

Bilateral research co-operation enhances the opportunities for fruitful interaction at the regional and international levels, in which researchers and institutions co-operate to exchange experiences, benefit from each other's strengths, and create a critical mass of joint contributions. Inversely, regional and international programmes may contribute to capacity for research in collaborating countries.

Sida shall actively monitor the possibility for promoting the development of national research capacity in its programmes of support to international, thematic research, and promote links between international and national programmes in countries where Sweden is involved in bilateral co-operation. Sida's support to regional programmes for capacity development shall primarily aim to link institutions and research activities in various countries. (A special paper is being developed to highlight experiences of support for regional programmes. The conclusions will be incorporated into these Guidelines.)

1.4 Support for development related research

General

Bilateral research co-operation principally focuses on the long-term development of national research capacity. Nevertheless, significant contributions are made towards the production of new knowledge, in particular to knowledge specific to local conditions. Strong research environments have begun to emerge in several of the partner countries, partly as a result of Swedish support. This provides opportunities to support quality research, which can contribute to the development of knowledge with a broad relevance for developing countries.

However, in view of the tremendous gaps in knowledge of central relevance to developing countries, it also remains necessary to mobilise resources at the regional and international levels for development-oriented, thematic research programmes.

Points of departure for thematic research programmes

The thematic research programmes have a number of different aims. One or more of the following ambitions may motivate support:

- i) To supplement and enhance support for national capacity development through regional or sub-regional co-operation.
- ii) To promote research, often as part of the above, in areas where national efforts need to be supplemented with a regional or sub-regional perspective.
- iii) To contribute to the production of new knowledge in areas of central importance and relevance to developing countries.
- iv) To contribute to collaboration between partners (country-based organisations and supporting agencies) in identifying research needs and in mobilising and co-ordinating resources for the development of new knowledge and relevant research capacity for addressing important under-researched issues.

Regional research networks may be organised to address i) and ii) and/or iii) and iv). International research organisations usually focus on iii) and iv). In some fields of special urgency, Sida has initiated special research programmes primarily focussing on iii).

Criteria

Given these general ambitions, the following criteria should guide the focus of thematic programmes:

- a) the four Sida action programmes: poverty reduction, sustainable use of natural resources, gender equity, democracy and human rights;
- b) research areas of particular relevance to the Swedish partner countries;
- c) opportunities for linking Sida funded research and development programmes;
- d) opportunities for collaboration with other agencies in important areas where large, collective contributions are needed;
- e) "marginal benefit" and innovation opportunities. Opportunities for paving the way for additional contributions for "under-supplied areas"?
- f) comparative advantages in terms of special skills, established programmes, networks and resource bases. Opportunities for collaboration of mutual interest between developing country

researchers and Swedish research of recognised quality and development relevance, and

g) appropriate mechanisms for scientific assessment established.

Themes

Given the criteria mentioned above, and against the overall situation analysis, Sida identifies and selects themes which are being addressed in a focussed manner within the following areas:

i) *Sustainable use of natural resources*. One important basic theme is food security and in particular opportunities for achieving long-term sustainable productivity increases in African smallholdings. This includes research into plant production and bio-diversity, water supply, soil biology, biological plant protection, livestock production systems and multi-disciplinary research into supply systems in dry areas; coastal zone environment; policy research and support for national capacity development in the international process concerning bio-diversity and genetic resources. Other important areas are "sustainable technology", energy technology and environmental economics.

ii) *Health*: Health systems and health policies; children's health: sexual and reproductive health; HIV/Aids and related sexually transmitted diseases; poverty-related tropical diseases, including research into vaccines.

iii) *Technology*: The focus in the field of technology falls largely under the main theme of the sustainable use of natural resources and is mentioned under i) above. Other, and partially related areas of focus, include capacity development in the field of biotechnology, bio-safety and biotechnology policy, as well as support for the basic sciences.

iv) *The political, economic and social dimensions of development*: Changes in political systems (democracy, human rights and conflict management); economy (macroeconomics, environmental economics and social economics); systems for education and research; gender equality.

Multidisciplinary research, policy relevance and the dissemination of results

Efforts are made to supplement intra-disciplinary research with thematic multidisciplinary contributions, or to illuminate issues through research in other disciplines than those with which they have traditionally been associated. This constitutes a step in the direction of policy-relevant research. Research on policies will also be promoted, for example, through critical and pluralistic social sciences. In addition to sector-oriented research aimed at contributing to the solution of specific problems, e.g. in health or

agriculture, there will also be support for development research, aimed at elucidating development processes.

Greater emphasis should also be given to thematic state-of-the-art reviews and syntheses in high priority areas directed towards researchers, as well as other users in society.

Ensuring national acceptance and support

Support for thematic contributions should be designed in such a way that the contributions are based on, and can contribute to, strengthening and developing national research structures in the countries concerned. This is particularly important when Sida initiates support for research in a specific field. Such initiatives must be planned on the assumption that the research may be supported and integrated into regular research structures within a foreseeable future.

1.5 International co-operation

Research to a large extent involves international co-operation. Findings are internationally shared through abstracts and publications. Modern information and communication technologies facilitate rapid access to published material. They also facilitate joint projects and networking among collaborating scientists.

This development does not automatically involve developing countries, which lag behind in access to relevant infrastructure and in research capacity. Thus, in addition to providing support for development of research capacity, Sida will make *special investments towards enhancing connectivity to electronic networks* among collaborating developing country institutions over the coming years.

Sida will also continue to provide *support for special international research programmes*, some of which have turned into more or less permanent institutions with a special mandate to support and implement development-oriented research. One important criteria for Sida funding is that the research programmes are implemented in co-operation with developing countries and their researchers, and that opportunities for strengthening research capacity in developing countries are taken into consideration. International research programmes should not become substitutes for the essential national research and capacity development, but should supplement and enhance national efforts.

Sida will promote enhanced *international co-operation in the funding* of development-oriented research. Among research funding agencies, Sida will pay particular attention to the following:

- The facilitation of developing countries' co-ordination of external research allocations, and in particular, their co-ordination of university support.
- Enhanced international co-operation on global survival issues and, in particular, opportunities for North-South co-operation on issues of mutual interest. Opportunities for regular (non-development co-operation) research funding of collaborating northern partners should be encouraged.
- Enhanced developing country participation in international research and their opportunities for making use of the results of international research.
- The mobilisation of increased resources for supporting research in developing countries, the creation of joint mechanisms to follow the flow of resources, identification of research gaps, promotion and co-ordination of research.
- The consequences, for international and developing country research, of international conventions that affect access to, and dissemination of, research results.
- The development of research support through the European Union.

1.6 Research co-operation with Sweden and support for Swedish development research

The Swedish research community constitutes an important resource in Sida-supported research co-operation. Within the bilateral programmes, Swedish researchers participate in joint research, assist in the training of researchers and in the development of research environments. New programmes are being developed to stimulate Swedish research co-operation with partners in developing countries that have an established research base. In such cases, the Sida grant covers only additional costs for the co-operation, while each side covers the basic costs for research activities. Swedish researchers may also engage in thematic research programmes in areas of particular relevance to development.

In addition to these programmes, where the Swedish research is funded as an instrument to reach other objectives, a special programme has been established to promote Swedish development research. The *Sida Development Research Council* invites annual applications and allocates grants for development research in Sweden. Applications are peer reviewed for scientific quality as well as for development relevance and grants are approved on a

competitive basis. For the year 2000, Sida granted SEK 62 million to project applications of broad development relevance. Additional funds, amounting to SEK 21 million, were granted to applications within special *areas of invitation* defined by other Sida departments. This mechanism provides an alternative to commissioned research by using the process of peer review.

The Sida Development Research Council was established to stimulate an interest in development issues and to strengthen a resource for development co-operation in general. It is not meant to substitute regular funding for development research in Sweden, but to constitute a supplement. The primary responsibility for supporting development research lies with the universities and regular research councils. Nevertheless, Sida has become a significant source of funding for research co-operation with countries outside the developed world. Increasingly, Sida co-operates with the Swedish research councils in order to stimulate their interest in supporting international research co-operation and research on global issues.

The aims of the Sida Development Research Council are:

- to increase the opportunities for researchers at Swedish universities to engage in development related research and thereby strengthen the conditions for including development issues and knowledge on developing countries in the undergraduate education;
- to preserve and develop the capacity for development-oriented research and research on developing countries at Swedish universities and colleges;
- to enhance the opportunities for research contacts with developing countries and the opportunities for involving the Swedish research community in development co-operation.
- to promote research which may be valuable to developing countries, either immediately or in the long term.

1.7 General conditions for support to research

Research supported by Sida should fulfil the ethical requirements for research as stipulated in Sweden, as well as in co-operating countries. Where appropriate, for instance in health research involving human subjects or animals, project proposals should undergo special ethical scrutiny.

A fundamental principle for all research co-operation supported by Sida is that researchers shall have the right to publish the results of their research without restriction.

1.8 Relevance and scientific quality

In addition to the general quality criteria applied to all activities supported by Sida, the following special criteria are applied in relation to research funding.

All support for research programmes is judged with regard to scientific quality. Sida-funded research and research co-operation are also judged in relation to their relevance to development. However, low scientific quality cannot be counterbalanced by high "developmental relevance" or vice versa. With relevance and quality at acceptable levels, the balance between these two qualities depends on the purpose of the programme. For instance, when initiatives are taken to stimulate under-researched areas, relevance to a specific problem may be the decisive factor.

Whenever applicable, a gender perspective should be considered, i.e. relevance of the research for men and women.

Whenever appropriate, funds should be allocated on the basis of open competition.

2 Research and knowledge systems

2.1 Introduction

The separate *Trends in Developm...* highlights a series of complex issues of central importance to development. Many of these are as relevant to the highly industrialised countries in the North as to the least developed ones in the South. The need for research co-operation, which may reflect different situations and perspectives, is obvious.

International research programmes, focusing on problems relevant to developing countries, have been developed in relation to the UN specialised agencies, e.g. the WHO related research programmes on tropical diseases. International agricultural research is undertaken within the CGIAR system. The purpose of these programmes is to provide an overview of existing knowledge and research, to identify neglected research areas, promote relevant research on such gaps, and to translate research findings into recommendations for different situations.

Unfortunately, the impact of such findings has been marginal in many of the least developed countries. They have limited capacity to follow and make use of new knowledge, as well as limited capacity to participate in and influence international research. As evident from the development literature, problem formulation and analysis is often dominated by researchers from the North.

In addressing global issues, different perspectives should be included. Researchers from the North and researchers from the South should jointly engage in problem definition and the implementation of research. Modern information and communication technologies, ICT, facilitate collaboration at a distance, but developing country researchers need to have proper access to ICT in order to engage in such exchanges.

Developing countries must also have a minimum of capacity for qualified research in order to participate in international research co-operation. They must have the capacity to analyse their own situation and experiences, and the capacity to identify, select and adapt information developed abroad.

The following section deals with conditions for research in different parts of the world, discusses research as part of a coherent knowledge system and examines the concept "research capacity". Some features of aid financed research co-operation on and with developing countries are discussed against this background.

2.2 Financing of research

There are great variations in the way countries allocate resources for research - even among countries on similar economic levels. The least developed countries spend a very low percentage of their national income on research. This is reflected in their low capacity for research and their limited contribution to scientific publications.

Table 1. *Research funding and share of scientific publications for some countries and regions*¹

Country/region	Research allocation, billion USD	% of GNP	Share of World scientific publ.
USA	167	2.8	35%
EU	118	1.9	31%
Japan	68	2.8	8%
Latin America	4	0.4	1.5%
Africa	2	0.4	1.2%

2.3 Resources for development-oriented research

No global statistics exist on the amount of research dealing with issues relevant to development or developing country problems. An international commission on health research concluded that only 5% of current health research dealt with health problems of developing countries. Only a fraction of this was actually carried out in developing countries, where the health problems were most prevalent².

Global issues, like poverty, security and environment, are of major importance to highly industrialised countries. Yet, countries in the North allocate but a fraction of their resources for such research. However, these countries have the required capacity to address these issues when they find it important, and have capacity to increase their international co-operation when required.

In the South, the basis for research varies. India and China allocate important resources for research, USD 7 billion and USD 22 billion per year, amounting to 0.8% of their GDP. Other Asian NIC countries³ allocate 1.3% of their GDP, while some of the poorest Asian countries allocate less than 0.1% of their GDP for

¹ According to *Science Citation Index* and *Compumath* 1995

² Health Research; Essential Link to Equity in Development. The Commission on Health Research for Development, Oxford University Press, 1990.

³ South Korea, Malaysia, Hong Kong, Singapore and Taiwan.

research. Thus, some countries have an established basis for research while some have extremely limited capacity for meaningful interaction with international knowledge.

Although there are wide disparities in research capacity between nations, a positive development has taken place during in recent years. During the colonial era, there were only a handful of universities in Africa south of Sahara. Today, there are more than 150 universities and a growing number of other institutions for higher education. The expansion has contributed to the crisis in higher education, primarily caused by the economic crisis. The role of the universities and their capacity to contribute to the solution of burning problems has been questioned and many universities struggle to justify their existence and to cope with diminishing resources. These institutions, nevertheless, contribute to a growing group of academically qualified persons and to a process which improves the opportunities for research development.

2.4 Knowledge systems

While research, in advanced countries, is considered to be of strategic importance for economic growth and development, such a connection is less obvious in poor, developing countries. The impact of research is rarely direct and immediate. Research projects that lead to sensational breakthroughs invariably build on a significant amount of earlier research. Applied research is based on a solid basis of theories and methods and on a cadre of researchers following research in relevant disciplines. In poor countries, where such a basis is very weak, the likelihood of producing applied research of reasonable quality is meagre. When endeavouring to build up an essential basis of national research, it is not enough to look for individual research skills, the whole “architecture for research” must be considered.

In a developed knowledge system, research is undertaken in a context of related activities. The outcome is a function of how the research is governed and financed, how it relates to other ongoing research, how it is linked to higher education and other avenues for dissemination and application. Before we analyse these relations further, it may be appropriate to examine the concept of research capacity.

2.5 Research capacity

In connection with the 10-year evaluation of SAREC⁴, the following definition of research capacity was defined:

⁴ Widstrand et al: Ten years with SAREC, 1985

Research capacity involves the ability to independently

- *identify and define researchable problem areas*
- *plan and implement research tasks*
- *participate in and utilise international research*
- *evaluate, select and adapt research findings*
- *publish, disseminate and apply research findings*
- *offer attractive research environments*

Later was added: *The capacity to reproduce its own capacity*

Different levels of research capacity may be defined:

Individual research capacity: The capacity to define research problems, plan and implement research activities, analyse, present and disseminate findings, may be regarded as individual research capacity, enhanced when the individual is part of a group or team. A creative research environment requires several active researchers within relevant fields, a critical mass, as well as contacts with other active research groups.

Institutional research capacity: Within universities and research institutes, research capacity involves the capacity to allocate and mobilise resources for research, academic capacity to assess and evaluate degrees and projects and capacity to recruit for research training. Structures for dealing with external grants, standards for allowances and norms for remuneration are other aspects of research management required. In addition, laboratory, library and ICT capacities and capacity to maintain facilities and instruments belong to the institutional capacity for research.

National research capacity: This level concerns the overall organisation of research, the formulation of research policies, and the mechanisms by which resources are allocated and steered to research activities, as well as strategies for the training of qualified researchers. Without such mechanisms and structures, policies for research can hardly be implemented.

Regional research capacity involves mechanisms and resources for collaboration and exchange of experiences, as well as capacity for joint undertakings. The expanding European research networks are good examples.

In Africa, professional organisations, regional organisations and regional funds may enhance research. However, many of the aid-financed regional programmes could not be sustained without external donors and may be seen as temporary functions to support and supplement national and joint efforts.

International research capacity: On the global level, only a fraction of the resources for research is dedicated to development related issues. To address this imbalance, several international research programmes have been established. The programmes constitute international "banks for knowledge and experiences" within their respective fields. They identify knowledge gaps, promote development of research in these fields and engage in support for national level research, thereby contributing to capacity building.

2.6 Directing and financing research

Research questions are usually posed by the researchers themselves, inspired by other research or in dialogue among researchers. Problems may also be identified by actors in public or private sectors of society. The type of research which will be implemented, and which research issues will be addressed, is to a large extent decided by the way research is financed.

Research is usually supported through core funding of universities and institutes, supplemented by external grants, e.g. from research councils. In Sweden, where most publicly funded research is carried out at universities, the balance between these two funding avenues is under constant debate. Currently (1998), around 2/3 of the resources are core, and 1/3 is allocated through competitive grants via research councils).

Many developing countries have no mechanisms for flexible research grants. Resources are tied to positions in universities and research institutes. In such a situation, without structures and mechanisms to enforce a research policy, external resources and research co-operation will have a major influence on setting the agenda for research. Applied research of high relevance to development projects tends to dominate. In order to balance such a situation and make room for local agenda setting, both core funds and open grants must be allocated for research. Research grants must be allocated by institutions with adequate capacity to review and assess proposals for relevance and scientific quality, and with a capacity for dispersing funds. Such structures are needed both on the national and regional levels. They may direct resources to researcher driven research as well as to defined problem areas.

2.7 Relation between basic and applied research

As noted earlier, applied research builds on an established basis for research. Universities are usually responsible for providing such a basis and for the training of researchers. Applied research is often done in institutes linked to services. However, in Sweden, resources

for applied research are often channelled to universities. Grants are provided through a series of sectoral research councils.

Most developing countries also give priority to applied research at the universities. However, in order to implement such research, the institutions must have an essential basis of research capacity including insights into methodologies and capacities to link with research internationally. Quality suffers if no such basis exist. Similarly, a disciplinary research basis is required for the implementation of multidisciplinary research, much in demand by decision-makers.

2.8 Links to higher education

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.

In developing country universities, the research development is hampered by the absence of research training. As long as young staff members are sent abroad for research training, no academic environment is created. Those returning with qualified degrees have little time for research, unless they have doctoral students collaborating in the implementation. Teaching and administration occupies their time and their research is neglected.

2.9 Links to service and production

While the universities disseminate new knowledge to young academics, research at independent research institutes may be closer linked to services. Experimental stations in agriculture and hospital based research are examples of this. However, this kind of research may be more distant from basic research and methodological developments.

The comparative lack of national industrial production in developing countries also hampers research development. In the North, extensive R&D is being implemented by industries (in Sweden, around 2/3 of all R&D) Universities in poor countries often have unrealistic expectations of private sector contributions for research. UNESCO statistics show that industrial R&D in Europe and North America are the overall net receivers of public research funds. The interaction with industry may have other advantages but is not likely to generate university income.

2.10 Sustainable structures for research

Against this background, it should be evident that the orientation and direction of research is found in the interplay between different actors and interest groups. Few societies hand over the entire responsibility for financing, planning and implementation of research to research institutions alone. The institutions should promote research and create a basis for research development. They should also invest in strategic areas and then seek funding from research councils or similar sponsors for their research agenda.

The sustainability of external funding cannot simply be evaluated in relation to the sustainability of research projects or programmes. It should be judged in relation to the durability of the structures established, their competencies and capacities. There is a need for a sustainable basis for research and capacity to plan for and implement research. This includes a capacity to apply for and be awarded grants from research councils. Another important part of a research system is grant-awarding structures, capable of scrutinising research proposals and allocating grants based on scientific merits and relevance.

Thus, sustainable structures for research at the national level consist of universities/institutes on the one hand, and of research councils and similar grant allocating mechanisms on the other. International grant allocating organisations, like the WHO special research programmes, may also be considered part of a sustainable structure for research.

Similarly, regional research programmes or organisations may be more or less permanent institutions supplementing national systems. In certain cases, regional institutions or fund allocating mechanisms may temporarily compensate for deficiencies at the national level.

Sida research co-operation programmes should primarily seek to strengthen regular programmes for higher education and research, rather than contributing to the creation of special groups or temporary structures. This principle applies both to programmes primarily aiming at capacity support as well as to thematic research programmes.

2.11 Research within development co-operation

Research has not been given a prominent role within international development co-operation in general. It has usually been limited to

contributions for international research organisations, regional programmes and domestic development research.

The Swedish experiences through SAREC are unique, in that systematic efforts have been directed to the development of national research capacity in poor developing countries. These experiences are further described in the following chapter.

Outside Sweden, it is primarily the Canadian IDRC, created some years before SAREC, and the Ford and Rockefeller Foundations, which have supported developing country research. France, the UK and the USA have granted extensive scholarships for education including research training. The French ORSTOM has supported joint research programmes involving collaborating ORSTOM branches in Francophone developing countries.

The current thrust towards strengthening capacity and institutions in development co-operation is likely to increase the interest in research co-operation as an important instrument. The Netherlands and Norway, who recently have set up new support programmes for research, have taken a strong interest in the Swedish experiences. Similar interest has been demonstrated by the European Commission, where efforts are underway to promote research co-operation programmes within the country strategies.

3 Experience and central ideas

3.1 Research is given its own role in development co-operation

The Commission that proposed the establishment of SAREC in 1975 emphasised the importance of developing countries investing in long-term programmes for the development of national research capacity. The Commission concluded that support for research should be part of international development co-operation, as a sector for support in its own right, and as a means of supporting development. It underlined that this requires a broader view and a longer term commitment than support for sector related research.

Two main objectives were defined:

- to support the development of research capacity in developing countries,
- to support research which generates results of importance to development.

3.2 The emergence of bilateral research co-operation

Prior to the establishment of SAREC, Swedish support for development-related research primarily consisted of support for international research programmes. The first challenge was to find suitable ways of supporting research in some of the programme countries for Swedish development co-operation.

These countries had very limited opportunity to allocate resources for research on the basis of their own priorities. They depended entirely on external funds for research and on external agenda setting. SAREC therefore decided to channel funds through national research councils or similar institutions. This was to enhance the opportunities for implementing research based on national priority areas.

However, in several cases, the councils functioned ineffectively and did not have the support of a local research community. An independent review of SAREC (1985) recommended that this strategy should be abandoned and that greater emphasis should be placed on research training. It should be noted that the team recognised the importance of effective national bodies for the overall planning and allocation of resources for research, but concluded that the right conditions did not exist.

Another lesson learned was that it was difficult for specialist research institutes, usually established during the colonial era and

working under different ministries, to transform themselves into vigorous research environments.

3.3 Greater emphasis on research training and infrastructure

The experience gained from SAREC's first ten years of trying to support research in the poorest countries, clearly demonstrated a need for greater emphasis on the training of researchers. Support for joint research projects was then combined with support for the training of researchers on the basis of what is known as the sandwich model. Unlike the traditional scholarships for research abroad, the sandwich model requires doctoral students to be active at their home institution and only spend short periods of time abroad. The training takes place within the framework of a project carried out at the home institution. Supervisors are appointed from both co-operating institutions.

This model has proven to have several advantages over traditional scholarships. It became known as the SAREC model for research training, set a trend and has been emulated in various ways by other donors. The idea is that research training is based at home and combined with support for research facilities. The long-term ambition is to develop local research training programmes at universities in developing countries.

In a North South co-operation, there is always a risk that the weaker party will be excessively directed and dominated by the stronger institution. The focus of the collaboration may lean towards their research ambitions, at the expense of the intended research training. To avoid such imbalances, measures which clearly underline the developing country's "ownership" of the project should be employed.

In line with the evaluation of SAREC in 1985, greater emphasis was also placed on support for "research infrastructure" in the form of laboratories, maintenance of scientific equipment, and access to scientific information. An extensive programme of support for research libraries was developed.

Special attention was directed at the basic sciences; mathematics, physics, chemistry and biology. The priority given to applied research, both among developing country decision-makers and external agencies is reasonable. However, it appears that the need for basic sciences is underrated, even though such skills constitute a necessary basis for applied sciences.

3.4 Project co-operation

At certain periods during the 1980s and 1990s, some Latin American countries with comparatively developed research were included in SAREC-supported co-operation programmes. This co-operation focused on research projects that were expected to yield results of broad relevance for developing countries. The capacity objective was of secondary importance. This type of research co-operation built on a strong mutual interest, and was appreciated by both parties. They have now been concluded. A new form of support for collaboration based on strong mutual interest is being developed, where each side covers the basic cost for research and Sida supports the added costs for international co-operation.

3.5 University support

Within programmes of bilateral research co-operation, an increasing share has been allocated to support for faculties or universities in general. One factor behind this change was the increasingly difficult situation experienced by universities in many developing countries, not least in Africa. The strong expansion of higher education, together with the protracted economic crisis of the 1980s, caused severe thinning of resources. The universities were confronted with conditions that were increasingly difficult to solve. Another reason for supporting universities was the understanding that sustainable research environments require interaction between different parts of the national system for research and higher education. This new direction implied a shift in emphasis from project to programme support.

Programmes for university support are now being developed in several countries and shaped in different ways, depending on the circumstances. Support for individual research environments and institutional co-operation remain central elements of the programmes, but they develop as parts of a comprehensive package, which is negotiated in relation to university and faculty plans. A central theme in the dialogue with the leadership and administration is the role of research and the need to develop institutional policies and management tools for research.

It may be too early to draw far-reaching conclusions of experiences to date. For a sustainable impact it is not enough that the supported activities are successful. The readiness of the institutions to allocate resources for research is essential, as is the readiness to develop appropriate policies and support for higher education. This varies and it is important that issues relating to research and higher education are included in the high level dialogue on co-operation.

3.6 Thematic programmes and initiatives

As indicated earlier, sector-oriented projects were primarily supported via existing international or regional programmes and organisations. However, during the last decade there has been a noticeable increase in thematic initiatives. Several factors have contributed to this situation. Social sciences were often seen as sensitive and were not given priority within the bilateral negotiations. Similarly, research on gender issues was seen as controversial. Another factor was the growing international focus on issues like environment, reproductive health and democracy, areas that warranted special attention.

Over time, a large number of thematic programmes have emerged. Some have focused on the training of researchers in special areas, for example macroeconomics and environmental economics. Others, like the special HIV/AIDS research programme, have focused on producing urgently needed knowledge. Many programmes have a dual purpose, and may combine bilateral programmes of support for capacity development with support for regional networks and international research, e.g. programmes for research on coastal management, reproductive health, and archaeology in East Africa.

A central idea has been to support research carried out at national institutions. The combination of support for national research with support for regional networks has often proved to be successful. Regional centres can play an important role in strengthening nationally based research, when interacting with national institutions.

3.7 International programmes

Support for international research programmes has been relatively stable over the years. It has focused on a few major programmes including agricultural research at the CGIAR institutes and health research linked to WHO. The advantage of such international research programmes is their ability to mobilise resources and high level competence to identify and address significant issues. At the same time, the relevance of the research has been questioned from time to time in evaluations and reviews. This in part relates to weak interaction with, and influence from, developing country institutions and researchers.

Sweden has been actively engaged in the policy dialogue with international programmes. Even when the financial contribution has been limited, the policy input has been significant. This has been possible due to continuity in the administration of the programmes. Another reason is the fact that research officers

dealing with international programmes are also active in bilateral co-operation; thus bringing different perspectives to the discussion. Links between international and national research have also been promoted in this way.

3.8 Support for Swedish development research

Swedish research is basically supported by regular Swedish research funding. However, SAREC allocates grants for development research in Sweden in order to enhance the developing country orientation. The support has resulted in a rather solid community of researchers tuned into the sphere of development. This constitutes a valuable resource basis for development co-operation in general and strengthens the basis for bilateral contacts and collaboration with Swedish institutions.

Over the years, more than SEK 500 million has been disbursed in the form of direct support to Swedish development research. One of the outcomes is the recruitment of young researchers to development-oriented research. More than 200 doctoral theses have been produced.

To this special programme for direct support for Swedish research should be added the extensive engagement of Swedish institutions in the bilateral and thematic research co-operation. Around 150 Swedish university departments are involved. All in all, Sida has become an important actor in supporting research in Sweden and plays a major role in the internationalisation of Swedish higher education and research.

3.9 Research co-operation today

The developments described above have led to research co-operation gradually becoming more diverse. New forms of support have been developed. More links have been established between different programmes, for example between contributions at the national, regional and international levels. Flexibility has increased in the models and design of co-operation programmes for research and higher education. Although the programmes have to an increasing extent been designed primarily to meet one of the three overall objectives, support forms have been combined in various ways; e.g. support for thematic programmes has been combined with efforts towards capacity building in collaborating countries.

The total Sida disbursements for research co-operation amounted to SEK 510 million in 1999. The following tables provide a picture of the breakdown of this amount: (OBS kolla årsrapporten)

Table: *Overview of Sida research funding in relation to different programmes.*

Breakdown by type of programme

Bilateral programmes	28%
Regional and special programmes	35%
International programmes	27%
Support to Swedish development research	10%

Breakdown by subject area (approx.)

Natural resources and environment	40%
Health research	25%
Social sciences and humanities	20%
Natural sciences and technology	15%

Breakdown by regions

Africa	32%
Asia	9%
Latin America	10%
Not allocated to a specific country	49%

In 1999 bilateral research programmes were active in Eritrea, Ethiopia, Mozambique, Tanzania and Zimbabwe, India (project co-operation), Sri Lanka and Vietnam, as well as Nicaragua.

- In addition to the above-mentioned bilateral partner countries, support for research projects is also provided to a large number of other countries through other forms of support (international and regional programmes).

- In 1999 more than 130 institutions (departments) at Swedish universities and colleges were participating in programmes of bilateral research co-operation.

4 New conditions for research cooperation

4.1 Integration

An important objective of the integration of the five Swedish development co-operation agencies into Sida, was to create greater flexibility and better co-ordination of different approaches. With regard to research, a distinction has been made between research as a support function and research as a subject for support.

When research is seen as a support function, the time perspective is shorter and the focus is directly linked to the need for new knowledge in relation to development projects. With regard to research as a subject for support in itself, the perspective is a broader one and involves strategic investments in building capacity for research.

Against this background, research co-operation continues to be handled by a specialised department, SAREC. The appropriation for research has been separated from support for other forms of development co-operation. The new opportunities for co-ordination within Sida have many promising features. However, the balance is fine between supporting research as a long-term investment and supporting research of more immediately applicable use. Research co-operation should not be transformed into a short-term supportive instrument at the expense of building a national basis for research in partner countries. Such immediate research needs should continue to be met within various sector contributions in the future.

Excellent opportunities for co-ordination may be further exploited in the following areas:

Support for local knowledge. Research co-operation supplements sector-oriented programmes by contributing to the creation of a basis for research and the long-term provision of locally produced knowledge. This may be secured through the development of higher education and research.

Turning to local knowledge. A culture should develop where it is natural to turn to local universities and research institutions during the process of designing and evaluating development projects. Researchers provide links to the existing body of knowledge, not merely their own findings, and may provide valuable input into the process.

Co-ordination between support for higher education and research. Research and higher education are closely interconnected. The level of resources needed to develop one research university often requires

a diversified system involving concentrated efforts in building one full university in combination with other (non-research) institutions of higher learning. Sida may combine support for the education sector with investments in developing a research university, and discuss policy issues in the high level dialogue.

Dissemination of findings. Co-ordination may bring better opportunities to disseminate, develop and apply the results of research.

Integrating research aspects into the development of policies and action programmes. Research supported in bilateral, thematic and Swedish programmes can contribute to the overall understanding of development issues.

However, to take full advantage of possible synergies, Sida's working methods need to be developed. On the one hand, Sida should more frequently turn to research for information, but on the other hand, researchers need to supply knowledge reviews and syntheses reports and engage in policy-oriented research and debate.

4.2 New programmes for research co-operation

So far, the discussion has focused on the situation in the least developed countries where the need to develop a basis for research is a primary concern. Their perspectives are needed in order to address development issues. However, many of these problems do not affect developing countries alone. They amount to global concerns common to us all. This is obvious, for example in respect of the threats to the environment such as climate change and pollution of the air and seas, or diseases such as AIDS.

Increasingly, Sida will look for opportunities for linking institutions with an established research base with Swedish research on global issues. Such mutually awarding collaboration is important, not only to development agencies, but for regular research funding organisations. The Swedish Government's Research Bill 1996/97 states that: "Social development is leading increasingly to a situation in which important issues relating to the survival and development of society must be solved through co-operation between many countries and between representatives of different sectors", and that this requires "an extended international and multi-disciplinary effort which naturally includes the developing countries."

A new challenge for Sida is to stimulate contacts with developing countries as a regular feature of Swedish research funding. In order to move in this direction, new funding mechanisms are being

designed to support "bridges" between ongoing, already financed research activities on both sides. Sida's funds cover travel and additional expenses for co-operation in the hope that long-term contact may be maintained through regular funding.

Another reason for such new funding opportunities, is the interest in transforming development co-operation into broader co-operation on equal terms. Investment in research is one of the means to strengthen the capacities of countries to address and handle their own situation. It also provides a basis for collaboration after the assistance has been phased out. Thus, research co-operation becomes a bridge towards new forms of co-operation and a mechanism for maintaining contact.

4.3 Changing conditions for research in Sweden

The Swedish universities constitute an important resource base in development co-operation. Although there is a growing interest in research on development-related issues, funding opportunities remain limited. The Sida programmes for funding research in Sweden have expanded. However, new funding formula within the universities requires all activities to be fully financed. The opportunities for dedicating regular time to research have become more restricted. This means that expanding external contributions for research have not necessarily resulted in more research activities.

Internationalisation efforts have been vigorously pursued. However, this has been directed to countries in Europe and Northern America, leaving contacts with other parts of the world underdeveloped. Sida remains a major sponsor for such contacts.

The Sida funding is open to researcher generated proposals within areas of broad relevance to development. Additional funds, earmarked for defined problem areas, have been allocated from the sector departments as an alternative to commissioned studies. Applications are evaluated on a competitive basis, following a peer review process. Thus the mechanisms are similar to those employed by the regular research council and joint funding may be negotiated.

A further ambition is to recruit young researchers for the field, which is why Sida continues to support doctoral thesis work. The special Sida programme for supporting undergraduate fieldwork, the Minor Field Studies programme, contributes to the recruiting efforts. A new programme for student exchanges will indirectly serve a similar purpose. The 'Linnaeus grant' will be allocated to Swedish undergraduates, who spend one or two terms at a university in a developing country. Similarly, developing country

students may apply for 'Palme grant' to spend one or two terms of their undergraduate programme in Sweden.

4.4 Changing conditions for research in developing countries

During recent decades there has been a dramatic expansion of higher education in most developing countries. Today, even in the poorest developing countries, there are considerably more people with research qualifications than there were a decade or two ago. Many good research environments have been created through development co-operation projects, even in countries where the research capacity, in general, is weak. This provides greater opportunities to give support to forms of so-called South-South, North-South co-operation on the basis of existing capacity in developing countries. These researchers are not merely a potential resource in the field of research co-operation, but also, more generally, in Sida's work, for example in evaluations, reference groups and various studies. It is fair to say that this is an under-utilised resource in Swedish development co-operation.



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