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Veronica Brodén

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Aiding research capacity for development: tensions and dilemmas

Veronica Brodén
PhD Candidate
Department of Thematic Studies - Technology and Social Change
Linköping University
veronica.broden@liu.se
www.tema.liu.se/?l=en

Abstract
There is an unequal distribution of resources for higher education and research in the world, and the number of aid actors that focus on improving the research capacity of low-income countries has increased since the 1990’s. Many aid actors have explicit ambitions of escaping a colonialist heritage as well as abandoning the linear view of science and technology development, but there is debate concerning whether this is being achieved. What methods of aiding research are there, and how is the link between research capacity and development portrayed? This paper is mainly based on previous research and discusses some of the dilemmas that the literature raises. It also illustrates some of these dilemmas by discussing the case of the Secretariat for Research Cooperation (Sarec), which in 1975 was one of the first bilateral aid agencies to engage in research aid.

Introduction
There is an unequal distribution of resources for higher education and research in the world, and many low-income countries (LIC’s) have difficulties building up sustainable research capacity – something which is commonly assumed to contribute to long-term development and poverty reduction. Many foreign aid actors (national as well as international) offer support with the goal to improve research capacity in LIC’s, and this type of aid has increased since the 1990’s. There seems to be general consensus in the literature surrounding the idea that aid actors should support the building of research capacity. Furthermore, many aid actors have explicit ambitions of escaping a colonialist heritage as well as abandoning the linear view of science and technology in favor of a more context-sensitive view, but there is nevertheless debate concerning whether this is being achieved. Although this paper departs from an assumption that the research gap (as other inequalities) is problematic, many aid efforts are modeled on high-come country (HIC) universities and specific views of the role of science and technology in society for example, hence it is legitimate to question and analyze this phenomenon. The concept of innovation, for example, has become increasingly frequent in science and technology policies of HIC’s, something which can also be seen in research aid policy, often with disregard to the difference in contexts. This “concept migration” could be considered problematic given that it assumes that science and technology is universal and works the same regardless of historical or current context. Furthermore, foreign aid to research constitutes a union between two policy areas which in part have quite different goals; that of science and that of aid.

The purpose of this paper is to identify and discuss some of the tensions and dilemmas – such as those mentioned above - that are associated with research aid. I begin by discussing linear versus systemic views of development and knowledge production, to then go into previous research on research aid and finally turn to the policy of the Secretariat for Research Cooperation (Sarec), part of the Swedish International Development Cooperation Agency, Sida. The previous research enables an analysis of general tensions and dilemmas in research aid and the Sarec case illustrates some of these in more detail. The paper has been guided by an interest in understanding what research aid is, which methods are used to
support research (by both national and international actors) and whether some methods are deemed successful while others are not, for example. It has also been of interest to understand how science and technology is discussed and how the link between research capacity and development is portrayed.

**What is missing? Focusing on the gaps**

What do LIC’s need in order to reduce poverty, raise standards of living or achieve economic growth, and how should they acquire these things? These questions have been - and continue to be - the subject of much debate in the literature surrounding foreign aid and development. The discussions often seem to be framed more or less explicitly by the question “what is missing?” (in x country, organization, etc) in comparison with high-income countries (HIC’s) – there are “gaps” that need to be filled in order to promote progress of some kind. HIC’s are often perceived as being at the top of the development ladder already - or at least further ahead in the “race” when compared to LIC’s. One might ask whether it is ever possible for LIC’s to ever “catch up” as long as the discussion is dominated by filling gaps and defining specific stages of development. As development theorist Jan Nederveen Pieterse puts it, “development is a struggle of the shape of futures, a dramatic and complex struggle (Nederveen Pieterse 2010, p xviii).” Which futures and paths are envisioned – by whom - and what alternatives exist? Although do not aim to answer these questions, they are nonetheless relevant to consider as backdrop for this discussion about foreign aid and research capacity.

**Linear vs. systemic views of development and innovation**

The linear model of innovation was one of the first developed frameworks for analyzing how science and technology related to the economy. The general idea was that innovation occurs through a linear process beginning with basic research, followed by applied research and development, to then end with production and diffusion (Godin 2006, p639). According to Godin, the model remains alive and well despite having been declared dead numerous times during over 50 years of criticism. Alternatives to the linear model are more systemic in character. Etzkowitz and Leydersdorff summarize three such models that have been proposed to explain “the socioeconomic relations of the knowledge base” (Etzkowitz and Leydersdorff, 2000, p8): the model national systems of innovation (NSI) (e.g., Freeman 1987, Lundvall 1988 and 1992, Nelson 1993, Edquist 1997), the model of an emerging “Mode 2” of the production of scientific knowledge (Gibbons et al. 1994), and the model of a Triple Helix of university-industry-government relations (Etzkowitz and Leydersdorff 1995, 1997, and 2000).” The three models/theories have important differences concerning for example focus/purpose, analytical use, and scope. They also identify and prioritize actors and their interrelations differently, but they all depart from the idea that knowledge production and innovation follows a non-linear dynamic and requires collaboration between many actors in a system. Universities are seen as essential in these processes, but collaboration between actors in a system (for example academia, industry and government) increases a country’s/region’s/organisation’s innovative abilities.’

A parallel can be drawn between the linear view of knowledge production and innovation and the stage theory of growth, also referred to as modernization theory. Development studies can be seen as having been dominated by two schools of thought in the period post WWII – represented by structuralists and liberals (De Vylder 2002). The liberal theories (based on the work of for example John Maynard Keynes, Robert Solow and Walt Rostow) have tended to emphasize stages of growth and ideas of modernization – gaps in the economies of poor countries are to be filled with the help of rich countries for example (see for example Nederveen Pieterse 2010, pp1-2). The structuralist school originated in Latin America (represented by for example Raúl Prébisch, Maurice Dobb, Paul Baran and Andre
Gunder Frank) and saw underdevelopment as a process as opposed to a stage. They upheld that there were structural inequalities and dependencies stemming from colonialism which made it impossible for market mechanisms such as free trade to solve development problems. According to de Vylder, these schools of thought have partially merged, partially returned in pendulum patterns during the last few decades (de Vylder 2002, pp23-25).

At the risk of simplifying and generalizing, one assumption the linear model and the stage theory of growth seem to have in common is that given certain preconditions, there is a specific order to developments largely irrespective of local contexts. To give an example, the idea that agricultural societies will develop into industrial societies given certain preconditions (economic ones mainly), and countries need to pass through one stage in order to get to the next one (Rostow 1959). These ideas have been criticized in many different academic fields – and alternative views have grown strong in the latter half of the 20th century. These views emphasize systems theory, context-dependence, and dynamic or evolutionary aspects of development, knowledge production and innovation. For example, the idea of technology transfer has been criticized because it essentially assumes that it is possible to transfer knowledge or technology directly from HIC’s to LIC’s. Since its “hayday”, experience and research has shown that in order for knowledge and technology to be adequate and relevant in any given context, its development and/or application needs to be driven by endogenous processes (see for example Howitt 2004). In other words, it rarely works when HIC experts “install” new knowledge or technology in LIC’s. Instead, what is needed is local/national capacity to develop knowledge and technology relevant to specific contexts, and the processes and results can be very different depending on time and place. The terminology used has also changed, one example being the shift from foreign aid (donor-to-receiver) and technology transfer to concepts like development cooperation, and capacity building, even though all terms are still used.

The research gap
What the role of universities is, or should be, in relation to a country’s social and economic development is debated (see for example Mowery and Sampat 2005). Universities are nevertheless seen as very important centres for knowledge production and dissemination, not least since the knowledge society discourse has gained in strength. As is the case with resources in general, however, scientific and research capacity is unequally distributed across the world (Weiler et al 2006). Of the resources spent on research worldwide, 85% are invested in HIC’s, 10% in India, China and East Asia. Between 4 and 5% of the resources are invested in LIC’s - most of which is channelled through HIC agencies undertaking research in LIC’s (Young and Kannemeyer 2001, p2). In other words, there is a large gap between LIC’s and HIC’s both in terms of access to resources for research and in terms of who is benefitted by research.

Apart from providing education and conducting research; universities are often expected to stimulate economic growth and other development through cooperation with other actors nationally and internationally. There are different opinions regarding how universities affect a country’s social and economic development (see for example Mowery and Sampat 2005), however, and recent research suggests that universities often lack the capacity to live up to all of these demands (see for example Göransson et al 2009).

The difference in “strength” between university research systems in HIC’s and LIC’s is one of the gaps which different aid actors have attempted to reduce. Research aid often consists of providing support to 1) building capacity in LIC universities, and/or 2) by supporting development-relevant research in LIC’s, HIC’s or international organizations. The number of aid actors involved in research aid has steadily increased, not least since the 1990’s (Fisher and Holland 2003, Wagner et al 2001). The Swedish state agency Sarec was one of
the pioneers among national aid actors in this area and came into being during the early 1970’s. Sweden’s investments in research aid have varied in terms of methodology but efforts have from the beginning been based on the conviction that research can be an important tool for poverty reduction and the belief that national research capacity is necessary in order for LIC’s to be able tackle their own development problems. The definition of research capacity varies empirically but can include everything from individual researcher’s skills to information and communication technologies, laboratories, and national research policies.

**Research aid actors internationally**

International development organizations like the World Bank have changed their policies during the late 1990’s and 2000’s due to an increased recognition of the importance of higher education and research for development in LIC’s[1]. Though there are differences between international organizations, increasing the capacity of LIC universities came to be considered vital, something which implies a major shift in policy compared to the 1980’s when primary and secondary education were prioritized. In addition to international organizations like the World Bank and the UN, there are many regional and national development actors in both HIC’s and LIC’s that work with research aid in some form. A quick online search through the strategies and policies of HIC development agencies shows that higher education and research is on a majority of these actors’ development agendas, although methods and levels of priority vary. Several HIC development agencies are making it a higher priority than in the past. The UK for example, is doubling its spending on research for development 2008-2013.

**A note on methodology**

The material I have used for this essay comes from books, websites, articles, conference proceedings, reports, policy documents, and working papers. They are mainly from the 1990’s and 2000’s (in total roughly 70-80 documents) - the period during which higher education and research increased in priority in international development policy. One can roughly divide the material into two kinds: policy texts (such as reports, working papers, or evaluations) from development organizations (including national agencies like Sarec and international organizations like the World Bank) and academic texts (articles or papers, a majority of which have been published in international journals). Some documents overlap the two areas, like conference proceedings and certain reports, but I make an effort to clearly state which actors say what, and in what context. Most of the material has been acquired through searches on Google Scholar and Libris (using combinations of key words such as research cooperation, foreign aid, universities, developing countries and research capacity). Several articles were found through the reference lists of other articles. Various websites have been consulted (government websites and international organizations). The method used is textual analysis (close reading, taking notes and identifying themes) coupled with previously defined research questions.

The area of research aid involves many actors, most notably: policy makers, government agencies, international organizations, individual researchers, and universities (though naturally I cannot discuss all relevant actors). The presentation of many issues is by necessity of general nature and does not go into all the complexities. Even though I have made an effort to find texts from universities and organizations based in LIC’s, a majority of the texts are produced by people based in HIC universities, international organizations, and in national HIC development agencies. I mainly use research aid to cover all the different types of research related activities under the umbrella of foreign aid that aim to increase LIC research capacity. Other concepts such as “research cooperation” and “research collaboration” are used as well since that they appear frequently in the literature.
Capacity, research capacity, and research cooperation: what, why, and how?

Cooperation between universities in HIC’s and LIC’s is not a new phenomenon, but research cooperation as a form of foreign aid adds another type of actor into the equation – aid organizations/agencies with goals pertaining to development and poverty reduction. These actors approach research from a slightly different perspective compared to for example international research partnerships established between universities without the added explicit goal of contributing to each other’s research capacity or producing results of direct development relevance. Before discussing ‘research capacity’, I will explore the somewhat broader definitions of ‘capacity’ and ‘capacity building’.

Many development agencies and organizations have been working with a ‘capacity building’ or ‘capacity development’ perspective for a long time, an approach which has been developed to a large extent through the practice of development organizations (Horton et al 2003, p33). The authors combine definitions from various development organizations like the United Nations Development Program and the Red Cross and offer the following definition of organizational capacity building:

“…an ongoing process by which an organization increases its ability to formulate and achieve relevant objectives. It involves strengthening both its operational and adaptive capacities...[it] is undertaken through its own volition. It is carried out through the application of the organization’s own resources, which may be supplemented with external resources and assistance. External support for organizational capacity development can take different forms, including provision of financial resources, technical expertise, training, information, political negotiation, and facilitation of capacity development processes. ...The objective...is to help improve organizational performance to address known issues and react to emerging issues that arise in today’s rapidly changing world (Horton et al 2003, pp31&33).”

The authors maintain that in order for capacity building to work, the efforts cannot solely focus on for example individual competence building or physical equipment – all aspects of the organization and its context need to be addressed. The organizations themselves have to be ultimately responsible for the process, and external resources and assistance should be adapted to the organization’s needs and priorities. Based on this, ‘supply-driven’ capacity development - where the external actors, based on their specific development goals, define which assistance to offer - is problematic. “Misguided capacity development efforts can actually reduce the overall performance of the organization (Horton et al 2003, pp32-33).”

Some definitions surrounding capacity are more detailed than others. Sida’s general definition of capacity development is “the combined efforts to support the development of knowledge, competence and well-functioning organisations and institutions (Sida 2000, p15). Sida also claims that the end goal of building capacity is wider than increasing competitiveness:

“The ultimate objective of the development of knowledge and capacity is therefore to make it easier for people to build up an identity: for themselves and in relation to others. To speak about knowledge and capacity as “the true humanist mission of education” is not in conflict with the idea of knowledge and capacity as means to increase productivity. Knowledge and capacity are tools, but not tools that serve solely to increase productivity. They also help give people an identity and enable them to participate fully in social and political life (Sida 2000, p15).”
Similar discussions concerning capacity can be found in several other development organization policies and reports.

There is an ongoing debate regarding how close the link is between research capacity and poverty alleviation (see for example Banzon Bautista et al 2001). The consensus seems to be that links do exist, but that they are more often indirect than direct (see for example Weiler et al 2006). A World Bank report from 2001 states: “Despite the lack of a theoretical or quantitative link between science and technology investment and development in developing or underdeveloped countries, many policymakers assume that benefits will accue from such investments (Wagner et al 2001, p9).” There is no conclusive evidence that increased capacity in science and technology in LIC’s will significantly contribute to economic growth for example, but since this has been the case in HIC’s, the conclusion is that one could reasonably expect a similar development in LIC’s. These discussions and the increasing focus on ‘capacity’ in the policies could be seen as indicative of a recognition by HIC development actors that development efforts need to be more demand-driven and adapted to local contexts than in the past. On the other hand, the changes might in some cases be clearer on paper than in reality, due to the existence of other interests (financial, political) and path dependence. I will return to these questions in a more structured way later in the paper.

As discussed in the introduction, there is debate about the role of universities in development. However, regardless of what the purpose and goals are, the ability of a university to function and fulfil its goals is seen by aid actors to depend on its capacity. A UNESCO report, for example, summarizes research capacity as consisting of the following: capable researchers (for example faculty, research staff, graduate students), time (excessive amounts of teaching and administration can keep researchers from living up to their research potential), infrastructure (laboratories, libraries, administration systems, computational resources), research climates (support from politicians, the public, and the media in creating a climate where research and researchers are valued), funding (predictable levels of support over time), structural conditions (optimal use of resources and facilities in order to avoid unnecessary dispersion or duplication), research ethics (codes of ethics prevent conflicts of interest and other pressures, and enables transparency) and a critical perspective (critique and feedback to keep research from becoming self-serving and introvert) (Weiler et al 2006, pp2-4).

In the case of research aid, international organizations or HIC foreign aid agencies aim to strengthen and/or build up scientific and research capacity of universities in LIC’s with the primary long-term goal being to contribute to development (for example economic growth and poverty reduction). After having looked at several different actors – it becomes clear that the strategies have many components in common. Activities within research aid can encompass for example: supporting specific research projects in LIC’s in bilateral cooperation with universities in donor HIC’s; assisting with, or creating, training programs for researchers (carried out in HIC’s, LIC’s, or both); supporting the building of important infrastructure (such as information and communication technology, administration systems, or labs); supporting the development of national, regional, and international research networks, or directly financing research for development and poverty reduction (in HIC’s, LIC’s, or both). The strategies for research aid vary among actors – some place larger emphasis on for example training programmes or infrastructure, while others focus more on policy level efforts, and others do all of the above.
The donor-recipient dilemma. Some critique from academia

I will summarize some of the criticism from researchers on the cooperation between HIC and LIC universities under the umbrella of foreign aid. As mentioned earlier, there is consensus surrounding the idea of supporting capacity building in LIC universities for example, but there is a substantial amount of discussion concerning how this is done. It is worth mentioning that the critique from academia is also frequently mirrored in documents published by aid actors. This may partly be due to the fact that there is close collaboration on many levels between development organizations and universities in the field of research. For the sake of clarity, however, my aim in this section is to limit myself to addressing the opinions expressed in academic articles and papers.

There exist many levels of tension between the idea of foreign aid based on solidarity, altruism, and poorer countries’ interests versus strategic and profit-driven activities designed to “conquer” markets (see for example Berthelemy 2005). Regardless of whether the forms for cooperation are foreign aid-based or not, the inequality between HIC’s and LIC’s creates problems. Some authors are very sceptical to altruistic rhetoric in development policies (such as that surrounding ‘capacity’), questioning the reasons why HIC’s engage in development cooperation. Others see it as reflective of good intentions as well as recognition of the complexity of development processes. The question of what methods lead to development is often tied to a discussion about what the role of universities is in society and the economy, and how knowledge is produced and disseminated. For instance, many texts (both policy-related and academic) reject the linear model of innovation, in favor of other theories of knowledge production such as Triple Helix, Systems of Innovation or Mode 2. An example of critique concerning research aid that raises issues like this is provided by Léa Velho, who questions the effects that HIC-LIC research cooperation has on LIC development and poverty reduction (Velho 2006). More specifically, she claims that too much focus on training of individual scientists is not an effective method for building research capacity nor of contributing to development or poverty reduction. According to Velho, this kind of method reflects an outdated, linear view of knowledge production and innovation. She calls for more systems-based strategies for research capacity building along the lines of Mode 2, where more effort is placed on creating links between universities and other actors in society in order to for example increase the usability of research, and implement results faster.

Colonialism in new attire

The terms for cooperation have been, and remain, more or less equal, depending on the methods used. Exchanges might be explicitly or implicitly based more on priorities and needs of the university with the most resources. Anthony Costello and Alimuddin Zumla give some examples of very unequal methods of research cooperation: postal research – HIC researchers request LIC colleagues to supply them with data; parachute research – HIC researchers travel to the LIC for short periods of time and collect data (results of both types of research are often published with minimal representation of LIC input); and annexed sites for field research, led and managed by expatriate staff. Often successful but contributes to “brain drain” (Costello and Zumla 2001, p827, Oforo-Adjei and Gyapong 2007).

Costello and Zumla claim that these methods can generally be classified as semicolonial, since they benefit HIC researchers while they contribute little or nothing to the research capacity of the LIC. Philip Altbach argues along similar lines concerning power and influence of the LIC’s, and suggests that the development can be considered a form of ‘neocolonialism’: “We are now in a new era of power and influence. Politics and ideology have taken a subordinate role to profits and market-driven policies. Now, multinational corporations, media conglomerates, and even a few leading universities can be seen as the new neocolonists—seeking to dominate not for ideological or political reasons but rather for
commercial gain (Altbach 2004, p6)”. He suggests that colonialism has merely taken on new forms, acquiring stronger profit-seeking mechanisms. The power and resources of HIC’s in essence leads to LIC universities having very few options but to for example participate in exchanges and collaboration with HIC actors if they want access to the global scientific playing field (Altbach 2004 p6). The critique concerning the new face of colonialism is echoed by Xie Shaobo who maintains that despite the cutting of formal colonial ties, moral and intellectual “rule” has continued, and increased, through the economic and technological dominance of HIC’s, which in turn is very much driven by capitalistic interests (Shaobo 1997).

Issues concerning the effect of capitalistic interests on for example foreign aid and development agendas can be found in many of the articles, and it is also discussed as problematic in relation to higher education and research. Akilagpa Sawyerr discusses this inequality issue from a similar, but slightly different, perspective, focusing on the “hegemony of modern knowledge”: “The rise and spread of the ‘knowledge society’ in the developed countries has led to the hegemony of modern knowledge and its manifestations and has opened up virtually all societies to increased pressure from global values, products, and services (Sawyerr 2004, p14).” Sawyerr maintains that while there are positive effects of the spread of modern knowledge – such as improvements in nutrition and knowledge about environmental protection – there are negative effects as well: tendencies of political and economic dominance by HIC’s and their institutions, culture homogenization, and threats to local knowledge.

Setting the research agenda

All efforts on the part of HIC’s to collaborate and cooperate with LIC’s to achieve development and poverty reduction can be questioned given the unequal footing between the two parts. How much power do LIC’s have steer the development agenda for example?

According to Megan Bradley, the issue of inequality can result in problems when negotiating research agendas: “Even the most innovative partnership funding strategies cannot resolve all of the tensions and inequalities that characterize collaborative agenda-setting processes. Using North-South partnerships as a “default” funding modality not only adds an extra layer to agenda negotiations, but also creates a problematic starting point for articulating common research goals (Bradley 2006, pp4&6)”. Bradley maintains that research capacity is very complex, and that though there is great variation in the strategies employed by both HIC and LIC actors, HIC-LIC research team partnerships may not always be the adequate way to advance research agendas that are rooted in Southern priorities. Interviews that Bradley conducted with LIC researchers indicated that the agenda setting process is more equal than in the past, but there is a demand for flexible donor policies. HIC actors should not, for instance, assume that inequalities can be reduced or capacity increased by having the main ownership and management of joint research projects in the LIC. The LIC may in fact be more than capable of owning and managing the project, but may be lacking resources – in which case it is better for all actors involved if the management is the responsibility of the HIC actor. Bradley’s interviewees suggest that research capacity building efforts might be more successful if they are not tied to development goals:

“Many researchers emphasized the difficulty of trying to anticipate the policy relevance of their work at the proposal stage, rather than once their results are clear, and underscored the need for more independent, theoretically demanding research. This is essential to the evolution of a strong research base in the South; as various interviewees stressed, sustainability in the research sector comes from the ability to make well-argued intellectual contributions to national and
international debates, not just to churn out studies to match prescribed terms of reference (Bradley 2007, p18).”

This quote illustrates the tensions between combining the desire to achieve development goals with processes of building research capacity. Development organizations acknowledge that adequate research capacity is necessary for a country to be able to effectively address the country’s present and future challenges – regardless of whether the challenges are directly relevant to international or HIC development goals. Hence, building research capacity should be supported for its own sake. At the same time, the support is conditioned in a variety of ways in order to match for example the foreign aid policy of a donor HIC.

**Short-term versus long-term cooperation**

The question of which type of capacity building efforts are considered more effective in terms of development goals also raises the issue of time-frames for cooperation. Reaching development goals and building capacity takes a long time and require efforts on many levels. Aid actors are criticized for having too many short-term research cooperation projects (or as expressed in Bradley 2007, p21: “parachuting partners”). This is also discussed by UK researchers James Smith, Joanna Chataway and David Wield:

“There is often a tension between finding suitable interventions that can bring shorter-term and longer-term capacity building. Although short-term approaches may play some role in shaping long-term capacities, they may not be systemic, cost-effective, or appropriate. …Supporting the correct mix of activities is crucial to building effective capacity... Short-term initiatives and activities must be understood in the context of longer-term institutional support and innovation (Chataway et al 2005, p21-22).”

The authors maintain that though the time-factor is just one of many important ingredients, too many projects that aim to improve research capacity are short-term and isolated from other projects and actors, which inhibits the learning process and limits their actual effect on capacity.

**Other issues**

One might ask whether global problems (such as environmental challenges and threats to food security) – which increasingly require international cooperation – are levelling the playing field between HIC’s and LIC’s in some sense. According to Stig Enemark, it is important for HIC’s to recognize that there are mutual benefits to research cooperation between HIC’s and LIC’s: “It is important that such capacity building activities are seen as not only a key driver for societal development in the recipient countries, but also as a necessity for facilitating the building of relevant international capacity and institutional innovation in the donor countries. It is a process of mutual benefit for both recipient and donor countries (Enemark 2005, p1).” Enemark also states that the role of HIC universities in this process needs to be clearer, and suggests that in order for research cooperation to work better, there needs to be a national understanding among actors in the HIC’s (donor agencies, universities and education ministries) regarding the purpose and interests of all involved. Furthermore, efforts need to be based on “a national priority and a holistic historical analysis of the national system of higher education (in the LIC) and its contribution to social, economic and political development (Enemark 2005, p2).”
Swedish research aid – a snapshot

Swedish state-driven efforts to support universities in LIC’s have been undertaken since the 1970’s, and have to a large extent been channelled through Sarec. Recent Swedish government policy indicates that research cooperation with LIC’s as well as research for development could become more explicitly relevant for universities and research funding agencies. This is not a new arena for these actors - but the extent of their efforts and involvement could increase due to the fact that the recent Swedish government bill about research and innovation states very clearly that research and new knowledge are crucial factors for sustainable development, and that Swedish universities have a responsibility to work towards fair and sustainable global development:

“Some of our time’s biggest challenges are global in character and affect people in both high income countries and developing countries. Climate changes, environmental threats, infectious diseases, armed conflicts, and terrorism are all obstacles to sustainable development. New knowledge through research is a crucial factor in being able to find solutions to these, and other global challenges. The mutual dependency that these global challenges entail also increases the need for knowledge development through cooperation over borders. (Swedish govt. research bill 2008, pp15-16)”

Furthermore, the research and innovation bill states that Sweden needs to be more active in international research cooperation in order to be able to be globally competitive, indicating that research to address global development challenges is important, and that cooperation across borders should increase. The bill identifies a few strategic middle-income countries (MIC’s) to cooperate with, like China, Brazil, and South Africa. LIC’s are mentioned as a group in relation to Sida and Sarec’s work for capacity development (with the exception of India – which is also identified as a strategic country to cooperate with). The bill also refers to a government missive called Shared Responsibility – Sweden’s Policy for Global Development, which identifies universities and other research institutions in LIC’s as important to cooperate with. It has been in existence since 2003 and was revised in 2008. It states that Sweden should support the development of research in LIC’s as well as continuing the support of Swedish research for development. It remains to be seen whether or not the attention given to research for development in these policies will contribute to an increased number of actors engaging in research cooperation with LIC’s - and not “just” other HIC’s and MIC’s (see for example Edqvist 2009).

Sida-Sarec - a closer look

“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 even to the poorest countries (Sarec 2000a, p9)”
Swedish state-driven efforts to support universities in LIC’s have mainly been managed by Sida Sarec. Sarec existed independently as specialized cooperation agency between 1975 and 1995, when it merged with Sida. In 2008 Sida, including Sarec, was reorganized – and research aid is now organized and handled differently (for more information, see www.sida.se). For the purpose of this paper I have looked mainly at the policy from the 2000’s, prior to the reorganization. Sarec was then a sector department of Sida that worked to support capacity building in LIC universities and provides funds for Swedish research of importance to development and poverty reduction. Sida’s annual budget for research cooperation 2008 was 950 million Swedish crowns (Msek), of which the majority was channelled through the activities of to Sarec.

Sida’s main goal is to “contribute to an environment supportive of poor people’s own efforts to improve their quality of life (Sida 2005, p2).” It implies a very clear focus on reducing poverty, and underlies all efforts in Sida’s development cooperation. Sarec’s goals during most of the 2000’s were: 1) To strengthen the research capacity of developing countries, and 2) to promote development-oriented research. Goal one entailed assisting LIC’s in building research environments, training researchers, developing methods for prioritizing and planning research, and resource allocation (Sarec 2000, p10). Goal two involved assisting LIC’s “by providing financial and scientific resources for the purpose of producing new knowledge… and by disseminating research results that might be of importance for their development (Sarec 2000, p11).” To achieve these goals, Sarec promoted scientific cooperation between researchers in Sweden and LIC researchers. This is done through supporting cooperation within bilateral and thematic research programmes, and by providing grants for Swedish development research. They also financed development-related research in large international organizations such as the UN (Sarec 2000, p11). Sarec’s activities focused on several levels (or “layers”, see Figure 1), from efforts on national policy level to university infrastructure and academic training programs. Sarec provided research aid to countries in Latin America, Africa, and Asia. The bilateral programmes are the main form of support within research cooperation. They are established with countries that Sida has long-term collaboration with, and usually requires, for example, that the partner country is willing to allocate national resources for the development of their national research and education system. Bilateral programmes most often involve cooperation with Swedish universities. Needless to say, universities are key actors to support and cooperate with, and research is seen as important in many ways:

“Research does not only produce new knowledge and innovation – it provides tools for dealing with knowledge in a systematic way. Decision makers can turn to the local research community for advice. The researchers have access to international research and can interpret existing knowledge. They may...
understand and analyse the local situation and problems in such a perspective. They may also bring situated perspectives and analyses to the international research community. Research in universities contributes to a questioning mind in higher education (Sarec 2004, p4).”

Enhanced research capacity is seen to not only improve the ability to produce knowledge and innovate, but it is also seen to contribute to a better understanding of LIC perspectives internationally.

Sarec defined research capacity as consisting of: “the ability to independently: identify and define researchable problem areas; plan and implement research tasks; participate in and utilize international research; evaluate, select, and adapt research findings; publish, disseminate and apply research findings; offer attractive research environments; and ...reproduce its own capacity (Sarec 2004, p23).” Sarec worked to strengthen research capacity in LIC’s by for example: strengthening information management systems, laboratories, education programs for researchers, administration and management planning support, exchanges of students and staff between universities in Sweden and universities in LIC’s; supporting research projects that aim to improve development; and funding applications (through the Sida Development Research Council, with various reference groups) from Swedish universities who want to conduct research with development relevance. Support is concentrated to certain geographic and or thematic areas, and is also determined by the resources that Sweden has (in terms of specific research strengths, competence and experience for example). Prioritized areas in research cooperation have been: social sciences, health, natural resources and the environment, and science and technology. (Sarec 2004, p10)

According to Sarec’s own documents as well as several external evaluations, its methods for capacity building have over the years moved from a stronger focus on national research councils and the capacity of individuals to a more systems-oriented view where individual capacity is one part, along with efforts concerning institutional infrastructure and national policy (see for example Kjellqvist 2005, pp 79-80).

Sarec – what is the verdict? Praise and some controversy

Sarec was one of the pioneers in the field of research cooperation as a form of foreign aid. Certain previous research indicates that Sarec has been successful in facilitating demand-led capacity development. For example, Leo Van Audenhove refers to Sarec as one of the “leading institutions in international discussions on higher education and development and play an emancipatory role towards Southern institutions of higher education and research (Van Audenhove 1998, p542).” Another paper by Chataway et al states that Sarec has a broad view of capacity and promotes LIC ownership of the research agenda-setting (Chataway et al 2005, p10). They claim that Sarec has differed from other donors in its research cooperation with Africa for example:

“It (Sarec) has explicitly supported institutional development of research capabilities in African universities, and exhorted others to join it in coordinated support led by the local universities themselves. …The thinking is also linked to the idea that research institutions should also be key national cultural centres, not short-term ways of responding to particular development problems - although much of the research supported is applied, problem-oriented and strategic. Thus, there is a move within even this university-centred approach in the direction of Mode 2 (Chataway et al 2005, pp10-11).”
The authors mention (as something positive) that the methods of Sarec are moving in the direction of Mode 2 science, where more actors (academic and non–academic) in a national setting are involved in the capacity building process. They also state:

“This approach provides short-term project support and also longer-term infrastructural program support, including library and ICTs, support for research management, laboratory development, and technician training. The model is one way of supporting the short-term within the context of the longer-term — as an institutional approach and potentially as part of a systemic approach. …it is a much more flexible support system than much other project based, time boundaried bilateral support (Chataway et al 2005, p22).”

These quotes suggest among other things that the systemic approach is more adequate for achieving long-term effects on research capacity than other approaches. They also suggest that it is important to view universities in a diverse way – as being both culturally important and significant in the process of solving development problems.

So far I have only found one author that directly criticizes the methods of Sarec, something which prompted me to look a little closer. Léa Velho directs criticism at Sarec’s research cooperation with Nicaragua in particular. I looked at the Sida-commissioned evaluations concerning this specific case to see if similar critique was voiced there.

Velho claims (in three articles from 2002, 2004 and 2006) that while the policies of Sarec reflect a “commendable”, non-linear, and systems-based view of capacity building – the cooperation in practice (in the case of the collaboration with four public universities in Nicaragua) instead shows that the linear model (in ‘Mode I’ style) has not been abandoned (Velho 2004, p179). She argues that the dominant focus on supporting the career development of individual scientists (attainment of MSc’s and PhD’s through sandwich program training for example) does not necessarily result in the kind of capacity that helps advance the development of Nicaragua. The concentration on the skills of individuals occurs at the cost of other aspects of capacity such as the links between researchers and other actors like civil society and industry. Another report by Velho, Kaplan and Bautista from 2001 seemed to reach a slightly different conclusion:

“The university-based programmes respond to the demand from local universities and society at large for academically qualified researchers and teachers… The research areas covered by these programmes reflect the themes that permeate the new discourses (poverty alleviation, gender and the environment), as well as the salient problems of the countries concerned… Moreover, many of the programmes (e.g. the natural science SIDA/SAREC programmes in Vietnam and Nicaragua…) have developed mechanisms to consult or to link up with the intended research beneficiaries outside academia (Bautista et al 2001).”

This quote seems to indicate that the efforts in Nicaragua did indeed develop mechanism to link up with actors outside the universities. Similar criticism to Velho’s comments concerning the focus of activities in the research cooperation in Nicaragua - were voiced in a 1994 Sida-commissioned evaluation conducted by Jaime Behar and Mats Lundahl:

“Summing up, SAREC’s support to research in Nicaragua has worked well in one sense, but not in another. It has financed a number of projects and programs which have produced output in terms of research results and high-caliber
training. However, the support provided has not always been clearly in keeping with development objectives of the country and has been spread out among too many institutions and projects. The capacity-building aspects have been somewhat overlooked. These factors have, in turn, tended to lower the efficiency of the assistance (Behar and Lundahl 1994).”

Another Sida-commissioned evaluation of the research cooperation with Nicaragua (2003), written by Edgardo Moreno and Thomas Alveteg, refers to the quote by Behar and Lundahl above, and the authors state that they agree with them to a large extent - the support to individual scientists was mainly dominant during the 1980’s and early 1990’s – but that this still had positive (albeit indirect and long-term) effects on Nicaragua’s research capacity and subsequently its development and quality of life (Moreno and Alveteg 2004, pp9-10). Velho had initially been team-leader of the 2003 evaluation referred to above, but she left the team before the evaluation was completed. Another argument presented (by one of the researchers involved) in the commentary section of this evaluation in defense of the individual training focus is that it is difficult to foster links between research and other actors in society when there is no critical mass of adequately trained scientists:

“All in all, the report includes an elaborate introduction about “development discourse”, which ends up with denying itself. It namely concludes that innovations occur at the interface of research and economic activity. However, both are weak or not developed in Nicaragua and must be strengthened. There is, thus, no chance for a fruitful “interface” until the universities and research institutes are occupied with competent scientists who will be able to provide one side of the interface. How to develop the economic structure is not dealt with in the report, but if it will not be developed, there is little realism in proposing the “interface model” as an alternative to the currently operated model (Moreno & Alveteg 2004, p198).”

The 2003 evaluation seems to have been a slightly contentious one, and though this example focuses on just one country, it illustrates the many tensions that can arise when discussing the why’s and how’s concerning research aid.

Six evaluations of Sarec were conducted in 2006. They were to a large extent positive, but one of the recurring recommendations for improvement concerned the expected effects on development and poverty reduction:

“Recommendations include that the programme should further develop cooperation between universities and the users of research findings, and that research directly or indirectly contributing to poverty reduction and to economic growth be awarded higher priority[...] Anticipated results and effects are seldom defined and quantified in advance, which means measurement of the impact is difficult (Sarec 2006, p7).”

This demand for increased cooperation with “users” (and presumably a more problem-oriented/applied type of research) could be seen as a reflection of the increased popularity of models such as Mode II, Triple Helix or Systems of Innovation. At the same time, the evaluation recognizes the long-term nature of research, for example stating that it is difficult to anticipate results in advance.
Concluding reflections

I set out to understand what research aid consists of and what tensions and dilemmas exist in this area which straddles both aid and science policy. It is clear that research aid encompasses slightly different strategies and activities depending on what actor one looks at. Some actors focus their activities more on individual researchers’ capacity and/or specific research projects for example, while others work on many levels (individual, institutional as well as national). Given all the variations, it is difficult to generalize but there seems to be agreement on the idea that research capacity is important and enables LIC’s to improve the quality of higher education, to innovate, to participate on the ‘global scientific arena’, and to solve development problems. There is less agreement on how - where some believe that end-users (like state or private sector actors, other organizations or certain groups) need to be more involved and others maintain that the universities need to become strong in themselves before involving other actors. Furthermore, there are different opinions regarding what development should be pursued – economic or social for example. And is the knowledge output expected to be relatively immediate and applicable or is it a longer-term capacity goal based on a more open interpretation of the role of universities in society?

According to some of the empirical studies discussed here, inequalities (partly related to colonial pasts) constitute the biggest problem and can be hard to overcome. One part always has more financial resources and most often more experience within the field of Western modern science – which is considered the model. This can inhibit an equal agenda-setting process. Since the capacity-building literature and several research aid policies maintain that process should be primarily “owned” by LIC universities – this clearly constitutes a dilemma.

A systems approach in research aid as opposed to a linear approach/view seems to be applauded by policy makers and researchers alike, in other words – efforts should be undertaken on all levels of the research system in order to build sustainable capacity. Based on my own mini-study and the literature about Sarec – it seems clear that its policies reflect a dynamic rather than linear view of development and knowledge production. This does not reveal much about the ‘practice on the ground’, however, which is likely to be quite diverse as was illustrated by the Velho critique concerning Nicaragua. It is perhaps not surprising on the other hand, since Sarec has been active in a large number of countries. In order to be able to say more about this, further study is required.

There is critique in both the policy literature and the academic literature concerning the risk of maintaining or increasing dependency, but there is, perhaps not surprisingly, no easy answer to how research capacity is best fostered and administered. Research aid seems to confront a number of “catch 22” situations, or dilemmas, which are also illustrated in the Sarec case. One the one hand, the effects of research aid on poverty reduction are expected to be largely long-term. All the activities undertaken are expected to contribute to capacity building on different levels, both in each project but also cumulatively over time. Given the layered approach to building capacity it might be difficult or counterproductive to anticipate or quantify expected results in too much detail in advance. On the other hand, one could argue that unless a clear connection to development relevance is included in the planning it is difficult to assess whether or not research aid contributes to the overarching poverty reduction goal of foreign aid. Some of these dilemmas might be due to the fact that research aid straddles the boundary between science and aid policy – which are areas that might not always be compatible when it comes to goals and priorities.
Endnotes

i I will use “research aid” as a term that encompasses all activities that aim to improve the research capacity of LIC universities – whether it is on individual, infrastructural, or policy levels.

ii Though innovation has become strongly associated with science and technology policy in recent decades, the focus in this paper is mainly on the policy and practice of foreign aid to research – hence the appeal to innovation theories becomes a matter of empirical interest rather than a point of departure.

iii Sida - including Sarec - has during recent years gone through significant organizational changes, and Sarec is now (since Oct 1st, 2008) called the Unit for Research Cooperation. Since these changes are not fully implemented, however, it is still unclear what the consequences are. I will therefore describe the organization and function as it has been while called Sarec. Recently (2010), new policies for research cooperation were presented by the government, however due to time constraints, I am limiting myself to describing the policy that was in place before this.

iv My forthcoming dissertation consists of an independent study of Sarec’s historical policy development. The presentation of Sarec in this paper is to a larger extent based on previous research.

v For a discussion on this, see Terry Shin (2002) The Triple Helix and New Production of Knowledge: Prepackaged Thinking on Science and Technology, Social Studies of Science 2002; 32; 599-614

vi Documents that the literature often refers to as representing a “turning point” in international approaches to higher education in LIC’s are Higher Education in Developing Countries – Perils and Promise (2000), The World Bank & UNESCO and The World Development Report 1998-1999 - Knowledge for Development, the World Bank

vii There is one exception, an IDRC-commissioned working paper (written by a then-doctoral candidate from Oxford). The reason I want to include it is because it contains a very interesting discussion on the complex issue of inequalities of setting research agendas.

viii The majority of the funds are directed towards building research capacity in LIC’s. According to Sarec’s Outline of Policy, Programmes and Practice (2000, p8), sustainable development of knowledge to meet LIC challenges requires that the research occurs in and by the LIC’s, and not primarily through research by HIC’s.

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Figures
Figure 1 "The Research Domain", Sarec Yearbook 2005