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# Innovation for growth

## Evaluation summary: Support to Innovation Systems and Clusters within Sida's Research Cooperation

Sida

# Research for development

Innovation and knowledge are crucial factors for economic development, in high as well as low-income countries. This has been the growing understanding and trend in recent years, which also permeates the direction for development cooperation.

Greater recognition for the role of knowledge has resulted in a much stronger emphasis on research, giving universities and other institutions of higher education a more central role in development.

Sida's strategy for the support of research Cooperation 2010-2014 emphasises that innovation systems should be seen as a means to encourage opportunities for utilizing research as a tool for development.

*The Evaluation of Sida's Support to Innovation Systems and Clusters, a Research Cooperation Initiative* (2012:5) provides a critical overview of ten programmes within Sida's support, meant to strengthen research in innovation systems from 1997 to 2011. In this publication, we attempt to summarize some key findings from that study, including two concrete results from these programmes with the Eastern Africa Region and with Bolivia.

The evaluators identified largely positive results regarding the cluster initiatives in Uganda, Tanzania, Mozambique and Bolivia, particularly in relation to the cost of the projects. Relevant, cost-efficient and quality improving knowledge has been transferred thanks to the links between universities, authorities and organisations (business and civil society) that were formed within each initiative. During the process, trust among actors increased, as well as efficiency, jobs, incomes, and productivity of participating small firms.

Lessons learned and described in the evaluation report aim to provide Sida with recommendations for working in a more strategic manner with research and innovation systems. The evaluators recommend that Sida should expand the usage of innovation system frameworks and cluster modalities, not only to other partner countries within its research cooperation, but also further across the organisation. In the majority of low income countries, innovations are not directly based on new scientific research. Thus, innovation occurs in all segments of society, it involves interaction between actors from various sectors, and it requires a degree of trust as well as different kinds of learning.

Building strong and independent research institutions in developing countries is a precondition for sustainable development. The words from Ignacio Moreno Chirico, researcher and research coordinator at Bolivia's Universidad Mayor de San Andrés (UMSA) in La Paz, sums it up tersely:

"Without research, there is no development in our country. That makes us dependent on foreign technology, instead of patenting our own ideas and focusing on achieving our development goals."

# Growth through innovations

The "innovation systems" concept arose in the mid-1980's when several scholars started using the term "National Innovation System (NIS)" to explain differences in productivity growth in OECD countries.[1] Throughout the 1990's the OECD, as well as other international organisations and national governments, instigated these ideas as a framework for policy. During the same period Sweden also embarked on a reform process of its own research and innovation system.

As noted in the Evaluation[2], Sida defines innovation in terms of the use of ideas, technologies or ways of implementing ideas/points/concepts that are new to a specific context. Sida's focus on innovations emerged from the increased emphasis on growth as a mechanism of poverty reduction in low-income countries - the ultimate goal for Sweden's development cooperation.

Support to research cooperation aims to encourage "opportunities for utilizing research as a tool of development" and to ensure that those opportunities are "enhanced by such means as investment in innovation systems".

Some key aspects of the policy[3] are recognition of innovations' importance to economic growth and poverty reduction, attention to the role of research and knowledge and interest in the more central role that universities could play in this context.

The specific issues and themes of the Sida research support are focused on "Inclusive Innovation" aspects, with an overall aim to:

- Reduce poverty and achieve the Millenium Development Goals.
- Add value to economic development and overall quality of life in communities / countries / regions.
- Add value to natural resource exports.

Evaluators, however, emphasise some important facts to keep in mind for Sida:

- In many low income countries, most of the productive activities are based on traditional knowledge and there is little interaction with more modern parts of the economy.
- The National Innovation System in low income countries has to be more receptive to links with the outside world.
- Innovations in the context of low income countries will most often mean "local or minor innovations".

1. Eklund, Magnus, Adoption of the Innovation System Concept in Sweden, Uppsala Studies in Economic History 81, Uppsala, 2007.
2. Evaluation of Sida's Support to Innovation Systems and Clusters, a Research Cooperation Initiative (2012:5)
3. Policy and Strategy for Research Cooperation 2010–2014

# Bolivia Triple Helix

**FACTS**

The support of cluster programmes at Universidad Mayor de San Simon (UMSS) in Cochabamba and Universidad Mayor de San Andrés (UMSA) in La Paz are special as they form one component of a large bilateral research support and capacity building programme, e.g. with the financing of 20 million SEK/year for 9 different activities at UMSS. The cluster model that is run in cooperation with the Swedish university Blekinge Tekniska Högskola, accounts for only a small fraction of the total budget.

The Triple Helix model brings together the expertise and experience of universities, business enterprises and governments to facilitate collaboration and innovation. In Bolivia, The Universidad Mayor de San Simon (UMSS) in Cochabamba, and The Universidad Mayor de San Andrés (UMSA) in La Paz, have been engaged in supporting the formation and consolidation of productive clusters in the areas of food and leather (UMSS) and of wood (UMSA).

The project aims to advance the objective of "fortification of institutional capacities to construct and to participate in innovation", focusing on the following three areas:

- Support to clusters (both universities).
- Improvement of innovation capacities among students and firms (UMSS).
- Transfer and adaptation of technologies developed at the UMSS faculties to improve the productivity of the private sector production.

Some of these activities also promote innovation by improving production techniques and inputs (seeds and land, training farmers and firms).

Since the start, the three clusters have attracted a total of about one hundred small and medium size companies (SME) as of 2010. At the university level, the project has developed an implicit methodology to support clusters. The project is also promoting entrepreneurship among students and firms.

At the firm level, this project has been able to organise producers and firms under a competitiveness agenda. A recent survey indicates that the UMSS is one of the few institutions that is committed to improve clusters along with the Industrial Chamber.

Two examples of innovative production techniques where one makes use of local organic products: A system for waste-products to ferment and produce energy, and a system for domestic use where one uses household waste (organic) to produce electricity.

# The Bio-Innovate program

Farmers planting preferred potato varieties resistant to pest and diseases at Timau near the slopes of Mt. Kenya.
Right: Kassahun Tesfaye, a co-principal investigator from Addis Ababa University, in one of the finger millet trial sites in Ethiopia.

The Eastern Africa Regional Program and Research Network for Biotechnology, Biosafety and Biotechnology Policy Development (Bio-EARN) was initiated in 1998. The aim was to develop capacity and competences for partner countries (Ethiopia, Kenya, Tanzania and Uganda) to effectively and efficiently use modern biotechnology.

Building on the experiences from Bio-EARN, the Bio-resources Innovations Network for Eastern African Development (Bio-Innovate) Program, was set up in 2010 as a competitive funding mechanism in eastern Africa (including Rwanda and Burundi). The focus of Bio-Innovate includes promoting the use of bioscience innovations to improve food and nutritional security and to increase the efficiency of the agro-processing industry, linking research to innovation through public-private sector partnerships.

Bio-Innovate aims to bridge the gap between research, innovation and delivery for end users by linking public universities and national research programmes with key value chain actors such as the private sector, community based organisations (CBOs). The programme envisions becoming a model of how to transform research into innovation and ultimately deliver these products and services to the end user.

The design and achievements of the Bio-Innovate Program were acknowledged in the mid-term review of the programme conducted in 2013.

**FACTS**

Bio-Innovate is characterized by its focus on the "applications of bio-resources innovations to support sustainable growth and transformation of the agricultural and environmental sub-sectors from primary production to value addition, while enhancing adaptability to climatic change and strengthening innovation policy." The Sida contribution over five years (2010–2014) is 80 million SEK.

# Conclusions

**FACTS ABOUT SIDA'S RESEARCH COOPERATION**

The strategy for Sida's support for development research cooperation 2010–2014 is to govern Sida's support for research cooperation during the period 2010 – 2014 inclusive. The strategy is based on the Government's policy for research in Swedish developing cooperation, which in turn is a response to the developing countries' need for scientifically based knowledge as a means of effectively combating poverty. Sida's research support is a cornerstone of the Swedish development research support system.

The overall objective of research cooperation, as outlined in the strategy, is to strengthen and develop research of relevance to the fight against poverty in developing countries and in order to achieve this Sida focuses on three different areas:
- Research capacity building in developing countries and regions
- Research of relevance to developing countries
- Swedish research of relevance to developing countries

By investing in research, Sweden can help strengthen the partner countries' prospects of pursuing research of their own and providing good-quality higher education. The initiative goes together with measures to strengthen the partner countries' ability to formulate and implement research strategies and to ensure that the research undertaken is of a high scientific standard.

Sida's task is to contribute to international research cooperation of relevance to developing countries and to provide researchers and decision-makers in poor countries better access to this type of research.

The evaluation of Sida's Support to Innovation Systems and Clusters states a number of conclusions for research cooperation and wider Sida operations.

The evaluators claim that innovation systems in developing countries tend to have the following characteristics:
- Firms tend to be weaker.
- Innovation systems are more dependent on public policy.
- The role of civil society organisations in promoting innovations can be more important than in richer countries.

In order to increase growth rates in those countries it is important to link traditional and indigenous knowledge and skills with modern knowledge and know-how.

The new knowledge theories and Triple Helix concepts provide a useful method for Sida to combine research and capacity building with short and long-term poverty reduction outcomes.

The Innovation System / Triple Helix / Cluster Initiatives approach provides additional benefits of increased trust and social capital, important factors that promote growth and contribute to improved governance.

The evaluation team concludes that in the absence of an Innovation System approach, the outcome of innovations is lower. This is due to a number of contributing factors:
- Imprecise use of Innovation terminology, with research and innovation used interchangeably.
- Difficulties in improving research management skills.
- University level administrative bottlenecks.
- Procurement issues at participating institutions.
- Challenges related to a weak local private sector.
- Poor analysis of the constraints to innovation in biotechnology.
- Low allocation of resources to "coordination" and "learning".

Innovation systems theory and concepts provided key insights into how to promote innovations with new knowledge theories, while the Triple Helix concept provides a useful method for Sida to combine research and capacity building with short- and long-term poverty reduction outcomes, as well as a number of additional outcomes (e.g. trust and social capital) that also promote growth.

According to evaluators, there is a strong confirmation that the innovation system and cluster theories provide a very good and useful framework for Sida's future research cooperation. They also claim that findings coincide with the Swedish government ambition to focus on greater use of increased capacity, which will lead to positive impact on development.

In general terms, there is an increasing popularity for cluster strategies in the European Union and other OECD countries. There are also a number of Cluster Initiatives taking place in developing and transition economy countries, through donor initiatives or initiatives by local and national governments.

The review also found strong potential for additional use of the innovation concept in many other departments at Sida. For example, Innovation system ideas are being consciously adopted in Business for Development (B4D) and have also been mentioned in the area of health systems.

The findings confirm that innovations in low income countries are not an instant outcome from new research-based knowledge. Innovation outcomes require a wider range of actors to cooperate, as well as these interactions happening at multiple levels. There is also a need for flexible linkages between actors and participatory processes, so the actors can understand one another and work together towards common goals.

An innovation system perspective implies a more complex universe of operations, which explicitly involves learning and coordination components. Innovation activities, which from the outside seem inefficient, should not be judged by prior assumptions, but by the results produced. A good example is the evolvement of the cluster programmes themselves: The evaluators found that the slow speed by which the cluster programmes were allowed to evolve – some three years between involvement of core groups and individuals and the start of the pilot programmes – has in fact helped ensure local ownership.

Site visit of bio-enhanced eggplant, tomato and maize seeds trials at the Jomo Kenyatta University of Agriculture and Technology (JKUAT) in Nairobi, Kenya.

Sida works according to directives of the Swedish Parliament and Government to reduce poverty in the world, a task that requires cooperation and persistence. Through development cooperation, Sweden assists countries in Africa, Asia, Europe and Latin America. Each country is responsible for its own development. Sida provides resources and develops knowledge, skills and expertise.

# Support to Innovation Systems and Clusters within Sida's Research Cooperation

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