



An Action Oriented Tool Kit To Assess Good Practices of Skilled Migrants and Scientific Diasporas

A Swiss Network of Scientific Diasporas to Enforce the Role
of Highly Skilled Migrants as Partners in Development

AN ACTION ORIENTED TOOL KIT TO ASSESS GOOD PRACTICES OF SKILLED MIGRANTS AND SCIENTIFIC DIASPORAS¹

«A Swiss Network of Scientific Diasporas to Enforce the Role of
Highly Skilled Migrants as Partners in Development»

¹ This tool-kit has been prepared by Gabriela Tejada and Piyasiri Wickramasekara based on collaboration between Cooperation@epfl at the Ecole Polytechnique Fédérale de Lausanne (EPFL) and the International Migration Programme of the International Labour Office (ILO) within the framework of the project «A Swiss Network of Scientific Diasporas to Enforce the Role of Highly Skilled Migrants as Partners in Development». This project was carried out with the financial support of the Geneva International Academic Network (GIAN). This tool-kit has benefited from the comments and inputs received from the research and scientific committee members of the project: Jean-Claude Bolay, Phillippe Wanner, Rosita Fibbi, Marie-Claire Caloz-Tschopp, Christiane Perregaux, Carlos Andrés Peña, Claudio Bolzman, Guillermo Arbelaiz, Ibrahima Amadou Dia, Francelle Kwankam and Marco Pecoraro.



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1. BACKGROUND

In recent years the acceleration of international migration flows and those of skilled persons in particular has heightened concerns about how to meet the challenges resulting from this acceleration and about pertinent strategies that can take advantage of the potential benefits deriving from it. While there is growing consensus that skilled migrants do indeed have a key role to play insofar as they are a source of knowledge, ideas and skills circulating among countries, there is also widespread concern about the adverse impact that *brain drain* has on developing origin countries. However, recent global initiatives such as the Global Commission on International Migration, the UN High Level Dialogue on International Migration and Development and the Global Forum on Migration and Development have shown how the feedback effects from skilled migration, in the form of knowledge transfer and circulation, remittances, return and circular migration as well as diaspora linkages, can reverse *brain drain* into *brain gain* and contribute to the scientific and socio-economic development of the home country.

Recognition of diasporas in the international migration and development nexus

Current global initiatives in international migration that promote migration and development linkages recognise the value and the potential of diasporas as development partners.

This tool-kit is an output from the research and action-oriented project «A Swiss Network of Scientific Diasporas to Enforce the Role of Highly Skilled Migrants as Partners in Development», which was carried out by the Cooperation@epfl unit at the Ecole Polytechnique Fédérale de Lausanne (EPFL) in collaboration with the International Migration Programme of the International Labour Office (ILO), the University of Geneva (UNIGE), the Swiss Forum for Migration and Population Studies (SFM), and the University of Lausanne (UNIL). The project received generous support from the Geneva International Academic Network (GIAN).

By considering knowledge as a core catalyst in the struggle against poverty, the project sought to provide a better understanding of the potential that the skilled migrants from

developing countries who live in industrialized countries have in terms of fostering development in their countries of origin through different types of knowledge and skills transfer in the form of *brain gain* and transnational practices.

From brain drain to brain gain

The project stresses the fact that emigrated human capital should not be considered as a definite loss for the country of origin (brain-drain), but rather it should be seen as an accumulation of a plethora of skills, knowledge and further valuable resources that could be mobilised for the benefit of the home country (brain-gain).

The project, carried out between November 2006 and December 2007, studies the scientific diasporas of three developing countries (Colombia, India and South Africa) who have selected Switzerland as their country of destination. Having established its aims, the research traced skilled Colombians, Indians and South Africans living in Switzerland and considered three *brain gain* mechanisms: scientific diaspora networks, investment strategies in research and experimental development (R&D), and North-South research partnership programmes that have been shown to offer promising possibilities for impacting science and technology development in developing countries. The three case study countries with scientific diasporas around the world were selected because of the dynamism of their skilled migrants and their pioneering *brain gain* experiences.

Research on skilled migrants from developing countries in Switzerland

From a brain gain perspective, this project studies the potential of skilled migrants and scientific diasporas from Colombia, India and South Africa in Switzerland to promote socio-economic progress in their countries of origin through innovative ways of transferring knowledge, skills and other valuable resources.

The research project stressed the production of firsthand information through fieldwork based on face-to-face qualitative in-depth interviews to skilled migrants from these three countries using open semi-structured questions. The interviews made it possible to gain a better understanding of the condi-



tions, practices and experiences of the migrants as well as their perceptions of the following issues: 1) their migration determinants, migration trajectories and their living conditions in Switzerland; 2) their links with their countries of origin and the *brain gain* mechanisms and other transnational practices they have implemented; and 3) enabling policies and environments that supports skilled migrants as development partners.

This qualitative research, which includes a gender perspective, provided a sociological portrayal of skilled migrants and explored the favourable conditions as well as the obstacles they confronted as a consequence of the implementation of initiatives intended to benefit their countries of origin. The research illustrates the positive aspects of skilled migration, showing the key role scientific diasporas play in the transfer of technology, skills, knowledge and further valuable resources to their home countries.

Creating an interface between academia and policy making

The project facilitated collaborative interactions with international organisations and key stakeholders aimed at promoting public action and providing policy guidance on how to leverage the skills and resources of the expatriated human capital for the advancement of home development.

By creating sustainable strategic synergies among academic institutions, international organisations, the private sector and NGOs, this project has contributed to the policy dialogue through the organisation of two workshops for the dissemination of the research results and the creation of this action-oriented

tool-kit to assess the good practices of skilled migrants. In specific terms, the research results were disseminated during the final workshop: «Scientific diasporas in Switzerland: main findings, good practices and policy implications». The practical and policy relevance and the implications of the findings were also highlighted at this workshop. There were also some specific recommendations about better ways to mobilise the resources of scientific diasporas for the benefit of home country development².

The book «Scientific Diasporas as Development Partners. Skilled Migrants from Colombia, India and South Africa in Switzerland: Empirical Evidence and Policy Responses», presents the research findings and conclusions of the overall study.³

² The workshop took place at the ILO offices in Geneva on Friday 26, October 2007 and it was hosted by the International Migration Programme at ILO. It was supported by the participation of the project team members as well as diverse stakeholders representing skilled migrants associations and organisations, the private sector, NGOs, embassies, Swiss institutions, academics, students, as well as scientists and professionals from diverse countries. Examples of scientific diasporas' good practices and initiatives were presented by: Dr. Ricardo Chavarriaga, former President of the Association of Colombian Researchers in Switzerland (ACIS), and Scientist at IDIAP Research Institute; Prof. Jaya Krishnakumar, Director, Department of Econometrics, UNIGE; Dr. Archana Sharma, Physicist, European Organization for Nuclear Research (CERN); and Dr. Solomzi Makohliso, CEO, Ayanda Biosystems SA. The draft of this tool-kit was also presented at this event.

³ Tejada, Gabriela and Jean-Claude Bolay (eds.) (2010), *Scientific diasporas as development partners. Skilled migrants from Colombia, India and South Africa in Switzerland: empirical evidence and policy responses*; Peter Lang; Bern; 513 p. (With a preface by Jean-Baptiste Meyer, and contributions from: Jean-Claude Bolay, Marie Claire Caloz-Tschopp, Ibrahima Amadou Dia, Rosita Fibbi, Francelle Kwankam, Marco Pecoraro, Gabriela Tejada and Piyasiri Wickramasekara).



2. OBJECTIVES AND METHODOLOGICAL APPROACH

With the aim of highlighting the relevance of the research results and contributing to the policy dialogue, this action-oriented tool-kit has been developed for the use of practitioners, policy-makers, scientific diasporas and skilled migrants, and other relevant actors in order to help them enhance and/or intensify the positive practices and contributions of scientific diasporas. This tool-kit offers a methodology designed to assess the good practices of scientific diasporas and it provides concrete examples based on the three case-studies that this project has analysed. By analysing the good practices (classifying the type of contribution, the level of involvement and the kind of *brain gain* mechanism), assessing their intended or unintended impacts as well as highlighting their main enabling and hindering factors, this tool-kit proposes a useful method for highlighting similarities and differences between case-studies based on a framework designed for this purpose as explained later.

The use of this methodology facilitates the dissemination of the experiences of scientific diasporas and the possibility of replication of good practices and strategies in different contexts. In addition, this tool-kit presents specific recommendations for concrete action by policy makers and other relevant actors. The overall objective of this tool-kit is to provide a useful guide for the diverse stakeholders who wish to promote *brain gain*, by encouraging them to facilitate positive synergies that could enable or intensify the involvement of scientific diasporas as development partners.

3. CLARIFICATION OF TERMS

Migrants' transnationalism

This term was coined in the early 1990s. The term encompasses the phenomenon of the ongoing back-and-forth movements of migrants between origin and destination countries, who are simultaneously part of two or more different societies and cultures.

Transnational actors/transnational communities

A foreign-born person or a group of foreign-born people whose regular daily activities are conducted across national borders and who classify themselves as having close relations with at least two countries - the feeling of belonging to their country of origin and to their country of residence at the same time. The dual frame of reference of transnational actors means that they constantly contrast their situation in their host country «here» with their condition in the home country «there».

Transnational practices

Activities that are conducted across national borders by transnational communities or individuals.

Diasporas

Transnational communities that bring together migrants who have emigrated, either forcibly or voluntarily, from their homeland to a foreign country or region and who are held together by a common ethnic identity and a collective relationship with their homeland. Some definitions of diaspora stress the fact that members of diasporas should have the will to make a contribution to their homelands.

Scientific diaspora ↘

A self-organised community of immigrant scientists and engineers who (mainly) live in developed countries and who organise to have an impact on the development of their homelands, especially in the fields of science, technology and education. Synonyms: intellectual diaspora, skilled diaspora or knowledge diaspora.

Skilled migrants ↘

Based on the Canberra Manual of the OECD⁴, this term refers to migrants who fulfil either of the following conditions: completion of an undergraduate education in a scientific or technological field; and/or employment in a science and technology related occupation for which it is normally necessary to possess an undergraduate degree.

Brain gain to countries of origin ↘

The way to counter the physical loss of skilled migrants (*brain drain*) by maximizing the contributions of migrants (throughout skills, knowledge, and further social or financial resources flows through either physical or virtual exchanges) to the overall development of their country of origin. *Brain gain* comprises a real impact and/or contribution to the country of origin.

Brain gain practices / brain gain mechanisms ↘

Brain gain practices refer to implemented activities which have a positive impact in the country of origin and which are partly aimed at helping to counter the skills gaps left by emigration. *Brain gain* mechanisms comprise the instruments and channels used to achieve this aim. This project has examined three *brain gain* mechanisms and their specific strategies within skilled migrant practices to benefit their homelands: scientific diaspora networks; strategies of investment in research and experimental development (R&D); and North-South research partnership programmes and projects. All three of these involve knowledge transfer, and in the best cases they also involve knowledge circulation. By examining the functioning of these mechanisms, *brain gain* should be considered as the result or expected outcome of a practice that is a part of them, rather than as a priori component of the practice itself, and which has a real impact and/or makes a contribution in the country of origin.

Knowledge transfer and sharing / knowledge circulation ↘

Knowledge transfer and sharing describes the process of disseminating and making knowledge available. Knowledge circulation implies a two-way process in which knowledge flows to and from different sources. While knowledge transfer could be an isolated or repetitive action in which knowledge moves in only one direction, knowledge circulation implies a cycle where knowledge flows permanently in more than one direction.

⁴ OECD (1995), *Manual on the Measurement of Human Resources Devoted to S&T (the «Canberra Manual»)*, OECD, Paris.

Investment strategies for research and experimental development (R&D) ↘

According to the OECD⁵ definition, research and experimental development (R&D) entails creative work undertaken on a systematic basis to increase the stock of knowledge, and the use of this stock of knowledge to devise new applications. As such, R&D covers three different activities: basic research, applied research, and experimental development. This *brain gain* mechanism arises when skilled migrants occupying high professional positions (mainly in private companies) create joint R&D investments with institutions in the country of origin. This mechanism has helped to create health facilities, educational institutions, foundations that support social projects and other infrastructural development.

North-South research partnership programmes/projects ↘

This mechanism comprises programmes that enforce/enable the implementation of research and action-oriented projects carried out with one partner in an academic and/or research institution in the North and a counterpart in an academic and/or research institution in the South. In Swiss academic circles, this mechanism is widely known as Research Partnerships with Developing Countries and it promotes academic exchanges that increase the circulation of knowledge, skills and social and cultural capital between Switzerland and developing countries. North-South research partnership programmes represent a significant capacity-building component at individual and institutional levels, enforcing research and science and technology in the South as well as in the North.

Scientific diaspora networks/associations ↘

These are self-organised communities of immigrant scientists and engineers, working to impact the development of their homelands through the use of information and communication technologies, especially in science, technology and education.

Social remittances ↘

Ideas, practices, skills, identities and further social and cultural capital transferred through migration circuits. This term refers to all nonmonetary migrant practices that benefit the country of origin beyond tangible financial and economic transfers. We have considered beneficial and philanthropic initiatives as part of social remittances. We have used the term social remittances to refer to any initiatives and practices of skilled migrants that do not fit neatly into the three brain gain mechanisms considered.

Impact ↘

This term is related to the effectiveness of a project or initiative and its success in contributing to its purpose and aims. By as-

⁵ OECD (2008), *Economic, Environmental and Social Statistics* [Available at: <http://masefto.sourceoecd.org/vl=10115071/d=13/nw=1/rpsv/factbook/index.htm>]



Assessing the impact of the practices of skilled migrants, we consider the intended and unintended implications that a project/practice has for the context and the population in the mid to long-term. Migrant initiatives that take place without a specific project can have implications through the expectations created or the changed behaviours of stakeholders. This means that the purpose and aims reflect intended impacts during the planning of a project, but unintended impacts can also be found during the process of project planning and implementation. For instance, impacts that are produced in the process of construction and/or circulation of knowledge might imply changes in the way of doing research, planning, identifying, analysing and/or solving problems, and not only in the results showed.

4. CATEGORIZATION OF GOOD PRACTICES BY LEVEL OF INVOLVEMENT

Different categories of the good practices should be identified by taking three different levels of involvement into account:

- a. good practices at an individual level
- b. good practices at a group level (collective good practices)
- c. good practices at an institutional level

5. CATEGORIZATION OF GOOD PRACTICES BY TYPE OF BRAIN GAIN MECHANISM

Different categories of the good practices should be built by taking four different kinds of *brain gain* mechanism into account:

- a. North-South research partnerships programmes/projects
- b. Scientific diaspora networks
- c. Investment strategies for research and experimental development (R&D)
- d. Social remittances

6. EVALUATION CRITERIA FOR THE IDENTIFICATION OF GOOD PRACTICES

The following 6 criteria should be taken into account whenever an activity is being considered as a good practice. The main good practices for each case-study should be identified on the basis of these criteria, which provide information on the reasons for their selection. All the criteria may probably not be applicable to each practice. A combination of two or more criteria should serve as the starting point for the analysis.

1. **Human rights-based approach.** *Is the practice in line with international norms for protecting the rights of migrant workers?⁶ Does the practice contribute to the protection of the rights of migrant workers?*
2. **Development-based approach.** *Does the practice contribute to having an impact and/or advancing scientific or socio-economic development, education and knowledge, or other key development fields which could help to reduce poverty?*
3. **Relevance and effectiveness.** *Does the practice adequately serve/meet its purposes and objectives?* Consideration of the usefulness of the practice results in solving the identified problems and the strategy to address them. Relation between the assessment of the needs and the strategy to address these.
4. **Impact and externalities.** *What were the positive consequences on social and economic development, minimizing the negative effects of skilled migration?* (For instance: mid to long-term effects produced, directly or indirectly, intended

⁶ The most relevant of these are ILO international labour standards and international instruments. See: ILO (2006), *ILO Multilateral Framework on Labour Migration, Non-binding principles and guidelines for a rights-based approach to labour migration*; ILO, Geneva.



or unintended). *Were any unintended impacts identified during the process for achieving the practice? Did the practice have any unintended positive impacts on people other than the immediate beneficiaries? Did the practice produce a multiplier effect on others beyond the targeted beneficiaries?*

5. **Sustainability.** *Including financial support - what is the long term sustainability of the practice? Does it have the capacities to continue without substantial financial or human resources support?*
6. **Potential for replication and adaptability.** *What is the potential for replication and adjustment to the evolving context?* This relates to the adaptability of the practice to other contexts and situations as well as to the mechanisms put in place to revise and adapt the process and strategy to changing environments and new challenges (the evaluation reports and the documentation of the lessons learnt could be useful instruments for assessing the potential for expansion).

7. IDENTIFICATION OF ENABLING AND HINDERING FACTORS

The determinant factors that facilitate the initiatives of skilled migrants to support their homelands should be identified for each good practice and/or initiative. Following the scheme proposed by J. Brinkerhoff⁷, the main enabling factors that should be taken into account are: motivation and affective capital; ability to mobilise; and enabling environment and policies. Brinkerhoff describes **motivation** as the preference to preserve

solidarity and exercise group influence. Skilled migrants feel a moral responsibility to give something back to their home countries. Motivation or *affective capital* is an entrenched characteristic of the identity of diasporas. The expression of identity as a motivation can be encouraged through the development of collective activities in favour of the home country. The sense of community of organised scientific diasporas reinforces personal and individual inspirations to have an impact. As a result, the **ability to mobilise** is very important.

Pertinent policies that can encourage the flow of resources and knowledge from skilled migrants contribute to creating an **enabling environment**, which is conducive to diaspora resources and to pursuing positive endeavours for their home country and this is mainly based on the initial structures and the available opportunities that encourage such an environment. These might include: support from state institutions both in the country of origin and in the country of destination; access to infrastructure and resources; institutional programmes; encouraging policies related to S&T; a stable political system; appropriate social and economic conditions in the home country; full recognition in the country of destination, etc.

8. IMPACT ASSESSMENT BY TYPE OF CONTRIBUTION

The contributions that are identified should be classified into different types. For example, contributions in:

1. Design and implementation of public policies;
2. Training and education in S&T;
3. Communication and mobilization;
4. Establishment of programmes and projects;
5. Establishment of research centres through direct investment;
6. Others.

⁷ Brinkerhoff, Jennifer (2006), «Diasporas, skills transfer and remittances: evolving perceptions and potential», in Wescott and Brinkerhoff (eds.), *Converting migration drains into gains: harnessing the resources of overseas professionals*, Asian Development Bank, Manila, pp. 1-32.

9. POLICY RECOMMENDATIONS

The evidence provided by the project «A Swiss Network of Scientific Diasporas to Enforce the Role of Highly Skilled Migrants as Partners in Development» shows the opportunities of skilled labour migration and the increasingly significant role that scientific diasporas play in the transfer of technology, skills and knowledge to their home countries. Some of the good practices of skilled Colombians, Indians and South Africans in Switzerland, identified through the project and presented in this «tool-kit», show that it is indeed possible to leverage the potential of scientific diasporas as agents of home country development, if they are supported by enabling environments in both the countries of origin and those of destination. The research provides evidence to show that institutions within the areas of science, technology and socio-economic development, in both the destination countries and the countries of origin, must be actively involved to ensure that the transnational initiatives of the skilled migrants can achieve an impact.

Some lessons learnt: reasons for success and reasons for failure

In order to be able to develop appropriate policy responses it is important to identify the key factors that influence the transitional activities of scientific diasporas. According to the experiences of skilled Colombians, Indians and South Africans in Switzerland, some enabling elements behind the reasons for success are: personal motivation and enthusiasm; their deep understanding of the lifestyles and culture of the home countries; and their professional, scientific and personal network of contacts and linkages. To facilitate the possibility of creating an impact, it is necessary to reinforce these elements through institutional support, making funding available, adequate networking and communication, as well as through adequate mobilisation and encouragement to work in associations and organisations that can leverage the initiatives collectively.

The impediments limiting the endeavours of skilled migrants towards their country of origin are a consequence of the main obstacles and hindrances they have to face upon arrival in the country of destination. These include the non-recognition of their academic degrees; time limitations; administrative and financial constraints; a lack of institutional support; a precarious residential and/or professional status; lack of information on diaspora associations, on their activities and potential projects; insufficient political commitment; a lack of motivation following individual efforts that have not been very sustainable; and a lack of information about opportunities to collaborate with the home country.

Collective efforts and institutional support to create an impact

Collective actions based on established associations and institutionally backed initiatives to capitalise on the skills and resources of scientific diasporas are crucial.

The plethora of skills, expertise and further valuable resources that skilled migrants can offer have a great potential to positively influence their country of origin, but there must be a deepening of the proper channels for more effective interaction among all relevant actors in order to enhance these possible contributions.

Based on the research it is possible to make the following recommendations for public policy:

- Both the countries of origin and the countries of destination should play a proactive role aimed at facilitating the forging of links with scientific diasporas in order to encourage them to become true development partners, through:
 - The promotion of good dialogue and communication with scientific diasporas
 - The provision of support for the creation of scientific diaspora associations and networks and of encouragement to appropriate public initiatives
 - The promotion of dissemination of information about the status, activities, skills and contributions of scientific diasporas and encourage a board recognition of their value
 - The encouragement of dissemination of good practices that can contribute to the stimulation of further diaspora initiatives and collaborations between relevant parties
- There should be adequate policies in the countries of destination to support and facilitate the integration and initiatives of skilled migrants
- In the countries of origin, an adequate infrastructure and an enabling environment should be promoted to make sure that the initiatives of scientific diasporas can crystallize and lead to specific projects that can have an impact.
- Both the countries of origin and the countries of destination should create the conditions that are conducive to circular migration and temporary return, while reintegration programmes should be connected to labour market policies.

Finally, the following recommendations can be made to encourage the actions of other key stakeholders:

- Public institutions, NGOs, as well as the private and academic sectors should promote policies and/or projects involving diasporas and skilled migrants; specific areas of collaboration with the diaspora should be identified while the engagement of diasporas in their activities should be systematically encouraged.
- If all stakeholders systematically recognize the valuable resources and initiatives of diasporas, this can help to increase their visibility and motivate the involvement of further diaspora members.
- A greater awareness of current initiatives and collaborations between diasporas and the various actors should be promoted, and good practices should be well disseminated.
- Bottom-up and grassroots level efforts should be complemented by top-down institutional and governmental initiatives.
- Skilled migrants should continuously promote good networking practices in both the professional and the personal spheres while other actors should encourage them to do so in order to secure and increase the social capital of migrants.
- Policy coherence at a global level to address migration and development linkages should be enhanced.
- Research into scientific diasporas should be encouraged and the results of this research should be widely disseminated in order to take advantage of their potential.

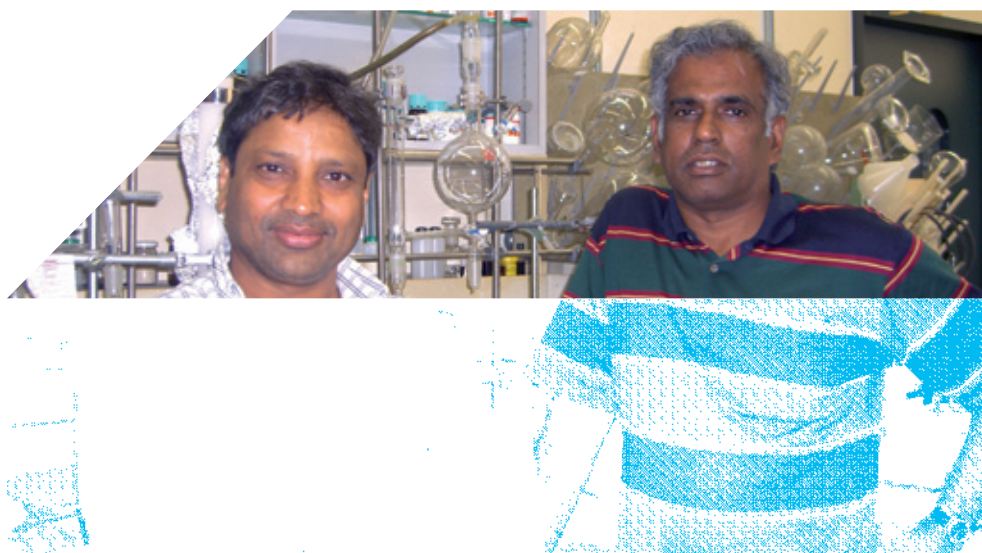
10. EXAMPLES OF GOOD PRACTICES

Good Practice N° 1: Association of Colombian Researchers in Switzerland (ACIS) ↘

Country involved	Colombia
Title of the initiative	Association of Colombian Researchers in Switzerland (ACIS)
Type of initiative according to level of involvement	Collective practice
Type of initiative according to kind of <i>brain gain</i> mechanism	Scientific diaspora association
Aims and objectives	ACIS seeks to facilitate exchanges among scientists and researchers living in Switzerland who are interested in establishing scientific and professional links with Colombia. It promotes and supports activities related to the scientific and technological development of Colombia, encouraging scientific cooperation projects and programmes; and it disseminates information on these issues. It encourages the establishment and reinforcement of links with national and international institutions that can help it achieve its objectives.
Authors and actors	A group of Colombians active in different academic and scientific activities at the EPFL, who then formed the core of the Colombian scientific diaspora in Switzerland.
Geographical scope	Colombia, Switzerland and beyond
Brief description of the initiative	ACIS was created in 1992 by a group of Colombian scientists at the EPFL as an association of people linked to S&T activities with a view to promoting the implementation of collaboration projects with Colombia. ACIS started with the participation of some 30 Colombians scientists and professionals from diverse fields. During the 1990s ACIS functioned as the Swiss node of the Colombian Caldas Network. Today, ACIS has some 100 members.
Results achieved and impact by evaluation criteria	<p>Development-based approach: The creation of ACIS sought to impact the development of S&T in Colombia through knowledge exchange and circulation.</p> <p>Sustainability: ACIS is financed by membership fees and occasional donations; it lacks sustainable financial support to push its initiatives further.</p> <p>Adaptability: Has already existed for the last 18 years, ACIS has been able to adapt to the evolving context, which it has mainly done by taking the institutional changes and financial crises in Colombia into consideration.</p> <p>Impact: The impact of ACIS on S&T development in Colombia should be assessed mainly through the projects that have been carried out by its members during its existence.</p>
Main enabling factors	<p>The motivation of scientists and professionals to contribute to S&T development of Colombia was the core element behind the creation of ACIS. This motivation is also perceived in the new generation of ACIS members.</p> <p>The ability to mobilise was also present since individual members of the Colombian scientific diaspora with a common goal mobilised in order to gather more interested people and to work together to establish the association. This mobilization to work collectively is still perceived today.</p> <p>While an enabling environment was provided at the beginning when ACIS became the Swiss node of the Caldas Network, the association has lacked sustained institutional support. Its outstanding bottom-up efforts should be complemented by top-down institutional support.</p>
Impact assessment by type of contribution	Most likely areas of impact: training and education in S&T; communication and mobilization; and establishment of programmes and projects.
Contact details, links to further information	http://www.acis.ch

Good Practice N° 2: Cooperation Programme in the Environmental Field between EPFL and UNIVALLE

Country involved	Colombia
Title of the initiative	Cooperation Programme in the Environmental Field between EPFL, UNIVALLE and other Colombian Institutions
Type of initiative according to level of involvement	Collective practice (based on individual motivation)
Type of initiative according to kind of <i>brain gain</i> mechanism	North-South research partnership programme
Aims and objectives	The programme aims to make a contribution to solving Colombia's environmental problems. Its main objectives are: 1) to strengthen the scientific capacity of Colombian institutions through courses (mainly in Colombia), and training and research (mainly in Switzerland); 2) to provide added value to EPFL and other Swiss researchers/students through training and research activities in Colombia; 3) to launch cooperation projects between EPFL and Colombian institutions.
Authors and actors	Dr. Cesar Pulgarin; Electrochemical Engineering Group, Institute of Chemical Sciences and Engineering, EPFL, Switzerland; in partnership with the Institute of Chemical Engineering, Universidad del Valle, Colombia.
Geographical scope	Colombia - Switzerland (and third countries)
Brief description of the initiative	This programme was initiated by Colombian scientists at the EPFL (some of the most active members of the Colombian scientific diaspora in Switzerland) based on individual motivation to encourage research on environmental issues in Colombia, as well as on the firm interest of promoting capacity building and the circulation of students and scientists between the two countries.
Results achieved and impact by evaluation criteria	<p>Development-based approach: The projects within this programme aim at tackling Colombian environmental problems. It includes a concrete S&T application in social development by providing solutions for the improvement of the environment and the quality of life in Colombia.</p> <p>Impact and externalities: The programme has encouraged/enabled the launch of further projects in similar research fields. The main quantifiable results of the programme are: 17 PhDs and Post Docs; 19 MA Diplomas; 5 undergraduate studies; 25 trainings; the publication of more than 50 papers in international scientific journals and congresses. Important attention has been paid to the potential return to Colombia of the scientists that have come through this programme.</p> <p>Sustainability: The strong links established with the Universidad del Valle have certainly helped to the sustainability of projects in this area. The programme has contributed to the development of a critical mass of Colombian researchers in this specific field.</p> <p>Potential for replication: The programme has encouraged the launch of further projects in similar research fields.</p>
Main enabling factors	Strong personal motivation and the ability to mobilise and encourage collective action are factors that have helped to move this initiative forward. Further enabling factors include: a knowledge of both cultures and contexts (Colombia and Switzerland); scientific excellence; strong scientific and personal links and contacts and networking.
Impact assessment by type of contribution	Most likely areas of impact: training and education in S&T; communication and mobilization; and the establishment of programmes and projects. To a lesser extent, contributions to the design and implementation of public policies related to environmental problems in Colombia.
Contact details, links to further information	Dr. Cesar Pulgarin cesar.pulgarin@epfl.ch http://cooperation.epfl.ch/Jahia/site/cooperation/op/edit/lang/fr/pid/61304



Good Practice N° 3: The Swiss-South African Bilateral Research Programme

Country involved	South Africa
Title of the initiative	The Swiss-South African Bilateral Research Programme
Type of initiative according to level of involvement	Institutional practice
Type of initiative according to kind of <i>brain gain</i> mechanism	North-South research partnership programme
Aims and objectives	The programme seeks to impact social and economic development by resourcing joint projects of strategic relevance for both countries in S&T.
Authors and actors	South African Department of Science and Technology and the Swiss State Secretariat for Education and Research
Geographical scope	South Africa - Switzerland
Brief description of the initiative	The bilateral agreement on S&T between the South African Department of Science and Technology and the Swiss State Secretariat for Education and Research was signed in 2007. The signatories pledged their commitment to increasing interaction through joint scientific research, cooperation programmes, exchanges and seminars in the areas of public health and bio-medicine, biotechnology and nanotechnology, and human and social sciences. The Swiss-South African Joint Research Programme (SSAJRP) is the mechanism launched to foster research partnerships between scientists from the two countries through joint research projects; it also facilitates faculty and students exchanges to promote innovation and knowledge circulation.
Results achieved and impact by evaluation criteria	Directly impacts capacity development in S&T; directly relevant to South Africa and Switzerland's needs to broaden S&T research while sustainability seems to have strong backing from the two state institutions. Could be replicated in other contexts provided that state entities are involved and the necessary critical mass of S&T researchers and scientists exists in both countries.
Main enabling factors	Great motivation of both parties involved to improve and sharpen the S&T landscape and capacity in South Africa. This top-down initiative has encouraged mobilisation because the resources are available and shared goals and a sense of partnership flourish. Opportunity structures as an enabling environment are available for this project (resources, funding, sense of partnership between two powerful state entities and shared goals). This initiative is creating an enabling environment to further impact S&T in South Africa and Switzerland.
Impact assessment by type of contribution	Training and education in S&T and establishment of scientific and research programmes and projects.
Contact details, links to further information	http://internationalaffairs.unibas.ch/priority-countries/south-africa/

Good Practice N° 4: South African Centre of Epidemiological Modelling and Analysis (SACEMA) ↘

Country involved	South Africa
Title of the initiative	South African Centre for Epidemiological Modelling and Analysis (SACEMA)
Type of initiative according to level of involvement	Institutional practice
Type of initiative according to kind of <i>brain gain</i> mechanism	North-South research partnership programme/project
Aims and objectives	SACEMA aims at conducting valuable research and contributing epidemiological information in order to help alleviate the main diseases that are plaguing South Africa and predict them before they take hold. It promotes training of professionals to improve the capacity of South Africans within the fields of math, epidemiology and health.
Authors and actors	Centre of Excellence created by the Department of Science and Technology and the National Research Foundation of South Africa.
Geographical scope	South African institutions of higher learning (University of Stellenbosch), international institutions of higher learning (London School of Hygiene and Tropical Medicine), specialized UN organizations (World Health Organization), institutes of research (Pasteur Institute, Institute de Recherche pour le Développement).
Brief description of the initiative	SACEMA is a national research centre that runs postgraduate (Master) level courses for African students. It supports relevant projects and organizes maths and epidemiology workshops. Housed at the University of Stellenbosch, this initiative uses the mathematical modelling of disease transmission and progression to identify the leading causes of disease in South Africa.
Results achieved and impact by evaluation criteria	This project impacts key development fields, improving capacities in epidemiology/health, mathematics and seeks to contribute to better public/state policies on health and disease. It has long-term sustainability as it is supported by the Department of Science and Technology and the South African National Research Foundation (NRF) and is the 7 th such centre to be established. In order to ensure replication , it would be necessary to have requisite funds and for all partners to have an S&T capacity. It could be adapted to various health contexts throughout the developing world.
Main enabling factors	Scientists, researchers, lecturers are well motivated to use epidemiological modelling to identify upcoming disease outbreaks and mitigate current pathologies. The ability to mobilise is high as all have a shared sense of goals, partnership and a desire to impact their country of origin. An enabling environment is available as it has state-support and resources, good infrastructure for research in South Africa, as well as strong partnerships with institutions involved.
Impact assessment by type of contribution	Training and education in social sciences, establishment of programmes and projects, establishment of research centre through direct investment.
Contact details, links to further information	http://www0.sun.ac.za/sacema/about.html

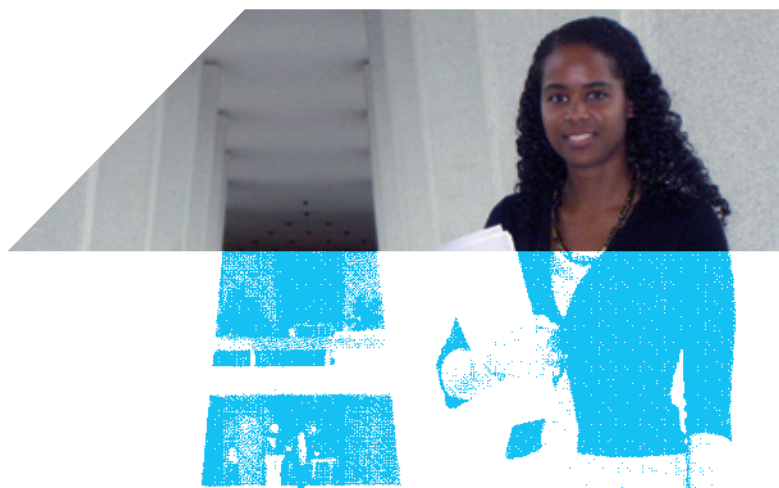


Good Practice N°5: Science and Technology Professionals of Indian Diaspora Website

Country involved	India
Title of the initiative	Science and Technology Professionals of Indian Diaspora Website
Type of initiative according to level of involvement	Institutional practice
Type of initiative according to kind of <i>brain gain</i> mechanism	Scientific diaspora network
Aims and objectives	The main objective of this website is to create a synergy between local Indian counterparts and Scientists and Technologists of Indian Origin based abroad (STIOs). The website is guided by the mission of the Government of India to strengthen networking with the diaspora aiming at enhancing India's excellence and global competitiveness.
Authors and actors	This project was initiated by the Indian Ministry of Science and Technology as part of the overall initiative of the Government of India on collaborating with its diaspora (Ministry of External Affairs). The Department of Science and Technology (DST) is responsible for the website. STIOs feed this website.
Geographical scope	Worldwide
Brief description of the initiative	The S&T Professionals of Indian Diaspora website is a network aimed at mobilizing overseas scientists and technologists of Indian origin. It includes a wide range of skilled and qualified personnel in industries, research laboratories, universities and scientific departments in destination countries as well as STIOs involved in transnational business activities (technology intensive business and venture capitalists).
Main enabling factors	Skilled Indians abroad have a great motivation to offer their competences and skills to their home country. Some have had significant international success in the fields of S&T and business. Policy makers in India have an increasing awareness of the potential of diasporas and have thus provided institutional support to capitalise on their resources. The website offers opportunities to mobilise and to make use of the skills and resources of the Indian diaspora.
Contact details, links to further information	http://stio.nic.in/

Good Practice N°6: The School of Biotechnology at the KIIT University in Orissa ↘

Country involved	India
Title of the initiative	KIIT School of Biotechnology at the KIIT University in Orissa
Type of initiative according to level of involvement	Collective practice (based on individual motivation)
Type of initiative according to kind of <i>brain gain</i> mechanism	Knowledge transfer
Aims and objectives	The objective of the KIIT School of Biotechnology is to provide knowledge and skills in biotechnology to Master's students in accordance with international standards.
Authors and actors	The project was initiated by a former Indian post-doctoral student at the Swiss Federal Institute of Technology in Zurich (ETHZ) with support from Swiss agencies and Nobel Prize winners
Geographical scope	India
Brief description of the initiative	This institute strives to extend knowledge and skills in the field of biotechnology in India, mainly in Orissa, which is one of the country's poorest states. The staff includes Indian local scientists and researchers as well as STIOs abroad (in Switzerland, Germany, etc.) including Nobel prizes winners, while distinguished professors and scholars are members of the scientific advisory board. The disciplines are structural biology, the environment, human nutrition and infectious biology. According to the founder of the institute, the main priority is to «look for funds» «because biotechnology is an expansive area». His desire is to contribute to extending biotechnology education, one of the «most neglected areas», in India.
Main enabling factors	<p>Motivation, willingness and commitment vis-à-vis enhancing S&T institutes in India in the field of microbiology are apparent. The commitment to return to the country of origin in order to use skills, social capital and networks acquired in Switzerland for the benefit of India is also significant.</p> <p>Mobilisation through scientific and social networks at both a local and an international level helped this initiative. The author met with many skilled Indians and academics in the field of biotechnology and related sciences to convince them to teach or support him in his project. The institute hires talented Indians abroad and locally, and receives support from Nobel Prizes winners.</p> <p>There is a supportive environment thanks to social and scientific networks gained by the director of the Institute in India, Switzerland, Europe, USA, etc. Receptiveness of the fundamental role of scientists and researchers abroad in development and S&T among policymakers in India has been a key institutional support. The existence of bilateral scientific programme between Switzerland and India in the field of biotechnology (the ISCB project) has also helped.</p>
Contact details, links to further information	Dr Mrutyunjay Suar, Director, msuar@kiitbiotech.ac.in http://www.kiitbiotech.ac.in/



Good Practice N°7: The Indo-Swiss Collaboration in Biotechnology (ISCB) ↴

Country involved	India
Title of the initiative	The Indo-Swiss Collaboration in Biotechnology (ISCB)
Type of initiative according to level of involvement	Institutional practice
Type of initiative according to kind of <i>brain gain</i> mechanism	North-South research partnership programmes and R&D
Aims and objectives	The objective of the ISCB is to establish equitable research partnerships between Indian institutes and their counterparts in Switzerland. Its mandate is: 1) to develop products and biotechnological processes which have an impact on poverty reduction and the sustainable management of natural resources in India; 2) to focus on innovative technologies in agriculture and environmental research; and 3) to build capacities and R&D partnerships between Swiss and Indian Institutions and private companies with strong economic, social and ecological relevance.
Authors and actors	The programme is jointly funded by the Swiss Agency for Development and Cooperation (SDC) and the Department of Biotechnology (DBT) of the Government of India. The overall coordination and implementation of the programme is assigned to a Programme Management Unit located at EPFL, Lausanne. The project implementers are Indian and Swiss research institutions
Geographical scope	The programme currently involves 23 research groups in India (all over the country) and 13 in Switzerland (all over the country).
Brief description of the initiative	The ISCB programme supports joint projects with at least one Swiss and one Indian partner to create synergies across institutes and national borders. In order to enhance the quality of the collaborative projects and to ensure that the research activities lead to product development and diffusion, the ISCB has adopted the concept of the 'integrated value chain'. The concept is best understood as a chain of events that starts with the definition of a problem and ends with the sustained market penetration of a new product, process, or service.
Main enabling factors	There is a real willingness to enhance scientific bilateral cooperation, as well as a strong support from both funding agencies. The good geographical coverage illustrates the commitment from both the Indian and the Swiss sides. The ability to mobilise underlines the principle of partnership. The institutional support is at the core of this initiative; by selecting scientists with outstanding experience and background on the basis of scientific competence, this project aims to make Indian researchers more visible and it enables them to establish bilateral collaborative research programs with Swiss counterparts.
Contact details, links to further information	Dr. Doris Herrmann, Programme Manager doris.herrmann@epfl.ch http://iscb.epfl.ch



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