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INTERNATIONAL SCIENCE PROGRAMME ISP

Phased out groups and networks 2003–2014

- Experiences and continued activities





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Abbreviations & Acronyms

AFASSA	Africa-Asia-South America Coordinating Group for Natural Products Research
BAN	Bangladesh
CAM	Cameroon
COL	Colombia
ECU	Ecuador
ETH	Ethiopia
FOSNNA	Food Science and Nutrition Network for Africa
GDP	Gross Domestic Product
GHA	Ghana
IMS	National Institute for Mathematical Sciences
IPICS	International Programme in the Chemical Sciences
IPMS	International Programme in the Mathematical Sciences
IPPS	International Programme in the Physical Sciences
ISP	International Science Programme
LANFOOD	Latin American Network for Food Research
LAO	Laos
LATSOBIO	Latin American Solid Phase Biotechnology Network
MAW	Malawi
MOLCAS	Cassava Molecular Diversity Network
NGO	Non-Governmental Organization
NIG	Nigeria
PER	Peru
SARBIO	Southern African Regional Cooperation in Biochemistry, Molecular Biology and Biotechnology
SEN	Senegal
SRI	Sri Lanka
Sida	Swedish International Development Cooperation Agency
SSN	Southern Summer School of Neurosciences
TAN	Tanzania
THA	Thailand
UGA	Uganda
URU	Uruguay

Executive summary

Introduction

International Science Programme (ISP) at Uppsala University assists low-income countries to build and strengthen their domestic capacity for research and postgraduate education in the basic sciences chemistry, mathematics and physics. ISP provides support to research groups and regional scientific networks at universities and institutes in Africa, Asia and Latin America.

One of the core features of ISP's model is to provide long-term support, because building capacity for research and higher education takes time. However, at some point in time, ISP support has to be concluded. The focus and main purpose of this report is to find out what happened to the research groups and networks where ISP support was terminated during the years 2003–2014. The aim is to look at their continued activities and gather their experiences and opinions of the ISP support and the phase out period.

Activities phased out of support

In this period, ISP has phased out 57 activities - 49 research groups and eight networks. The chemistry program (IPICS) has phased out support to 32 activities, the mathematics program (IPMS) to three activities and the physics program (IPPS) to 22. The average supporting time of the research groups and networks was 18 and nine years, respectively.

Most (25) of the research groups and networks phased out of support are located in Africa, 15 are in Latin America, and 15 are in Asia. There are also two interregional networks.

Why did the support end?

The main reasons given by ISP for phasing out support are:

- 1) Sustainability
- 2) Lack of progress
- 3) External reasons

A large majority (44/57) of the phased out groups and networks was concluded due to external reasons. The most common external reason was a decision taken by the ISP Board to phase out support to activities not located in so called least developed countries. This, in combination with a Swedish governmental policy change limiting the scope of long-term support to 12 selected focus countries, was the main reason to phase out support during this period. In addition, support to nine research groups and networks was phased out because sustainability had been reached, and four because of lack of progress.

Contributions of the ISP support

The ISP support and the contributions of the support have differed between the groups and networks, depending on their different needs and operating context. The three main areas of contribution are:

- 1) Equipping the laboratories
- 2) Training staff and students
- 3) Provision of research contacts and collaboration

Experiences and opinions

A large majority of group leaders and network coordinators stated that the reasons given by ISP for phasing out support were sufficiently clear. There is, however, considerable variation in how far ahead the groups were informed that the support would end, ranging from 1–6 years. Several were of the opinion that they were not provided with a warning in sufficient time. Most did, however, experience flexibility in the phase out period, allowing PhD students to finalize their studies after the official concluding date.

Most of the consequences of the ending of ISP support were considered negative. With a fairly short notice and with ISP as the main source of funding, many experienced a decline in their research and postgraduate activities. Collaboration with scientist abroad, support to postgraduate students, and lack of funds for instrumentation, maintenance and consumables were areas pointed out as particularly affected.

Continued activities

A majority of the supported groups and networks are still active (47 of 57). Most have been able to secure grants from both national and international funding agencies. A large majority currently has active PhD students. Most have graduated at least one PhD student after the conclusion of ISP support, and have published papers in international journals.

Some, however, did not make the phase out transition as smoothly, and point to reduced research activity and PhD training as consequences. In total, nine groups and networks have completely ceased activities. Lack of funding and successors of group leaders and coordinators are the main reasons. The current fate of one activity could not be disclosed.

Conclusions and improvements

The experiences communicated by groups and networks suggest that improvements can be made to develop the future phase out processes. Such Improvements include:

- ISP communicating the plan to conclude support at an early stage and providing an actual phase out period.
- ISP allowing use of funds in balance and some additional support after phase out.
- ISP making better use of the capacity of phased out groups and networks.
- ISP providing training in writing grant applications during the phase out period.
- ISP establishing criteria for when support should be phased out.
- ISP widening its funding base.

Introduction

The International Science Programme (ISP) was established at Uppsala University in 1961. The objective of ISP is to contribute to the development of active and sustainable environments for higher education and scientific research in low-income countries, within chemistry, mathematics, and physics, in order to increase the domestic production of research results and skilled graduates in the fight against poverty. ISP provides support to research groups and regional scientific networks at universities and institutes in Africa, Asia and Latin America. One of the core features of ISP is long-term engagement, because building capacity for research and higher education takes time. At some point of time, however, ISP support comes to an end. The main reasons given by ISP for ending support, or '*phasing out*' support as it will be referred to from now on, are:

- 1) Achieved sustainability - the groups and networks can sustain on their own without ISP support.
- 2) Lack of progress - the groups or networks have made no or very little progress.
- 3) External reasons - factors not related to reasons 1 and 2.

Objective

The objective of the report is to present group leaders' and coordinators' opinions and experiences of the period of support and the period of support phase out, as well as to provide information of the current activity of the groups and networks. The main goals are:

- 1) To collect information about what group leaders and network coordinators see as benefits of the ISP support.
- 2) To examine how ISP has communicated and handled the phase out of support period, and obtain views on what could be improved in future phase out processes.
- 3) To investigate whether research groups and networks phased out of support are still active.

Methodology

Research groups and networks phased out of support between 2003 and 2014 were identified by reviewing ISP annual reports.¹

To gather information about the experiences, views and current activity of the phased-out groups and networks, an online questionnaire consisting of 33 questions was provided in May 2015 to the leaders and coordinators of 47 phased out research groups and networks. The questionnaire was not provided to the leaders of the ten groups where ISP support was later reinstated,² in which cases information was provided by the concerned ISP program director.

In all, 20 former group leaders and coordinators answered the questionnaire online. In addition to that, eleven provided their answers in interviews conducted in 2014 and 2015, in connection to a study of former collaboration with research groups in Sri Lanka and Thailand,³ and in an interview with a former group leader from Cameroon, visiting Sweden in 2014. In cases where the group leader or network coordinator was unavailable or had passed away, the questionnaires were answered by successors. In 12 additional cases, information was received through email contact. In three cases where email contact could not be established, information was provided by the concerned ISP program director. In one case, details about the continued activities are unknown. In total, information was collected from 46 out of 47 groups. See Table 1 (p.10) for specific details on information retrieval.

¹ Available at: <http://www.isp.uu.se/publications/#AR>

² More information about these groups can be found in the section: [Activities back under ISP Support](#)

³ "The International Science Programme in Sri Lanka and Thailand: Three decades of research cooperation" is available at: <http://urn.kb.se/resolve?urn=urn:nbn:se:uu:diva-328702>

Structure

The report is divided into five main parts, starting with an overview of the supported groups and networks (Chapter 1). The following three parts (Chapters 2, 3 and 4) are based on the experiences communicated by group leaders and network coordinators. These parts include what benefits the ISP support has implied (Chapter 2), how the phase out period was experienced in terms of communication, time, positive and negative consequences, and possible improvements (Chapter 3), and the current activity of the phased out groups and networks (Chapter 4). Finally, Chapter 5 features conclusions, improvements and responses. Appendix 1 specifies details and reasons for phase out. Appendix 2 describes the continuation, or not, of activities. The online questionnaire can be found in Appendix 3.

1. Overview of the phased out activities

Over the years 2003 to 2014, ISP has phased out support to a total of 57 activities, comprising 49 research groups and eight networks (Table 1). The chemistry program (IPICS) has phased out support to 32 activities (25 research groups and seven networks), the mathematical program (IPMS) to three activities (two research groups and one network), and the physics program (IPPS) to 22 research groups.

Ten of the research groups originally phased out of support are back under ISP support again. These comprise of four research groups in Ethiopia (IPICS ETH:01, IPMS ETH:01, IPPS ETH:01, and IPPS ETH:02) three in Uganda (IPICS UGA:01, IPICS UGA:02, and IPPS UGA:01/2), and three in Laos (IPICS LAO:02, IPICS LAO:03 and IPPS LAO:01).

Where?

Most (25) of the research groups and networks phased out of support are located in Africa, 15 are located in Latin America, 15 in Asia and two are interregional networks (Figure 1).

More specifically, the 49 research groups phased out of support are at academic institutions in:

- **Africa:** Cameroon, Ethiopia, Ghana, Malawi, Nigeria, Senegal, Tanzania, and Uganda
- **Asia:** Laos, Sri Lanka and Thailand
- **Latin America:** Colombia, Ecuador, Peru and Uruguay

The eight networks phased out of support cover numerous countries in these regions. Because of the different nature of the networks (ranging from networks of individual scientist, to student summer schools, and networks acting as coordinating body of other networks), it is difficult to pin-point countries in the same way as for research groups. Among the eight phased out networks there are two regional and one national network in Africa, three regional Latin American Networks and two interregional ones.

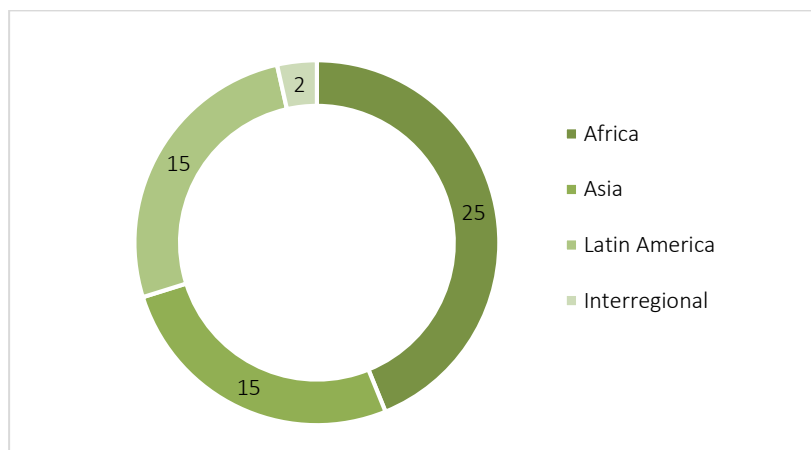


Figure 1. Number of research groups and networks phased out of support, by region.

Table 1. Research groups (49), by country, and scientific networks (8), by region, phased out 2003-2014.

Country/Code	Research Field	Start	End	Means of information retrieval
Bangladesh				
IPICS BAN:01	Natural Product Chemistry	1977	2004	Email response
IPICS BAN:03	Medicinal Chemistry	1995	2008	IPICS program director
Cameroon				
IPICS CAM:01	Molecular Biology/Biochemistry	1988	2008	Interview
IPICS CAM:02	Natural Product Chemistry	1991	2008	Online questionnaire
IPMS CAM:01*	Mathematical Analysis/Geometry	2003	2009	Online questionnaire
Colombia				
IPICS COL:01	Medicinal Chemistry	1987	2004	Email response
IPICS COL:03	Natural Product Chemistry	1992	2004	Email response
IPPS COL:01	Condensed Matter Physics	1976	2004	Online questionnaire
IPPS COL:02	Materials Science	1985	2005	Online questionnaire
Ecuador				
IPICS ECU:01	Biochemistry/Biotechnology	1984	2007	Online questionnaire
IPPS ECU:01	Laser Physics	1992	2006	Online questionnaire
Ethiopia				
IPICS ETH:01	Polymer Chemistry	2002	2008	IPICS program director
IPMS ETH:01	Algebra/Applied Mathematics	2005	2008	IPMS program director
IPPS ETH:01	Materials Science	1990	2008	IPPS program director
IPPS ETH:02	Geophysics	2005	2008	IPPS program director
Ghana				
IPMS IMS	Mathematical Sciences	2002	2009	IPMS program director
IPPS GHA:01	Laser Physics	2005	2010	Online questionnaire
Laos				
IPICS LAO:02	Environmental Chemistry	2005	2011	IPICS program director
IPICS LAO:03	Water Chemistry	2005	2011	IPICS program director
IPPS LAO:01	Geophysics	2005	2011	IPPS program director
Malawi				
IPICS MAW:01	Biochemistry/Biotechnology	2002	2010	Online questionnaire
IPICS MAW:02	Water Chemistry	2002	2010	Email response
Nigeria				
IPICS NIG:01	Natural Product Chemistry	1977	2004	Online questionnaire
IPICS NIG:02	Biochemistry	1993	2005	Email response
IPPS NIG:01	Geophysics	1984	2010	Online questionnaire
IPPS NIG:02	Atmosphere Physics	1977	2009	Online questionnaire
Peru				
IPICS PER:01	Materials Chemistry	2002	2006	Online questionnaire
IPICS PER:02	Chemical Ecology	2003	2007	Online questionnaire
IPPS PER:01	Materials Science	1983	2008	Online questionnaire
IPPS PER:02	Materials Science	1982	2006	Online questionnaire
Senegal				
IPPS SEN:01	Laser Physics	2005	2010	Online questionnaire
Sri Lanka				
IPICS SRI:03	Molecular Biology/Biochemistry	1981	2003	Interview
IPICS SRI:04	Biotechnology	1985	2004	Interview
IPICS SRI:07	Biochemistry	1995	2009	Interview
IPPS SRI:01/1	Atmosphere Physics	1978	2010	Interview
IPPS SRI:01/2	Mass Spectrometry	1981	2010	Interview
IPPS SRI:01/3	Instrument Development	2005	2010	Interview
IPPS SRI:02	Condensed Matter Physics	1983	2010	Interview
Tanzania				
IPICS TAN:01	Biochemistry/Biotechnology	1981	2005	No contact established
IPICS TAN:02	Environmental Chemistry	2004	2008	Email response
IPPS TAN:01/1	Geophysics	1989	2008	Online questionnaire
IPPS TAN:01/2	Materials Science	1989	2008	Online questionnaire

*National Network in Cameroon

Country/Code	Research Field	Start	End	Means of information retrieval
Thailand				
IPPS THA:01	Materials Science	1985	2003	Interview
IPPS THA:03/1	Optics	1982	2005	Interview
IPPS THA:04	Geophysics	1987	2007	Interview
Uganda				
IPICS UGA:01	Environmental Chemistry	1999	2008	IPICS program director
IPICS UGA:02	Coordination Chemistry	2003	2008	IPICS program director
IPPS UGA:01/1	Materials Science	1989	2008	IPPS program director
Uruguay				
IPICS URU:01	Natural Product Chemistry	1978	2005	Email response
IPICS URU:02	Biotechnology	1974	2003	Online questionnaire
Scientific Networks - Regional Africa				
IPICS FOSNNA	Food Chemistry	2000	2009	IPICS program director
IPICS SARBIO	Molecular Biology/ Biochemistry	1995	2009	Online questionnaire
Scientific Networks - Regional Latin America				
IPICS LANFOOD	Food Chemistry	1994	2007	Email response
IPICS LATSOBIO	Biotechnology	2003	2007	Email response
IPICS SSN	Biochemistry	1994	2006	Email response
Scientific Networks – Interregional				
IPICS AFASSA	Natural Product Chemistry	2002	2009	Email response
IPICS MOLCAS	Molecular Biology/Biochemistry	1999	2008	Email response

When and how long?

This report considers the years 2003–2014, but no groups or networks were phased out of support 2012 to 2014 (Figure 2). The largest number of activities (15) phased out of support in a single year was in 2008.

The average time of support considering all supported activities was 18 years, ranging between 3–32 years. The average time of support of IPICS research groups was 16 years, and of IPMS and IPPS groups 7 and 20 years, respectively. The average time of all supported of networks was 9 years.

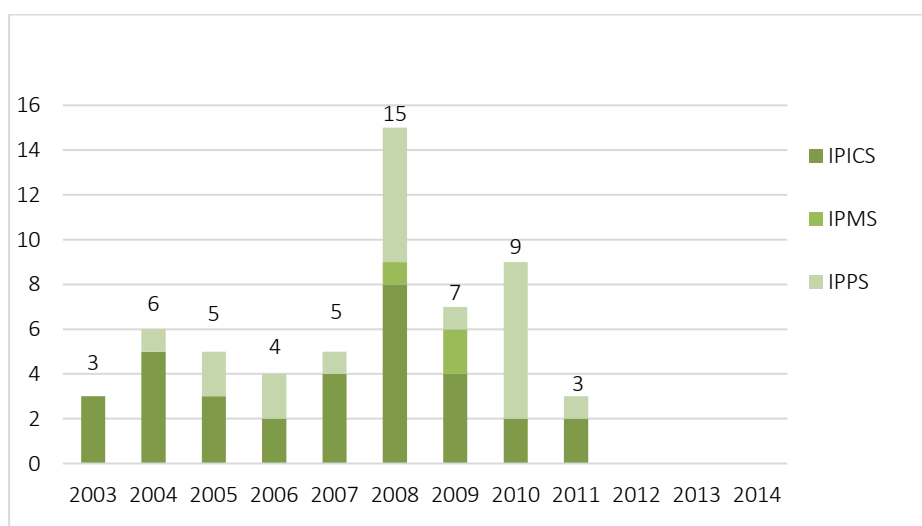


Figure 2. Distribution of final year of support 2003-2014, by program.

Why?

The two main reasons given by ISP for phasing out support are:

- 1) **Achieved sustainability** - the groups and networks can sustain on their own without ISP support. This is ISP's long-term aim for all supported groups and networks.
- 2) **Lack of progress** - the groups or networks have not realized their potential for development, even though the support was extended to allow for improvement.

An additional, third reason is:

- 3) **External factors** - such as government policy changes and country classifications.

A large majority (44 activities, 77 %) of the groups and networks from 2003 and onwards was phased out due to external factors. Nine was phased out because they had reached sustainability and four because of no progress (Figure 3).

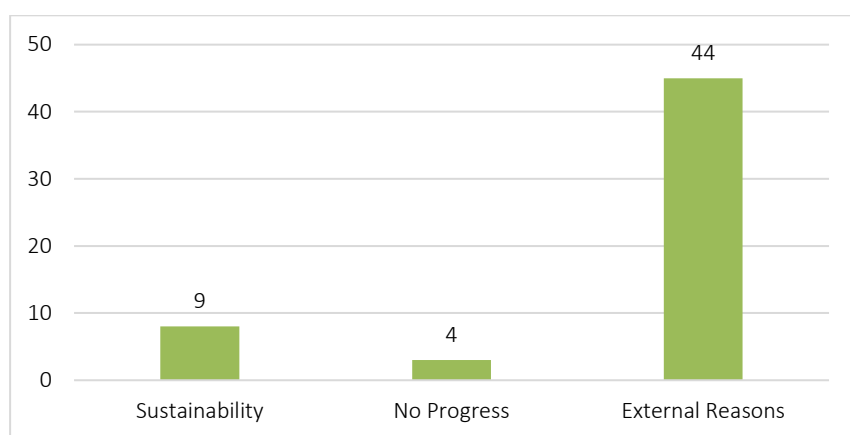


Figure 3. Reasons for phasing out support to research groups and networks, by category.

Reason 1) Sustainability has been reached

Support was phased out to eight research groups and one network, because it was considered that sustainability had been achieved. In most cases the groups had developed to a scientific standard where they were able to attract other sources of funding to such an extent that ISP was no longer needed. Those activities are the following:

- Bangladesh: IPICS BAN:01 and BAN:03
- Colombia: IPPS COL:01 and IPPS COL:02
- Sri Lanka: IPICS SRI:03 and IPICS SRI:04
- Thailand: IPPS THA:01 and IPPS THA:03/1
- Network: MOLCAS

The groups in Bangladesh, Colombia, Sri Lanka (with one the exception)⁴ and Thailand have since then received substantial funding from other sources than ISP and are still active. IPICS SRI:04 attracted large grants from Sida, replacing the ISP funding, and has continued to develop activities also after the phase out of Sida support in 2010. IPICS BAN:03 attracted particularly large funding, allowing for building a medical university and hospital, while maintaining research activities in diabetes biochemistry. The MOLCAS interregional network was phased out because its objectives under ISP support had been fulfilled.

⁴ IPICS SRI:03 has ended their activities due to retirement of group leaders.

Reason 2) Lack of progress

Support to four activities was concluded because no further progress was made. These are:

- Tanzania: IPICS TAN:01
- Network: FOSNNA
- Network: SARBIO
- Network: AFASSA

The research group IPICS TAN:01 was located at the government institution Tanzania Food and Nutrition Centre. The group was supported by ISP for a long time but could not build up the intended MSc and PhD program as planned, because of the lack of academic affiliation. After the students attached to the group graduated (registered at Tanzanian universities), ISP support stopped.

The coordinator of the African regional network FOSNNA resigned in 2008, and since the appointment of a new coordinator never took place, while funding was available for the meetings required, activities stalled and eventually ended. The activities of the African regional network SARBIO faded due to difficulties to sustain networking coordination from Zimbabwe as a result of the elevated political and economic instability in the country. The interregional network AFASSA ended activities because the distances between the regional nodes impaired continued cooperation. (See further Chapter 4: Current activities).

Reason 3) External factors for phase out

A majority (44) of the 57 groups and networks were phased out of support due to external reasons.

- Cameroon: IPICS CAM:01, IPICS CAM:02
- Colombia: IPICS COL:01 and IPICS COL:03
- Ecuador: IPICS ECU:01 and IPPS ECU:01
- Ethiopia: IPICS ETH:01, IPMS ETH:01, IPPS ETH:01 and IPPS ETH:02
- Ghana: IPMS IMS, IPPS GHA:01
- Laos: IPICS LAO:02 and LAO:03, IPPS LAO:01
- Malawi: IPICS MAW:01 and IPICS MAW02
- Nigeria: IPICS NIG:01 and IPICS NIG:02, IPPS NIG:01 and IPPS NIG:02
- Peru: IPICS PER:01, IPICS PER:02 and IPPS PER:01 and IPPS PER:02
- Senegal: IPPS SEN:01
- Sri Lanka: IPICS SRI:07, IPPS SRI:01/1, IPPS SRI:01/2, IPPS SRI:01/3 and IPPS SRI:02
- Tanzania: IPICS TAN:02, IPPS TAN:01/1 and IPPS TAN:01/2
- Thailand: IPPS THA:04
- Uganda: IPICS UGA:01, IPPS UGA:02, IPPS UGA:01/1
- Uruguay: IPICS URU:01 and URU:02
- Network: IPMS CAM:01
- Network: IPICS LANFOOD
- Network: IPICS LATSOBIO
- Network: IPICS SSN

Up to 2007, ISP had agreed with Sida to support research and higher education in developing countries, with special emphasis on the least developed countries.⁵ Consequently, the ISP board over the years decided to phase out several research groups and networks in countries that were not categorized as least developed. This affected support to activities in Latin America, more specifically to groups and networks operating in, or coordinated from, Colombia, Ecuador, Peru and Uruguay. In Africa, the case was the same in Cameroon, Ghana, Nigeria, Senegal, and Uruguay; and in Asia in Sri Lanka and Thailand.

⁵ See ISP Annual Report 2008: <http://urn.kb.se/resolve?urn=urn:nbn:se:uu:diva-329345>

In 2007, a new Swedish governmental policy for development support was established. It put 12 countries in focus of Swedish long-term development cooperation (Bangladesh, Bolivia, Burkina Faso, Cambodia, Ethiopia, Kenya, Mali, Mozambique, Rwanda, Tanzania, Uganda and Zambia). As agreed with Sida in 2008, ISP's direct support to research groups in countries *outside* this focus had to be phased out and if possible be terminated by 2010. Further, it was a requirement in the ISP-Sida agreement 2008-2010 that ISP direct support to research groups in focus countries where Sida already had a bilateral program including scientific research capacity development, or was about to start such a program, or a new program period, had to be immediately concluded. Consequently, following this policy change and Sida agreement terms, ISP support to activities in, Ethiopia, Tanzania and Uganda had to stop immediately, and to Laos and Malawi by 2010.

See Appendix 1 for specified reasons per group and network, and Appendix 2 for more information on the activities.

Activities back under ISP Support

Ten of the groups and networks phased out of support as a result of the 2008 agreement with Sida are back under ISP support again. These are four research groups in Ethiopia (IPICS ETH:01, IPMS ETH:01, IPPS ETH:01, and IPPS ETH:02), three in Uganda (IPICS UGA:01, IPICS UGA:02, and IPPS UGA:01/2), and three in Laos (IPICS LAO:02, IPICS LAO:03 and IPPS LAO:01).

The groups in Ethiopia, Tanzania, and Uganda were phased out by the end of 2008, with six months notice, due to the mentioned requirement in the 2008 ISP-Sida agreement, stating that ISP should not support research groups in countries where Sida had or where about to start bilateral program on scientific research capacity development, or new program periods. However, Sida suggested that the groups and network should be adopted in the new phases of the bilateral programs, scheduled to start in 2010. ISP negotiated with Sida for one year of interim support in 2009, using the financial balances in the bilateral programs. The two chemistry groups in Uganda (IPICS UGA:01 and UGA:02) were included in the new phase of the Sida bilateral program with Makerere University in 2010, but were not kept in the program in the next phase, starting in 2015. Therefore, ISP support was reinstated in 2015 and 2016, respectively. The physics group in Uganda (IPPS UGA:01/2), as well as the research groups at Addis Ababa University in Ethiopia (IPICS ETH:01, IPMS ETH:01, IPPS ETH:01, and IPPS ETH:02), were, however, not absorbed at all by the respective bilateral programs, leading to stalled activities and some loss of staff and students.⁶ ISP brought the situation to Sida's attention, which led to reinstating ISP support to these groups again from 2011 and onwards.

Two of the three groups in Tanzania, that was also affected by the agreement condition were successfully included in the new phase of the Sida bilateral program in 2010, and now still remain outside of ISP research group support.

In addition, three research groups from Laos (IPICS LAO:02, IPICS LAO:03 and IPPS LAO:01) were phased out because Laos was not included among the Swedish focus countries targeted for long term support in the government policy. It was regarded by ISP that the phase out of research groups in Laos was premature; therefore ISP reinstated support to the groups in 2012 using the timely awarded, yearly contribution from Stockholm University.

⁶ IPMS ETH:01 received bilateral support to a limited extent.

2. Contributions of the ISP support

In the online questionnaire (Appendix 3), and in the interviews, group leaders and network coordinators were initially asked how the ISP support had contributed to the development of the research group, network or department in material and immaterial terms over the years of support.

The nature of the ISP support, and the use of the support, has differed between the groups and networks, depending on their different needs and operating context. Summing up the experiences of group leaders and node coordinators, ISP support can be said to have contributed in three main areas:

- 1) Equipping of laboratories
- 2) Training of staff and students
- 3) Providing research contacts and collaboration

Equipment and laboratories

The main material contribution of ISP support has been the provision of equipment and instrument to the laboratories, ranging from small equipment and consumables for some groups to equipping whole laboratories for other. A physics group in Senegal provides one example:

“With the ISP support we have now a laboratory on diode laser spectroscopy and laser induced breakdown spectroscopy. And it is a functional laboratory not only for Senegal but also for the sub-region.” (IPPS SEN:01)

In Ecuador, ISP funding helped to establish the first research laboratory in the physical sciences (mass spectrometry and optical spectroscopy) according to the group leader at the National Polytechnic School (IPPS ECU:01). In Nigeria ISP assisted in the establishment of a molecular biology research laboratory, which is still functional, at Department of Pharmaceutical Chemistry, Obafemi Awolowo University, (IPICS NIG:01). ISP helped to build up a laboratory in nutritional biochemistry at University of Sri Jayewardenepura in Sri Lanka (IPICS SRI:07) and helped out in the establishment of biotechnology laboratories at University of Yaoundé and University of Buea in Cameroon (IPICS CAM:01 and IPICS CAM:02, respectively).

“I think ISP contributed to all the equipment we had. We started off with very small equipment, if I remember correctly. Everything we needed we prepared a list and sent it. And when the funds started to come we ordered equipment – spectrophotometer, analytical balance, HPLC and these things. (...) Most of the equipment we still use today. People from undergraduate studies and people from other faculties come and still use it. As I know, we have the only freeze dryer in the Colombo area, received through ISP. Our research lab is functioning because of it.” (IPICS SRI:07)

“At the beginning there was no lab. With support from IPICS and the home government I was able to set up this big lab at University of Yaoundé I. I ran it for several years and then moved on to University of Buea to set up another lab. (...) The lab grew from small to big when I got appointed to Vice Chancellor. The core funding from IPICS made it possible to develop the labs. The ISP money was the seed money and allowed us to help us to get us other funding. And in time it was big enough to run the project.” (IPICS CAM:01)

The support also helped with the establishment of a laboratory at Department of Chemistry at University of Dschang, in Cameroon: *“The contribution of ISP to our research group was immense. During that period, our group received no support from the university. All the equipment and consumable were purchased with ISP funding.”* (IPICS CAM:02)

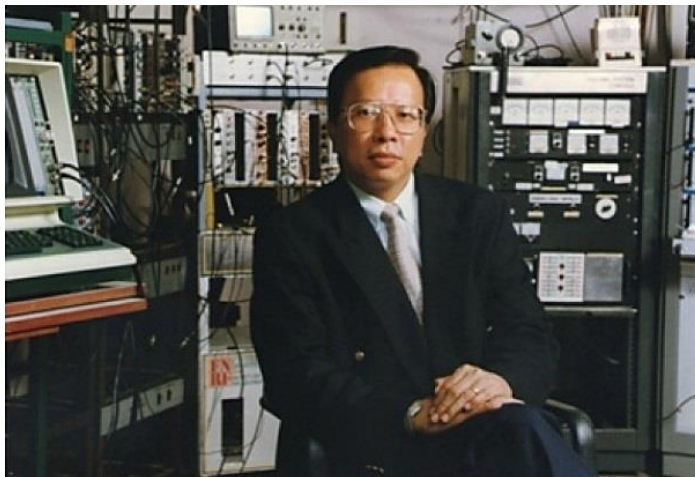


A workshop in Molecular Biology hosted by IPICS CAM:01 at University of Buea, Cameroon, in 1997. Group leader, Professor Vincent Titanji, in the middle.

Postgraduate training and fellowships

Besides equipment and instrument, the most common contribution of the ISP support has been postgraduate training and human capacity building. Again, the contributions to the groups have been of various characters. For some it has meant help in establishing sandwich PhD and MSc programs. For some it has been in terms of short periods of abroad training, as well as the provision of fellowships and contacts with universities in other countries.

At the Department of Physics, Chiang Mai University in Thailand (IPPS THA:03/1), ISP funding was used for supplementary instrument and equipment support. More importantly, the funding was used for the establishment of a PhD program on a sandwich basis at the department, in terms of contacts as well as recognition.



To the left: Group leader of IPPS THA:03/1, Professor Thiraphat Vilaithong, in the early 1990s.



To the right: PhD student part of IPPS THA:03/1 at Department of Physics, University of Chiang Mai, Thailand in 2015.

ISP funding also helped in the creation of MSc and PhD programs in materials science, and the chemistry PhD program at National University of Engineering in Peru (IPPS PER:02 and IPICS PER:01, respectively), and contributed to establishing the first PhD program in physics in Sri Lanka (IPPS SRI:01/1 and SRI:02).



Group leaders of IPPS SRI:02, Professors M.A. Careem (left) and M.A.K.L. Dissanayake (right) at the First Asian Solid State Ionics Society Conference in Singapore in 1986 talking to late Professor Takahashi from Japan. IPPS SRI:02 at University of Peradeniya, graduated the very first PhD in physics from a Sri Lankan university in 1991.

ISP funding also facilitated starting the PhD program in biochemistry and biotechnology at University de la Republica in Uruguay:

“The ISP support during the development of the Project IPICS URU:02 has been of paramount importance in order to start a postgraduate program in biochemistry and biotechnology and to organize an adequate laboratory provided with the main equipment and accessories needed to perform research. In that way our group was able to start a PhD program in these areas. This ISP support also made possible to provide fellowships to our PhD students to perform advanced research in laboratories in Sweden and to establish strong links with scientists from Uppsala University.” (IPICS URU:02)

At Universidad de Concepción in Peru the group leader pointed out that *“ISP gave the chance for research and academic development for several students from a resource-poor province university in Peru”* (IPICS PER:02). At the Department of Physics at Prince of Songkla University in Thailand ISP has supported the gradual build-up of human capital through PhD education of four staff members at the department (IPPS THA:04), one at a time, through sandwich training with Swedish host institutions.

Scientific contacts and research

Additional contributions of the support were that ISP funding allowed for scientific exchange with foreign researchers through travel grants, and for participation in international conferences. An important aspect mentioned by several was ISP’s provision of scientific contacts with research groups in Sweden and in other parts of the world. Some research groups point to that these contacts, and the possibility to travel and participate in international conferences, helped them to gain international recognition within the scientific community, to develop a research culture at their department, and to improve their own research management. Some group leaders explain:

“[ISP has contributed] to build up a research group and have a way of doing research. The contacts we have established are very important.” (IPICS ECU:01)

"(...) Scientific and personal contacts from the interaction with Sweden and other places of members of the group remain and act still sometimes to further our work. And finally, a fundamental contribution to the scientific and intellectual culture of the country has been made by this effort by ISP and Sweden." (IPPS ECU:01)

"(...) Finally we got trained in running research projects, the research management. It is not easy dealing with administrators and handling the grants and getting the project going faster. We got mentoring and research management through ISP." (IPICS SRI:03)

"Besides instruments and training we got a reputation among the scientific community. This is the best thing we got. We published and interacted with foreign researchers and were introduced to foreign researchers and they knew us by name. So that reputation could we not have gotten without ISP". (IPPS SRI:01/1)

"Most important thing is that they have introduced the research culture to this department. Before Uppsala came we did not have any research. We had some projects but not in this scale. People didn't know how to do basic research. The culture wasn't there, a lot of people did not know about journal articles. When you send students to Uppsala they come to know how to do research and so many other things. They exposed us to journals during that period. People talk about research now". (IPPS SRI:01/2)

At the Department of Physics at Ahmadu Bello University in Nigeria the group leader points out that ISP has greatly contributed to the building of capacity in geophysics research in the country: *"The name ISP is synonymous with geophysical research in Nigeria. To me this is a wonderful contribution made by Sweden towards geophysical research development in Nigeria"*. (IPPS NIG:01)



*Research group IPICS ECU:01 from Escuela Politecnica Nacional in Ecuador.
Group leader, Professor Jenny Ruales, with the laptop.*

Development of additional activities

The group leaders were asked if additional activities have developed as a result of the ISP collaboration. The most common additional activity coming out of ISP support is graduates or members of supported groups creating their own research groups, at the same or at other universities inside or outside the country.

For instance, graduates from the chemistry group (IPICS PER:01) and physics group (IPPS PER:01) at National University of Engineering in Peru have formed their own individual research groups at the same university. Some former members of the chemistry group URU:02 at Universidad de la Republica, in Uruguay have started up new research groups at the same university as well other universities in the country, and in Spain. In addition, the ISP supported network LATSOBIO came out of the IPICS URU:02 group in Uruguay. The natural products research group at University of Dschang, Cameroon, developed from the ISP supported research group IPICS CAM:01

located at University of Buea in the country. The group leader and a graduate from the biotechnology research group at Department of Biochemistry at University of Jaffna (IPICS SRI:04) together started a Biotechnology company for the production of glucose in Sri Lanka.

Outreach activities & use of research results and capacity

Next, group leaders and network coordinators were asked to what extent they have had any impact on their societies and countries in terms of outreach activities and the use of research results and human capacities.

Outreach activities

The phased out groups and network leaders were asked to provide examples of how they have been working with outreach activities such as interaction with government, society, industry and NGO's in the country, in the region, or in global conventions, including unpublished reports to authorities, media exposure, public lectures and workshops/schools for teachers and/or students.

A chemistry group in Cameroon (IPICS CAM:02) is regularly invited to meetings on medicinal plants research, organized by the Ministry of Higher Education. The GC-MS equipment in their laboratory contributes to analysis of samples from other universities and from industries. The laboratory also welcomes graduate students and researchers from other national and regional university. In addition, the group reaches out and provides counseling to traditional healers regarding the continued use or not use of specific medicinal plants.

Members of the chemistry group IPICS ECU:01 in Ecuador, have been participating and giving lectures in technical meetings with the government regarding bioactive compounds and toxicity. The physics group in Ecuador, IPPS ECU:01, has participated in many events, discussions, meetings, committees, workshops, in topics related to science and education, and to science policy. The most important has been at SENESCYT (the National Secretariat for Higher Education, Science, Technology and Innovation) and at Nature and Culture International, a NGO in Ecuador working on topics of environment and conservation. Industry and companies have several times consulted the research group for specific measurements.

Two graduates from the research group in nutritional biochemistry (SRI:07) at University of Sri Jayewardenepura conducted a practical class, "*Development of functional foods*", in a certificate course for industrialists at the Institute of Chemistry Ceylon.

The group leader of a chemistry group in Peru (IPICS PER:01) obtained a joint National Grant from L'Oreal Peru, UNESCO and CONCYTEC (National Council for Science and Technology and Technological Innovation), which was covered in media.⁷

Use of research results and capacity

The groups and networks were asked to describe if their research results have come to use in practice or have influenced policy, if there has been any documented use of research results, including in teaching, and if it have had any impact or possible influence on policy or practices, and if any results have been used in patents and/or for practical or industrial use. Also the use of human capacity and skills in terms of consultancy was targeted here.

Government consultancy services serves was the most common example of use of the research and skills of group members. A physics group in Tanzania (IPPS TAN:01/2) collaborates with the Geological survey of Tanzania in monitoring the earthquake activity in Tanzania. The group has also been active in contributing to assessment of seismic hazards, e.g. regarding dam sites, buildings of national interest, and they do public addresses on occurrences of major earthquake events.

⁷ Clip in Spanish available at: https://www.youtube.com/watch?v=QSIBR1k7L_c



*IPPS TAN:01/2 during a Thin Film College organized in 1996 at University of Dar es Salaam, Tanzania.
Group leader, late Professor Rogath Kivaisi, 4th from the right on the front row.*

One of the senior members and ISP alumni of the chemistry group IPICS URU:02, Uruguay, has cooperated with and assisted government divisions such as the Municipal Government of Montevideo and the office responsible for water supply to the whole population in Uruguay, performing several technical assessments on water quality. The group has also assisted the main dairy industry in Uruguay concerning the recovery and processing of minor proteins from dairy-byproducts such as cheese whey with high added value and their permeates and filtrates. Senior members from the group have also participated in scientific committees for government granting agencies, and scientific organizations in order to assess scientific projects and scientist qualifications.

Members of the chemistry research group at university of Dhaka, Bangladesh (IPICS BAN:01/BAN:04) has contributed to the Bangladesh Food Act 2013, which now is a food safety law ensuring people's right to access safe food. The group was also part in the creation of the Formalin Control Act 2015, a licensing system for the import and use of formalin, used to preserve fresh food in Bangladesh.



Group leader of IPICS BAN:01, Professor Nilufar Nahar (left), explaining to students how a gas chromatograph works.

As a consultancy mission, an ISP graduate from the Sri Lankan physics group (SRI:01/1) has trained around 400 Sri Lankan technicians in lightning protection. Whenever there is a lightning problem in Sri Lanka people can turn to the so-called data centers, where the trained technicians are available to answer questions. This graduate was also a member of the Sri Lanka Standard Institution (SLSI) working group on developing guidelines for lightning protection systems. Another graduate from the same group (IPPS SRI:01/1) has been consulting as a trainer of trainers, educator and advisor on lightning and transient protection, and has conducted about 80 training programs in over 12 countries.

There are also some examples of how research results have come to use by the society through development of databases or new techniques and technologies. A database with glycemic index (GI) values of foods has been established by members of the research group in biochemistry at University of Sri Jayewardenepura (IPICS SRI:07). In 2009, it was made available to the doctors practicing at the Family Practice Centre at University of Sri Jayewardenepura, to use in the advising of diet plans of patients. Information about this was distributed via TV and at a national exhibition. A project to determine the GI of a noodle based product from an Ayurvedic company led to the reformulation of the product to acquire the low glycemic response desired. It also led to that the GI production label has been initiated on more products from this company. In addition, the group has contributed to the development of dietary guidelines that has been developed by the Nutrition Division of the Ministry of Health.

Researchers at the former supported physics group at Chiang Mai University (THA:03/1) have used Ion beam technology to induce mutations in plant cells. Rice seeds have been modified in such a way that the plant grows shorter, which prevents it from collapsing during heavy rain. The PhD who graduated from this project has received a large grant from the Thai government with the aim to improve the rice production practices for Thai farmers. In addition, group members have developed a technology to improve the quality of gemstones, one of Thailand's most important export goods. Unlike the former way of stone modification, which used to destroy large parts of the stones, the ion beam technology uses a better adapted amount of energy, for gentler processing. This is a new technique that adds value particularly to the lower quality natural gemstones in Thailand.

A member of the chemistry group URU:02 together with some MSc students have developed a novel assay to assess water quality for consumption, which is now adopted by government offices and laboratories. There is an agreement between the Science Faculty at Universidad de la Republica and government institutions to assess the quality of water for consumption by the population in Montevideo, Uruguay. A physics group in Peru (IPPS PER:01) has developed a system for water purification, particularly useful for rural areas.



*The thin film solar cell research group (IPPS:PER:01) at Universidad Nacional de Ingeniería, Peru.
Group leader, Professor Walter Estrada, second to the left.*

MSc students part of IPPS THA:04 investigated promising areas for locating groundwater wells for a village in the Songkla region in Southern Thailand, where ground water resources are scarce. In related studies, students also mapped out potential areas for tin mining in the region. Data from a PhD study in the same group, have been used to analyze the sediment areas for presence of oil, considering the possible mineral resource exploration.



Physics students from Prince of Songkla University (IPPS THA:04) carrying out electrical resistivity measurement during a geophysical excursion in Southern Thailand.

3. The phase out period according to leaders

In the online survey (Appendix 3) and in interviews, group leaders and network coordinators were asked about how they have experienced the phase out of support in terms of reasons and time period given, positive and negative consequences, continued contact with ISP, and possible improvements of the phase out period.

Reasons for phase out

A large majority of the respondents (27/31) believed that the reason given by ISP for phase out of support were sufficiently clear.

The four remaining respondents, that answered that the reasons given were not sufficient, were among the groups that were affected by the ISP board decision to focus support to least developed countries, which no longer made the groups in question eligible for ISP support. Two of the respondents did not think this was a sufficient reason for phasing out the support and the third experienced a miscommunication, because the group leader did not think that the support would come to an abrupt end, but continue in some form even after the phase out. The fourth stated that: *“The decision was incomprehensible for us and very surprising”*.

Most of the group leaders and coordinators, however, thought that the stated reasons were sufficient. One respondent pointed to that: *“Yes, you supported us during almost three decades. There were failures in the beginning but still you supported. And you supported until a level where we could self-sustain. So I think that is very fair. You cannot support continuously. When you announced that you were phasing out I said that is fine. That is acceptable”*.

Time period given for phase out

It is stated in the ISP strategic plan (2013-2017)⁸ that a final three-year bridging grant usually is provided to the phased out groups or networks to make the transition easier.

There is great variation in how far ahead the groups were informed that the support would end, ranging from 1–6 years before the termination of support. The majority stated that they were informed that the support would end 1–2 years before the support ended. Even though the majority of respondents thought that the time period of phase out was sufficient (20/31) and that they were given a fair warning, several respondents believed they were not provided with a warning in time (11/31).

“The budget was abruptly reduced during preparation of 2008 budget and we were informed that we are to be phase out at the end of the year.” (Group in Cameroon)

“We accounted for the end of support around one year ahead but we had a PhD student running her program, and we had to look for other funds to complete her PhD.” (Group in Ecuador)

One respondent pointed to that the transition was not long enough for the group to be able to acquire funding from the Peruvian government: *“Of course our government did not decide to invest in research and academia immediately at beginning of the speed up of the economy. So there was not enough time to consolidate the human resource formation as well as building strong infrastructure”*.

The other 20 respondents claimed that the warning was given in time and stated that ISP supported PhD students until completion even though the official support has ended. Some pointed to that they could continue to use

⁸ The ISP Strategic Plan 2013-2017 is available via: http://www.isp.uu.se/digitalAssets/504/504322_1strategy-2013-2017.pdf

some of the funds within the project and that ISP made special arrangements to ensure that the group had equipment that could last for a while after the phase out.

One research group used the period of phase out to organize network activities and continued to receive ISP support: *“This time period allowed us to start to organize the network activities, searching for target groups in the region, and at the same time to look for other financial sources to support the research activities of our group”*. (Group in Uruguay)

Positive and negative consequences of the phase out

When asking respondents about the positive consequences of the phase out, a few groups mentioned that the ending of support pushed them to find other sources of funding to sustain themselves.

Not surprising, most of the consequences following the ending of ISP support were experienced as negative. Many research groups had ISP as the main source of funding and when the support ended many experienced a decline in their research and postgraduate activities. Some found the long-term period of support provided by ISP hard to replace and pointed to insufficient national funding for research. Collaboration with scientist from abroad was one area that was affected by the ending of support, due to limited funding to go to conferences and provide abroad fellowships for postgraduate students. Supporting postgraduate students in general, and lack of funds for instrumentation, maintenance and consumables was also pointed out as a negative consequence of the phase out. Several respondents explain:

“ISP was the main funder of the group. We stopped our participation in conferences abroad, made almost no publications, got a lack of contact with foreign scientists and no visitors”.

“Work in the group almost completely stopped for lack of consumables, spare parts, and (new) equipment. Students could not be supported for graduate studies or internships in Sweden or elsewhere anymore. In particular our main line of research has been basically halted due to the lack of resources”.

“The situation of the country changed. The situation of our group was still the same and was counting heavily on ISP support. It caused a great impact and deterioration of the capabilities of the group for several years”.

“Research and capacity building are stagnated and they are not as vibrant as before. Owing to the sociopolitical attrition which is prevalent in the third world countries, it is difficult to extract funds from government to fund research”.

“It was hard to find funds to go forward with the research activities. The main problem is that the funds available are for two or max three years and it is difficult to keep the group and also plan for the future. ISP was a long supporting period and we knew and we have for sure that the availability of funds. (...) From the national funds we can get grants, they can be important but there is not continuity and it is hard to keep researchers without salary for example. And we can never be sure if they will cut or if they will continue supporting us even we have approval grant”.

“At the beginning for my university it was negative, because the major input of ISP support was the qualification of human resources. Our production of doctors dramatically decreased in the beginning after our group was phased out, by now it is improving again”.

“Negative consequences were the inability to purchase basic scientific equipment for research and training or capacity building. No support for students and no exchange program (North-South cooperation). Research output has been affected, and there is an inability to attract promising graduate students”.

“The positive aspect of the termination was that it helped us to look within the country for financial support. The bad aspect was that, after the phasing out, the group became less active (in term of conducting field experiments)”

and less coordinated as it was during ISP support. Our once strong research collaboration became very weak as it became too expensive for us to support the collaboration financially”.

Continued contact with ISP after the end of support

A large majority of the group leaders and network coordinators have had some kind of contact with ISP after the end of support. Among such examples is a Memorandum of Understanding between ISP and a former collaborating university in Nigeria, and former group leaders acting as scientific reference group members to ISP's programs. Several research groups have started, or become members of, ISP supported regional networks, and has kept direct or indirect contact with ISP through the network.

Two respondents felt excluded from further ISP contact after the support ended:

“ISP did not give us any opportunity to continue contact; no more information was given after we were told that our group was phased out”.

“In 2015, through a contact with our former host in Sweden, financial aid for our summer school was granted by ISP. Between 2006 and 2015 no other contact has been made. The cause was that the phase out process was terminal. For instance, ISP did not keep us in their email lists anymore”.

Related to the contact to ISP one respondent suggested a framework or a platform for those who are willing to help out and stay in contact with ISP. *“I would be willing to go and evaluate an ISP group for instance. To be an ISP fellow should be a possibility to give something back”.* Several phased out groups also pointed out that they are willing to serve as host laboratories for regional students.

Suggested improvements

The group leaders and network coordinators were asked how the ISP support model in general, and the phase out process in particular, could be improved.

The responding group leaders and network coordinators suggested ISP to improve the information and documentation of the phase out, and to give notice in proper time advance so that there would be more time to prepare for, and adjust to, the coming situation. Several also suggested a continued degree of support for going to conferences and workshops, for postgraduate students, journal subscription, and travel for visiting scientists. One respondent suggested support for maintenance of the equipment obtained with ISP support, to keep the laboratory running after phase out.

Some respondents requested the provision of short courses or workshops in proposal writing and project formulation because funding from other sources is necessary to sustain the groups.

One network coordinator proposed a short course in project management with special emphasis on budgeting and on monitoring and evaluation to improve the management skills of coordinators and group leaders:

“One improvement could be providing short training course to project leaders on project management. As a biochemist, trying to manage the project had been very difficult with no management training. In my current job as a Research Administrator I am involved in project management and I now realize the skill I did not have to manage a project (such as a network). Budgeting as well as monitoring and evaluation training would be essential. Recently there has been a need from donors to disseminate information and have research output influence policy and decisions. This training would be useful as well for projects to practice dissemination. Many project leaders have some inherent management skills but a structured format in the form of a short course would at least provide the fundamentals required to run medium sized projects”.

A group leader suggested ISP to introduce a Fellowship Award, which should be given to every successful project leader. It was also suggested that should ISP increase its support to South-South collaboration and make better

use, and to a greater extent, of the capacity built in terms of previously supported fellows and research groups, in particular regarding training of students. Several research groups in Thailand asked if ISP had a need for them to serve as regional host laboratories.

A comment was made regarding ISP's choice of countries of support, addressing the vulnerability of ISP's dependence on government funding and Swedish government policy decisions. Another group leader pointed to that ISP should consider launching open calls that phased out groups could apply for in collaboration with a Swedish partner group.

4. Current activity in groups and networks

One of the main goals of the survey is to investigate whether the phased out groups are still continuing their activities. It is inherent in the objectives of ISP support that the groups continue to build capacity and do research after the phase out of support.

It is clear that a large majority 82 % (47/57) of the phased out groups and networks are still active (Figure 4). The remaining groups and networks have either ended their activities completely (9) or have an unknown activity level (1).

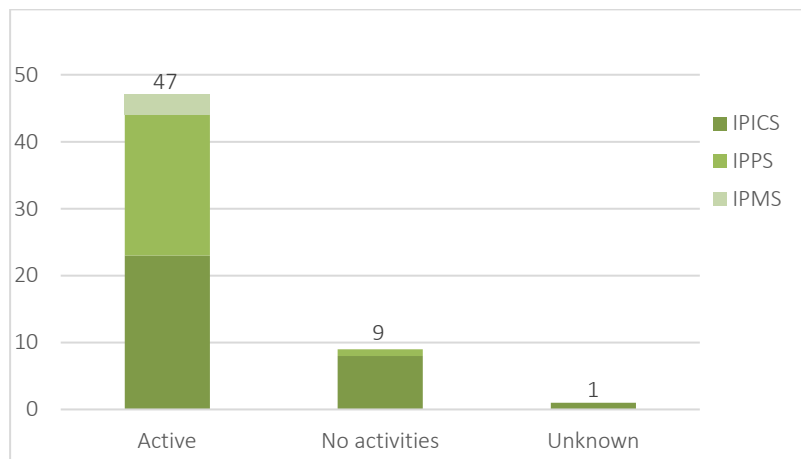


Figure 4. Current activities of groups and networks (number) phased out of support.

A larger share of the research groups phased out of support have continued its activities compared to the networks phased out. Half of the networks phased out are no longer active, compared to 6 % of the research groups. It should however be noted that only eight networks were phased out in the considered period, compared to 49 research groups.

Based on the comments from network coordinators it seems like funding for network activities are harder to acquire than funding for research groups. In addition, network activities require a continued engagement from involved researchers and group leaders, which more easily can fade when new stages are to be entered such as finding new sources of funding or appointing new leaders. Below are some examples of groups and network that currently are active, or stopped their activities.

Details about the continued activities of all responding phased out groups and networks can be found in Appendix 2.

Continued activities

Many of the groups and networks that have continued their activities after ISP phased out support have been able to secure grants from both international and national funding agencies. Besides university funding and funding from national funding agencies and research councils, some groups have secured funding from The World Academy of Sciences (TWAS), the International Foundation of Science (IFS), the Bill and Melinda Gates Foundation, The German Academic Exchange Service (DAAD), the International Centre for Theoretical Physics (ICTP), the International Atomic Energy Agency (IAEA), Carnegie, the European Union (EU), the African Union (AU), the World Bank (WB), the Canadian Government, the Spanish National Research Council, and the Belgian Development Agency (BTC). Most groups and networks currently have PhD students enrolled in the group, have graduated at least one PhD student, and have published papers in international journals, since the end of ISP support.

A chemistry research group in Cameroon, IPICS CAM:01, serves as an example of a group that has continued and expanded its activities, at both University of Yaoundé I and University of Buea. ISP support was concluded in 2008, but both centers are still actively conducting and expanding research. The Biotechnology Center Nkolbisson at University of Yaoundé I has currently close to 50 researchers. Many of their alumni are now independent researchers, attracting funding on a competitive basis. A chemistry group in Malawi (IPICS MAW:01) is another example of a research group that continued activities, mainly through acquiring international funding from the Bill and Melinda Gates Foundation, the EU and through Carnegie. The group has continued its activities at the Bvumbwe Agricultural Research Station, studying the safety and quality of high quality cassava flour. One of the physics groups in Senegal (SEN:01), at University Cheikh Anta Diop, is continuing its research activities in atomic physics and fluorescence and laser induced spectroscopy. After the end of ISP support, the group has received funding from ICTP and IAEA.

The physics research group IPPS COL:02 at Department of Physics, Universidad del Valle in Colombia, has continued its activities after the phase out of ISP support in 2005. The group is financially supported by government funding, by university grants, as well as by international research funding. Since the end of ISP support the group has graduated approximately 15 PhD students. The group has published about 115 papers in international journals and has made about 200 contributions to conferences and workshops. The group continued active collaboration with the host group at Chalmers University of Technology, Sweden also after phase out of ISP support.

There are also examples of research groups that are still active but with limited activities compared to the time of ISP funding, such as Nigeria (IPPS NIG:01, IPICS NIG:02), Malawi (IPICS MAW:02), Peru (IPPS PER:02) and Sri Lanka (IPPS SRI:02). The research and capacity building of the group at the Department of Physics, Ahmadu Bello University, Nigeria (IPPS NIG:01), have for instance stagnated and are not as vibrant as before. Due to lack of funding the activities is ongoing but described as “skeletal”. Following the phase out of ISP support to the group, a majority of the group members relocated to other universities, both within and outside Nigeria. There are currently PhD students in the group but there are difficulties in securing grants to replace what ISP used to provide. The group has made very few publications since the end of support and there is no contact with the former host department at Uppsala University because the research hosts have either retired from research or relocated from the department.

Concluded activities

Nine of the formerly supported groups and networks have not been able to continue their activities, for various reasons. These include the chemistry networks: AFASSA, FOSNNA, LANFOOD, LATSOBIO, MOLCAS, SARBIO, and the research groups IPICS PER:02, IPICS SRI:03 and IPPS SRI:01/2.

After ISP support stopped the activities of the Africa-Asia-South America Coordinating Group for Natural Products Research (AFASSA) faded. The chairman of the network at the time of phase out tried to keep the network active but the response from the members where poor and therefore network activities stopped.

The activities of the Food Science and Nutrition Network for Africa (FOSNNA), with scientists from Africa south of Sahara, had good activities, but when the coordinator of the network got a new position elsewhere and the meeting to appoint a new coordinator never took place, activities stalled and the support was phased out. ISP kept funds for such a meeting two years after the end of the granting period, awaiting a decision by FOSNNA’s executive committee and a new application, but the funds were never requested, no meeting was held, and no application for continued support was submitted. FOSNNA’s activities ceased before the phase out of ISP support.

After ISP concluded support to the Latin American Network for Food Research (LANFOOD), the collaborating activities decreased, much because the absence of funds available for student and staff mobility, which was the most significant activity of the network.

The Latin American Solid Phase Biotechnology Network (LATSOBIO) was a relatively young network (five years old) and was highly dependent on ISP funds. The success of the activities performed during the period of ISP support 2003-2007 encouraged the network to attempt to apply for support from national and international funding agencies. However, all efforts were unsuccessful. As a consequence, the activities of LATSOBIO network ended in 2008 after phase out of the ISP support.

ISP's support to the Cassava Molecular Diversity Network (MOLCAS) stopped in 2008. The network objectives had been fulfilled and the network coordinator took a new position at an international organization. The single PhD student in the network was supported until submitting her thesis, which was finally successfully defended in 2011. The data collected during their time as a network is still available and some of the network nodes are still in contact and collaborating with each other.

The chemistry network SARBIO (Southern African Regional Cooperation in Biochemistry, Molecular Biology and Biotechnology) did not continue its activities after the latest application was turned down by the IPICS Reference Group in 2010.

Due to lack of available resources, the activities of IPICS PER:02 at Departamento de Botánica, Universidad de Concepción, Peru has not continued after the phase out of ISP support.

The group IPICS SRI:03 at Department of Chemistry at University of Peradeniya, Sri Lanka continued after ISP support ended, but activities faded out when the group leaders retired.

There is no research activity in the group IPPS SRI:01/2 located at Department of Physics, University of Colombo, Sri Lanka. The group started to face challenges early in the collaboration as their activities in building of mass spectrometric instrumentation are very expensive and require, besides substantial funding, technical personnel trained on an advanced level to operate and maintain the equipment. After the end of ISP support it was hard to obtain a sufficient level of funding from University of Colombo and other sources. The group leader is however heading another active research group at the department (IPPS SRI:01/3) started under the ISP collaboration in 2005 and phased out in 2010.

5. Conclusions and ISP responses

Based on the experiences of phased out groups and networks in this report, a number of suggested improvements are made here on how to further develop future ISP phase out processes.

Communicating the plan to conclude support at an early stage and provide an actual phase out period

There has been considerable variation in the notice of time given by ISP for concluding support. Many were given only 1-2 years of notice. Furthermore, support to some groups was interrupted in the middle of a granting period. In cases where ISP is the main funder, more consideration needs to be taken to the group or network, to provide a better chance to continue and sustain activities that ISP invested in building up.

ISP response: The necessity of clear communication and proper documentation of the decision to phase out an activity of support is recognized, as well as applying a three-year phase-out granting period, as stated in the ISP strategic plan 2013-2017.

Allow use of funds and additional support after phase out to the extent possible

There are differences in how the groups and networks experienced the flexibility of funds after end of ISP support. Some were given additional support for training remaining PhD students to graduation, and for purchasing equipment, while others experienced that they were not given any possibility to spend the already approved budget. Groups and networks also requested some additional support during a period of time to adapt to the new situation. Additional support could include funds for maintenance of ISP equipment, short term visits, participation in conferences and workshops, support to journal subscriptions, and finalizing PhD students to graduation.

ISP response: The need for such extended support is obvious, but after phase-out of support to a certain activity, ISP will direct its funding to more needful, resource scarce environments. Still, keeping a portion of ISP funding open to competitive applications by activities recently phased out of support may be an option worthwhile to explore. Further, ISP regularly announces known external funding opportunities from granting agencies and organizations (in Sweden and internationally), suitable for currently and previously supported groups and networks, on the ISP website.

Make better use of the capacity in phased out groups and networks

Most of the phased out groups and networks are still active today and have built up a good capacity level. Many respondents showed an interest in giving back to ISP through participating as evaluators of ISP supported groups and networks, or serve as hosts for regional postgraduate students. ISP should make better use of this available capacity.

ISP response: Absorbing and making use of built up capacity is highly important. This practice has not yet been applied to its full extent although it has been the aim since decades. To resume contact with phased out groups and networks is a valuable first step, which has been accomplished through this report. A possible further step would be to continue the contact with these groups and networks in various forms, and to connect phased out groups and networks, and alumni, with each other and with currently supported groups and networks. This would provide valuable networking opportunities, however the form of such activities needs to be developed.

Provide training courses

ISP has been the main funder of some research groups and networks and hence the transition into writing proposals to obtain other funding are experienced as difficult. To further increase the capabilities of the groups and networks, part of a phase out package could include providing less experienced groups and networks with

courses or workshops in proposal writing and project formulation etc., because funding from other sources is necessary for sustaining the activities.

ISP response: The concept of quality enhancement by introducing training events as suggested above was introduced already in the 2008 proposal for Sida funding. However, because the resulting agreement implied a reduction of Sida's contribution to ISP the following years, the development of such activities were postponed. It was, however, reintroduced in the Sida agreement period 2014-2018, and is currently under development, and has started to be implemented in some supported groups and networks.

Establish criteria for the phase out of support

ISP has not established any specific criteria indicating when it is time to phase out a research group or network of support. It should be of value for ISP to establish a set of such criteria, both regarding sustainability and lack of progress, to be able to determine when and if collaboration should be concluded. There is considerable variation in the country contexts in which groups operate and the situations they face. The criteria should therefore be of a general character and serve more as guidelines, supporting the necessary assessment of the situation by the program directors, the assistant program directors, and the members of these scientific reference groups.

ISP response: This is an important matter to consider. Still the varying conditions under which such decisions have to be made may defy the possibility of establishing specific criteria. Possibly, guidelines to assist in such decisions could be a valuable tool to be developed.

Widen ISP's funding base

A number of groups and networks were phased out of support due to a Swedish government policy change, limiting support to a certain number of countries. To secure the sustainability of supported groups and networks it is important for the future that ISP widens its funding base, and decreases its independence on one major donor.

ISP response: A widened funding base for ISP is indeed a desirable goal, laid down in the Strategic Plan 2013-2017, and it has been addressed to an increasing extent in recent years.

Appendix 1. Phased out groups and networks

Table 1. Phased out research groups and networks and reason for phase out, sorted by country for groups and regions for networks.

Country Code	University/Institution	Name/Area	Start	End	Years	Reason for phase out	Specified reason(s) for phase out
Bangladesh							
IPICS BAN:01	Department of Chemistry University of Dhaka Bangladesh	Chemical and biological studies of medicinal plants	1977	2004	27	Sustainability	Changed field of research ISP support continued in 2003 under new country code BAN:04
IPICS BAN:03	BIRDEM Bangladesh	Diabetes research	1995	2008	13	Sustainability	Achieved sustainability
Cambodia							
IPICS CAM:01	Department of Life Sciences University of Buea & University of Yaoundé I Cameroon	Applications of molecular biology techniques to tropical diseases	1988	2008	20	External	Not a least developed country
IPICS CAM:02	Department of Chemistry University of Dschang Cameroon	Natural and synthetic bioactive Substances with potential applications in medicine and agriculture	1991	2008	17	External	Not a least developed country
Colombia							
IPICS COL:01	Department of Chemistry Universidad Nacional de Colombia Colombia	Interaction between malnutrition and growth hormone action	1987	2004	17	External	Not a least developed country
IPICS COL:03	Department of Chemistry Universidad Nacional de Colombia Colombia	Flavors and flavor precursor studies on Colombian fruits	1992	2004	12	External	Not a least developed country
IPPS COL:01	Department of Physics Universidad Nacional de Colombia Colombia	Condensed matter physics	1976	2004	28	Sustainability	Substantial funding from other sources Not a least developed country
IPPS COL:02	Department of Physics Universidad del Valle Colombia	Phase transitions in ionic solids	1985	2005	20	Sustainability	Substantial funding from other sources Not a least developed country

Ecuador							
IPICS ECU:01	Department of Food Science and Biotechnology Escuela Politecnica Nacional Ecuador	Nutritional biochemistry and biotechnology	1984	2007	23	External	Not a least developed country
IPPS ECU:01	Department of Physics Escuela Politecnica Nacional Ecuador	Molecular desorption and laser spectroscopy	1992	2006	14	External	Not a least developed country
Ethiopia							
IPICS ETH:01*	Department of Chemistry Addis Ababa University Ethiopia	Synthesis of conjugated polymers	2002	2008	6	External	Group intended to be transferred to Sida bilateral program Back under ISP support 2011
IPMS ETH:01*	Department of Mathematics Addis Ababa University Ethiopia	Capacity building in algebra & applied mathematics	2005	2008	3	External	Group intended to be transferred to Sida bilateral program Back under ISP support 2014
IPPS ETH:01*	Department of Physics Addis Ababa University Ethiopia	Synthesis and characterization of organic semiconductors	1990	2008	18	External	Group intended to be transferred to Sida bilateral program Back under ISP support 2011
IPPS ETH:02*	Geophysical Observatory Addis Ababa University Ethiopia	Seismology	2005	2008	3	External	Group intended to be transferred to Sida bilateral program Back under ISP support 2012
Ghana							
IPMS IMS	Institute of Mathematical Sciences (IMS) Ghana	Capacity building in mathematical sciences in Ghana and the African sub-region	2002	2009	7	External	Not a least developed country
IPPS GHA:01	Department of Physics Laser and Fibre Optics Centre University of Cape Coast Ghana	Applied laser physics: Laser absorption and fluorescence spectroscopy for detection of gaseous species	2005	2010	5	External	Not a least developed country

* Back under ISP support again

Laos							
IPICS LAO:02*	Department of Chemistry National University of Laos Laos	Study of pesticide residues surrounding Vientiane capital area	2005	2011	6	External	Not a Swedish focus country Back under ISP support 2012 Merged with IPICS LAO:03 as IPICS LAO:01 in 2013
IPICS LAO:03*	Department of Chemistry National University of Laos Laos	Water quality monitoring of Mekong River in Vientiane prefecture	2005	2011	6	External	Not a Swedish focus country Back under ISP support 2012 Merged with IPICS LAO:02 as IPICS LAO:01 in 2013
IPPS LAO:01*	Department of Physics National University of Laos Laos	Geophysics	2005	2011	6		Not a Swedish focus country Back under ISP support in 2012
Malawi							
IPICS MAW:01**	Department of Chemistry Chancellor College University of Malawi Malawi	Studies in genetics and chemistry of tropical roots and tuber crops in Malawi	2002	2010	8	External	Not a Swedish focus country
IPICS MAW:02	Department of Chemistry Chancellor College University of Malawi Malawi	Quality of drinking water in selected areas in Malawi	2002	2010	8	External	Not a Swedish focus country
Nigeria							
IPICS NIG:01	Department of Pharmaceutical Chemistry Obafemi Awolowo University Nigeria	Investigation into anti-infective activities of some local plant materials as drugs	1977	2004	27	External	Not a least developed country
IPICS NIG:02***	Institute of Advanced Medical Research and Training University of Ibadan Nigeria	Cassava related neurotoxicity research	1993	2005	3	External	Not a least developed country
IPPS NIG:01	Department of Physics Ahmadu Bello University Nigeria	Geophysics	1984	2010	26	External	Not a least developed country
IPPS NIG:02	Department of Physics Obafemi Awolowo University Nigeria	Tropospheric and Atmospheric Physics; Nigerian Micrometeorological Experiment	1977	2009	32	External	Not a least developed country

* Back under ISP support again

** Part of the Cassava Safety Network 1997-2001, then received research group support

Peru							
IPICS PER:01	Faculty of Science Universidad Nacional de Ingenieria Peru	Oxide semiconductors and related materials	2002	2006	4	External	Not a least developed country
IPICS PER:02	Department of Botany Universidad de Concepción Peru	Chemical ecology of insect pests	2003	2007	4	External	Not a least developed country
IPPS PER:01	Faculty of Sciences Universidad Nacional de Ingenieria Peru	Thin films and materials: energy efficiency and environmental control applications	1983	2008	25	External	Not a least developed country
IPPS PER:02	Department of Physics Universidad Nacional de Trujillo Peru	Materials science	1982	2006	24	External	Not a least developed country
Senegal							
IPPS SEN:01	Laboratoire Atomes Lasers University Cheikh Anta Diop Senegal	Applied laser spectroscopy	2005	2010	5	External	Not a least developed country
Sri Lanka							
IPICS SRI:03	Department of Chemistry University of Peradeniya Sri Lanka	Bioactive compounds in the control of plant diseases	1981	2003	22	Sustainability	Substantial funding from other sources
IPICS SRI:04	Department of Biochemistry University of Jaffna Sri Lanka	Biotechnology of starch and sucrose (Palmyrah) based products	1985	2004	19	Sustainability	Substantial funding from other sources
IPICS SRI:07	Department of Biochemistry University of Sri Jayewardenepura Sri Lanka	Nutritional biochemistry	1995	2009	14	External	Not a least developed country
IPPS SRI:01/1	Department of Physics University of Colombo Sri Lanka	Atmospheric Physics and Lightning	1978	2010	32	External	Not a least developed country
IPPS SRI:01/2	Department of Physics University of Colombo Sri Lanka	Molecular desorption of biomolecules (molecular desorption mass spectrometry)	1981	2010	29	External	Not a least developed country
IPPS SRI:01/3	Department of Physics University of Colombo Sri Lanka	Strengthening of the activities of the Centre for Instrument Development (CID)	2005	2010	5	External	Not a least developed country
IPPS SRI:02	Department of Physics University of Peradeniya Sri Lanka	Condensed matter physics	1983	2010	27	External	Not a least developed country

Tanzania							
IPICS TAN:01	Tanzania Food and Nutrition Centre, Tanzania	Nutritional biochemistry and biotechnology	1981	2005	24	No Progress	Institution outside university Could not build up postgraduate programs
IPICS TAN:02	Department of Chemistry University of Dar es Salaam Tanzania	Pesticide environmental research	2004	2008	4	External	Group transferred to Sida bilateral program
IPPS TAN:01/1	Department of Geology University of Dar es Salaam Tanzania	Seismology	1989	2008	19	External	Group transferred to Sida bilateral program
IPPS TAN:01/2	Department of Physics University of Dar es Salaam Tanzania	Condensed matter physics; Materials science for solar energy conversion	1989	2008	19	External	Group intended to be transferred to Sida bilateral program
Thailand							
IPPS THA:01	Department of Physics Chulalongkorn University Thailand	Semiconductor physics/chalcopyrite semi-conductors and applications	1985	2003	18	Sustainability	Substantial funding from other sources
IPPS THA:03/1	Department of Physics Chiang Mai University Thailand	Neutron and ion beam technology	1982	2005	23	Sustainability	Substantial funding from other sources
IPPS THA:04	Department of Physics Prince of Songkla University Thailand	Geophysics	1987	2007	20	External	Not a least developed country
Uganda							
IPICS UGA:01*	Department of Chemistry Makerere University Uganda	Characterization of organic pollutants in biota, water and sediment in Lake Victoria	1999	2008		External	Group transferred to Sida bilateral program 2010-2014 Back under ISP support 2015
IPICS UGA:02*	Department of Chemistry Makerere University Uganda	Fundamental studies on environmental NPS derivatives	2003	2008		External	Group transferred to Sida bilateral program 2010-2014 Back under ISP support 2016
IPPS UGA:01/1*	Department of Physics Makerere University Uganda	Condensed matter physics; materials science and solar energy	1989	2008		External	Group intended to be transferred to Sida bilateral program Back under ISP support in 2011

* Back under ISP support again

Uruguay							
IPICS URU:01	Neurochemistry Division Instituto de Investigaciones Biologicas Clemente Estable (IIBCE) Uruguay	Screening and characterization of neuroactive natural compounds	1978	2005	27	External	Not a least developed country
IPICS URU:02	Catedra de Bioquimica Universidad de la Republica Uruguay	Solid phase protein biotechnology	1974	2003	29	External	Not a least developed country
Regional Networks Africa							
IPMS CAM:01	Africa	Analysis, Geometry and Applications	2003	2009	6	External	Not a Swedish focus country Invited application to ISP not submitted
IPICS FOSNNA	Africa	Food Science and Nutrition Network for Africa	2000	2009	9	No Progress	The coordinator left and was not replaced
IPICS SARBIO	Africa	Southern African Regional Cooperation in Biochemistry, Molecular Biology and Biotechnology	1995	2009	14	No progress	Network activities did not progress
Regional Networks Latin America							
IPICS LANFOOD	Latin America	Latin American Network for Food Research	1994	2007	13	External	Scale down activities in Latin America Not a least developed region
IPICS LATSOBIO	Latin America	Latin American Solid Phase Biotechnology Network	2003	2007	4	External	Scale down activities in Latin America Not a least developed region
IPICS SSN	Latin America	Southern Summer School of Neurosciences	1994	2006	12	External	Not a least developed region
Inter-regional Networks							
IPICS MOLCAS	Inter-regional	The Cassava Molecular Diversity Network	1999	2008	9	Sustainability	Planned phase out, ISP-supported goals accomplished
IPICS AFASSA	Inter-regional	Africa, Asia, South America, coordinating group	2002	2009	7	No Progress	Network activities did not progress

Appendix 2. Continuation of activities

The current activities of the previously supported groups and networks are grouped in three categories; those stating that they are active, those stating that they have no activity at all, and the ones where the continued activity is unknown to ISP. The information provided is based on answers to the online survey, interviews, or email contact; the answers therefore vary in length and detail.

Active groups

A large majority of the groups and networks that have been phased out of support by ISP is currently continuing with their activities.

Bangladesh - IPICS Research Group BAN:01 (1977–2004): Natural Products Chemistry

Up to 2003 the group the Department of Chemistry at University of Dhaka, in Dhaka, focused on natural product chemistry. As food and environmental contamination is a burning issue in Bangladesh the group changed their research field in 2004 into studying pollutants, under the new acronym BAN:04. The BAN:04 group is still active and supported by ISP. In addition, the group receives government and university research grants.

Bangladesh - IPICS Research Group BAN:03 (1988–2008): Medicinal Chemistry

The research group in diabetes-related medicinal chemistry, then at the Bangladesh Institute for Research and Rehabilitation on Diabetes, Endocrine, and Metabolic Disorders, (BIRDEM) in Dhaka, has left its former host institute and expanded substantially. The group leader secured facilities in Dhaka, as well as external funding, to form the Bangladesh Institute of Health Sciences (BIHS). The institute gained momentum through the implementation of the Health Care Development Project (HCDP) in 2003, a large scale undertaking of the Diabetic Association of Bangladesh supported by a grant from the Dutch Government and a loan from a Consortium of 12 banks. The institute has then attracted grants from organizations such as University of Oslo (Norway), Rockefeller Foundation (USA) and World Diabetes Foundation (Denmark) to sponsor various academic and development projects. In 2015, this institute received university status and is now the Bangladesh University of Health Sciences. A new, multi-story research hospital and a separate research institute are being built, and 20 regional, HCDP-associated clinics have been established over the country. BUHS has five faculties including a Faculty of Basic Sciences.

Cameroon - IPICS Research Group CAM:01 (1988–2008): Molecular Biology

The research group has continued its activities at University of Yaoundé I, Yaounde, and University of Buea, in Buea. Despite the end of ISP support in 2008, both centers are still actively conducting research, and are expanding. The Biotechnology Center Nkolbisson at University of Yaoundé I has currently close to 50 researchers. Many of the alumni from the research group are now independent researchers, who are attracting competitive funding. The competence has been built and kept, and the physical infrastructure is still there.

Cameroon - IPICS Research Group CAM:02 (1991–2008): Natural Products Chemistry

The training of MSc and PhD students has continued at Department of Chemistry, University of Dschang, in Dschang. The scientific research contributes to adding value to natural plant resources. After the conclusion of ISP support, members of the group have received funding from The World Academy of Sciences (TWAS) and the International Foundation of Science (IFS). There are currently several PhD students enrolled, and about six PhD students have graduated after ISP withdrew. However, the group states that they have limited facilities and infrastructure, and lack fundamental analytical equipment, such as HPLC and NMR. They have published approximately 40 publications in international journals after 2008, but no conferences or workshops have been organized due to lack of funding. The group has continued contact with their former host department in Sweden in the form of research cooperation, joint research projects, and co-publishing. Collaboration with foreign institutions has developed with groups in China, Germany, Japan and Canada.

Cameroon - IPMS Network CAM:01 (2003–2008): Pure and Applied Mathematics

The collaborative activities of the Departments of Mathematics at University of Yaoundé I, University of Buea, University of Douala, University of Dschang and University of Ngaoundéré have continued after the end of ISP support in 2008. No replacement long-term support has been obtained but funding for specific activities has been attained from among others Agence Universitaire de la Francophonie, Agence pour la Promotion de la Science en Afrique, and International Centre of Pure and Applied Mathematics, all in France. The nodes of the network have altogether graduated approximately 30 PhD students after the end of ISP support, and currently there are about 25 enrolled. The groups have since then published approximately 40 papers in international scientific journals. They have also organized several conferences (University of Yaoundé I organized GIRAGA in 2010, 2014 and Mini-GIRAGA 2015, and the African Mathematical School in Harmonic Analysis and PDE in 2015. University of Ngaoundéré organized EpiMath in 2008 and 2012).

Colombia - IPICS Research Group COL:01 (1987–2004): Physiological Chemistry

The activities of the research group located at Department of Chemistry, Universidad Nacional de Colombia, Bogotá, have continued. Details are, however, not available.

Colombia - IPICS Research Group COL:03 (1992–2004): Chemical Ecology

The activities of the research group located at Department of Chemistry, Universidad Nacional de Colombia, Bogotá, have continued. The group leader retired from the university in 2006, but was replaced by a former student. Since then, the group has been continuing working and expanding the research topics. They engage in research in chemical ecology involving volatiles active in the communication among species, they develop value-added products from fruits, preserving original aromas, they study the chemistry of natural pigments (anthocyanins, carotenoids and betalains), and more. The group has continued to strengthen the human scientific resource in Colombia. Since 2006, six PhD's, ten MSc graduations have been accomplished. Additionally, the group has been the pioneer in the creation of a national, interdisciplinary network in the field of bioprospecting Colombian tropical fruits, involving 40 researchers from all over the country. After the phase out of ISP support the group spent several years without external financial support, but during the following years, they managed to obtain grants from the Colombian National Research Agency, the International Foundation of Science (IFS), and the Third World Academy of Sciences (TWAS).

Colombia - IPPS Research Group COL:01 (1976–2004): Materials Science

The activities of the research group at Department of Physics, Universidad Nacional de Colombia, Bogotá, have continued. After the phase out of ISP support, the group continued activities primarily in technology of materials used in the manufacture of photovoltaic devices. The group is one of the most prominent in Latin America in the field of solar cells fabricated with thin film technology. It receives its main financial support from the National University and the Colombian National Research Agency. Since the end of ISP support the group has graduated approximately 12 PhD's and published around 25 papers in international scientific journals.

Colombia - IPPS Research Group COL:02 (1985–2005): Materials Science

The research group at Department of Physics, University del Valle, Cali, has continued its activities after the phase out of ISP support in 2005. The group is funded by the government, by university grants, and by international agencies. Since the end of ISP support the group has graduated approximately 15 PhD students, and currently there are two enrolled. The group has since 2005 published about 115 papers in international scientific journals and made about 200 contributions to scientific conferences and meetings. The group has been actively collaborating with the host group at Chalmers University of Technology, Gothenburg, Sweden, also after the conclusion of ISP support.

Ecuador - IPICS Research Group ECU:01 (1984–2007): Food Chemistry

The research activities have continued in the group at Department of Food Science and Biotechnology, Escuela Politecnica Nacional, Quito. Immediately after the phase out of ISP support the group got a grant from the European Union (2006–2009), which was sufficient to operate the group for four years and to keep the MSc program running. After that, the group acquired grants from the Organization for the Prohibition of Chemical Weapons (Netherlands), The Belgian Research Cooperation, the Spanish National Research Council, and has received funding from the government and the own institute. The grants have been used for updating some of the research equipment acquired with ISP funding.

The group has started a PhD program and currently has five PhD students. In addition, around five PhD's have graduated since the end of ISP support in 2007. There are ten papers published in international scientific journals and 14 contributions to conferences or workshops since then. The group has organized the Third National Conference of Food Engineering and the Fourteenth Seminar of Food Science and Technology. Most of the contacts at the former host department in Sweden have retired, but contact is kept with the Food Engineering Department at Lund University, which is participating through supervision of PhD students, research cooperation, joint research projects, co-publishing and lecturing. The group is also collaborating with Gent University, Belgium and Technical University of Berlin, Germany. In Spain, the group collaborates with the National Research Center, CEBAS. The group also has a project with Toulouse University in France.

Ecuador - IPPS Research Group ECU:01 (1992–2006): Laser Physics and Optics

The research group at Department of Physics, Escuela Politecnica Nacional, Quito, has continued its work on laser spectroscopy and its applications. In particular, they still work on LIBS and GASMAS, and diode-laser spectroscopy, but have also extended their lines of work to include laser-ablation nanoparticle fabrication, nano spectroscopy, thermal characterization of nano suspensions, and currently they try to develop low cost and open source instrumentation. The group has not managed to secure any funds from external sources after the phase out of ISP support. Instead they rely on funds for research available within the university. There is no PhD program in the physical sciences in Ecuador, and there is no easy way to support a full time doctoral student. An MSc program is running at the department. The group has had approximately ten papers published in international scientific journals, has made 20 contributions to conferences, and has hosted several workshops and conferences after the end of ISP support. The professors of the host groups in Sweden have retired but the contact has been kept in the form of lecturing, research, and other academic contacts with their successors. In addition, the group is networking within Latin America both formally and informally via Nanoandes and GETNano. For academic exchange and joint projects the group is collaborating with groups in Argentina, Mexico and France.

Ghana - IPMS Research Group IMS (2002–2010): Mathematics Training

The Institute for Mathematical Sciences (recently changed to National Institute for Mathematical Sciences) is hosted at Kwame Nkrumah University of Science and Technology, Kumasi and is still active. Besides the host university, the institute work together with five additional universities: University of Ghana, Legon, University of Cape Coast, Cape Coast, University of Education, Wineba, University of Development Studies, Tamale, and University of Mines and Technology, Tarkwa. Acknowledged sponsors are GETFund, National Council for Tertiary Education, Ministry of Education, Science and Sports, Leicester Cooperation, and AMMSI.

Ghana - IPPS Research Group GHA:01 (2005–2010): Laser Physics and Optics

The group at the Laser and Fibre Optics Centre, Department of Physics, University of Cape Coast, in Cape Coast, has continued its activities after the phase out of ISP support in 2010. There are currently four PhD students in the group, but no graduations have taken place since the phase out. The group has supervisors, infrastructure and management capacity to handle in-house postgraduate training, but are lacking modern facilities for research and capacity building. No external funding has been secured since the ISP phase out. The group has since 2010 published nine papers in international scientific journals, and has made two contributions to scientific meetings. There is no collaboration with the former host department in Sweden due to retired contacts and change in research focus there. The group has developed collaboration with member countries of the ISP supported African Spectral Imaging Network (AFSIN).

Latin America - IPICS Network SSN (1994–2006): Neurochemistry

The School of Neuroscience (SSN), an annual four-week training program held at Instituto de Investigaciones Biológicas “Clemente Estable”, Montevideo, Uruguay, attracting participants from Argentina, Brazil, Chile, Colombia, Cuba, Ecuador, Spain, Mexico, Uruguay and Venezuela, has stayed active and has after concluded ISP support been organized every second years. Support has mainly been provided from the American Society of Neuroscience and the Miledi Foundation (USA). In addition, the School of Neuroscience also has evolved into a Latin American School of Advanced Neurochemistry, funded by the International Society of Neurochemistry. Three sessions of this school has already been held (2011, 2012, 2014), and a fourth is planned.

Malawi - IPICS Research Group MAW:01 (2002–2010): Molecular Biology

Through funding from the Bill and Melinda Gates Foundation (USA), the European Union and Carnegie Foundation (USA), the group has continued its activities at Chancellor College, University of Malawi, Zomba, in the study of safety and quality of cassava flour. The group has capacity to handle in-house postgraduate training but there are currently no PhD students in the group. Two PhD students have graduated since the end of support in 2010. The group has published five scientific papers in international journals, and made an equal number of contributions to conferences and workshops. The group is still in contact with the former host department through sharing of information on funding and other collaborative ventures. The group has joint research collaboration with Greenwich University, UK and the Federal University of Agriculture, Nigeria.

Malawi - IPICS Research Group MAW:02 (2002–2010): Water Chemistry

The research group located at Department of Chemistry, Chancellor College, University of Malawi, Zomba, is not as active as it used to be because most members of the group have relocated or taken administrative positions at the university. The students who graduated through the group are now spread out as lecturers at different universities in the country. Two former PhD students of the group currently remain at the university, both in administrative positions. They dedicate approximately 40% of their time to research, mainly focusing on an African Union project on appropriate capacity and training for Sub Saharan Africa water security. There are master students involved in the project, but no scientific papers have been published since the conclusion of ISP support. The original team has been dissolved, but there are activities although scarce.

Nigeria - IPICS Research Group NIG:01 (1977–2004): Molecular biology

The group at Department of Pharmaceutical Chemistry at Obafemi Awolowo University, Ile-Ife, has continued to work together and have expanded the scope of biological tests beyond antimicrobial tests. The group has managed to secure funding from other sources after the end of ISP support, from Carnegie foundation (USA) and from the

International Foundation of Science, used for conferences and training of scientists from the West African sub-region. In 2014, support has been granted from the Tertiary Education Trust Fund and, again, from the International Foundation of Science. Group members have also been provided with travel grants. Currently there are four PhD students in the group, and eight PhD's have graduated since the end of support in 2004. The group has published 72 papers in international scientific journals and contributed to approximately 60 scientific meetings. The group has organized five training workshops on molecular biology and equipment use in collaboration with the Central Science Laboratory. Due to lack of funds, no collaboration is ongoing with the former host department in Sweden. The group is collaborating with the pan-African Natural Products Library (p-ANPL).

Nigeria - IPICS Research Group NIG:02 (2002–2005): Neurochemistry

The research group at the Institute of Advanced Medical Research and Training, University of Ibadan, in Ibadan, group members are still collaborating and thereby generating publications.

Nigeria - IPPS Research Group NIG:01 (1984–2010): Geophysics

Research and capacity building in the group at the Department of Physics, Ahmadu Bello University, Zaria, has stagnated and is not as vibrant as before. Activities are ongoing but due to lack of funding they are scarce. Following the phase out of ISP support to the group, a majority of the group members relocated to other universities, both within and outside Nigeria. There are currently PhD students in the group but there are difficulties in securing funding. The group has had less than five publications since the end of support and there is no contact with the former host department of Solid Earth Physics at Uppsala University because the research hosts have either retired from active research or relocated from the department.

Nigeria - IPPS Research Group NIG:02 (1977–2009): Atmosphere Physics

The group at Department of Physics, Obafemi Awolowo University, Ile-Ife, has continued its activities but is not as strong as it was under ISP support. The group has had problems finding funds to keep at the level it was at the time of phase out. The group became less active (in terms of conducting field experiments) and less coordinated. Contact with the former host department in Sweden is still kept, for research cooperation, joint research projects, and co-publishing, but the once strong research collaboration has weakened because of reduced funding. The group has, however, been able to secure university grants and grants from an international funding agency since the end of support. There are PhD students in the group and since the end of ISP support more than ten PhD's have graduated. More than 20 papers have been published in international scientific journals and many scientific meetings have been attended with contributions.

Peru - IPICS Research Group PER:01 (2002–2006): Materials Chemistry

The chemistry group located at the Facultad de Ciencias, Universidad Nacional de Ingeniería, Lima, has remained active after the phase out of ISP support. They were also part of an ISP supported physics group in thin films at the same faculty (IPPS PER:01), which continued to receive funds a few years after the conclusion of the chemistry support. In addition, the group managed to secure funding from the government (the National Research Council) and from university grants. There is currently one PhD student in the group. No PhD's have graduated since the end of support in 2006, but the group has published ten papers in international scientific journals and has made 23 contributions to international and national scientific conferences. Challenges facing the group and the faculty are the national context with low teacher salaries, forcing most teachers to work at more than one university. The Faculty received a national grant for starting a MSc program in nanotechnology, but it was not renewed due to student dissatisfaction with the supervision and the faculty infrastructure.

Peru - IPPS Research Group PER:01 (1983–2008): Materials Science

The group at the Faculty of Sciences, Universidad Nacional de Ingeniería, Lima, has continued its activities after the phase out of ISP support. All PhD graduates from the time of ISP are currently leaders of their own research groups, two of them abroad. The group currently gets funding from the Peruvian Research Council, the University Research Institute, the Canadian Government calls for Research, European Community calls, and Latin-American calls. The group has graduated two PhD students in 2015, recruited three new ones in 2016. A challenge facing the group is the lack of sufficient support (grants) for postgraduate students in order to keep them full time in

research activities. The group has had four PhD graduations since the end of ISP support, has published more than 15 papers in international scientific journals, and has had more than 15 contributions to scientific meetings. The group is still in contact with its host institutions in Sweden. The former hosts come to Peru for lecturing and the group sends students to Sweden for short visits. One Peruvian PhD student finished her PhD at Linköping University in 2015. In 2014 a lecturer from Uppsala University came to give a postgraduate course in tribology. In addition, the group has developed cooperation with Buenos Aires University (Argentina), Antwerp University (Belgium), and Fourier University (France).

Peru - IPPS Research Group PER:02 (1982–2006): Materials Science

The group at Department of Physics, Universidad Nacional de Trujillo, in Trujillo, has continued its activities, however at a low level. The group has received funding from the university, which has led to some continued research. There are MSc and PhD students enrolled in the local programs in physics at the department. Approximately ten MSc's and five PhD's have graduated since the end of ISP support, and the group has published two papers in international scientific journals. The group continues cooperation with the former host department at Linköping University. In addition, the group collaborates with Universidad de Mayaguez, Puerto Rico, USA.

Senegal - IPPS Research Group SEN:01 (2005–2010): Laser Physics

The group at Laboratoire Atomes Lasers Institute De Technologie Nucleaire Appliquee, University Cheikh Anta Diop, Dakar, is still continuing its research activities in atomic physics and fluorescence and laser induced spectroscopy. In 2015, two students have graduated in atomic physics and laser induced fluorescence and breakdown spectroscopies. After the end of ISP support the group has received equipment support from the International Centre for Theoretical Physics and the International Atomic Energy Agency. They have also been provided with in kind contributions from the university. Presently there are five PhD students enrolled, and six PhD's have graduated since the end of support in 2010. The group has published 15 to 20 papers in international scientific journals since the phase out of ISP support, and made 12 contributions to scientific meetings. The group has continued its contacts with its host department at Lund University, Sweden, through research cooperation, joint research projects, and co-publishing. In addition the group has developed new collaboration with the ISP supported network ASFIN, and with research groups in Spain and Tunisia.

Sri Lanka - IPICS Research Group SRI:04 (1985–2004): Biotechnology

The research group at Department of Biochemistry, University of Jaffna, in Jaffna, is still active. The original group leader retired in 1997 and was succeeded by the first PhD graduate from the group. She is also the Vice Chancellor of the university, but is still actively conducting research at the department. Two PhD students and three MPhil students are currently enrolled. Up to the year 2000, the main source of funding to the research group came from IPICS. However, IPICS facilitated an application to Sida in 2000, which resulted in a Sida/SAREC grant for the project "Thermostable depolymerase from thermophiles", continuing until 2010. After the end of Sida support, funding has come from Fonterra-Sri Lanka and the Sri Lankan National Research council. The group has established collaboration with Central Food Technological Research Institute, Mysore, India, and with the Mahidol University, Bangkok, Thailand.

Sri Lanka - IPICS Research Group SRI:07 (1995–2009): Nutritional Biochemistry

The group at Department of Biochemistry at University of Sri Jayewardenepura in Nugegoda, has continued its activities. All the ISP graduates now have their own research groups, mainly supported by grants from the university and the Sri Lankan National Science Foundation. Both PhD and MPhil students are currently enrolled.

Sri Lanka - IPPS Research Group SRI:01/1 (1978–2010): Atmosphere Physics

After the end of support the group at Department of Physics, University of Colombo, in Colombo, is continuing its operation within the fields of atmospheric physics and lightning research. Currently, there are five PhD students enrolled supported by university grants, the National Research Council, and the World Bank. The group has published 2-3 papers in international journals each year after ISP support was concluded. An ISP graduate started the first MSc program in atmospheric physics at the department. At the moment, three batches comprising in total of about 45 students have graduated and the program is still running. The group is still in contact with the

former host institution at Uppsala University and is carrying out joint research projects, co-publishing, and co-supervision of PhD students.

Sri Lanka - IPPS Research Group SRI:01/3 (2005–2010): Instrumental Development

The research group at Department of Physics, University of Colombo, in Colombo, has since the phase out of ISP support in 2010 converted to focus solely on solar energy. The main reason is that the government is supportive of projects in the field of energy as there is a great need for alternative energy sources in the country. At the moment there are two PhD students involved in the solar energy project, and an MSc program in applied electronics is running. The group is mainly funded by university grants.

Sri Lanka - IPPS Research Group SRI:02 (1983–2010): Materials Science

The research activities of the research group at Department of Physics at University of Peradeniya, in Peradeniya, are ongoing but limited. Currently, only one of the four subgroup leaders remains at the university and is supervising the only PhD student at the department. A young female staff member is supervising two MPhil students, and a few PhD graduates have recently returned from USA and started new research programs supported by the National Sciences Foundation. The challenge still remains to attract students to pursue a local PhD after their undergraduate studies, especially since the end of ISP support, because the possibility of sandwich type PhD programs with long-term foreign research training no longer remains.

Tanzania - IPICS Research Group TAN:02 (2004–2008): Environmental Chemistry

The research group at Department of Chemistry at University of Dar es Salaam, in Dar es Salaam, has continued with research on environmental analytical chemistry of pollutants. The group has received occasional/intermittent support from the Tanzania Commission for Science and Technology (COSTECH), the German Academic Exchange Service (DAAD), University of Dar es Salaam, and some private funding. The group also had support through the Sida bilateral program with UDSM before and after ISP support; 1996-2003 and 2009-2015, and is a member of the IPICS-supported African Network for the Chemical Analysis of Pesticides, ANCAP. There are PhD students in the group, mainly supported by private funding. The group has had five PhD graduations since the end of ISP support, and published approximately 45 papers in international scientific journals. The group does, however, not consider themselves having all the facilities needed to handle in-house postgraduate training. Supervisors and management capacity are available, but important instrumentation and infrastructure are lacking or are insufficient; e.g. HPLC, LCMS-MS and ICP-MS, and most of the necessary consumables. The research laboratories are not sufficient and there is a general lack of trained experts in instrumentation.

Tanzania – IPPS Research Group TAN:01/1 (1989–2008): Geophysics/Seismology

The research group at Department of Geology, University of Dar es Salaam, in Dar es Salaam, has continued its activities as a result of Sida funding from 2009–2015, for the project "The construction of seismic building code". The group is also an active member of the IPPS supported Eastern and Southern African Regional Seismological Working Group (ESARSWG). There are currently PhD students enrolled in the group and one PhD has graduated since 2008. Approximately nine papers have been published in international scientific journals, and the group has made 23 contributions to scientific meetings since the end of ISP support. The group has continued cooperation with its former collaborating host institutions. The group has joint research projects with both American and French Universities (Penn State, Columbia, Brest, and Montpellier).

Tanzania - IPPS Research Group TAN:01/2 (1989–2008): Materials Science

The group at Department of Physics, University of Dar es Salaam, in Dar es Salaam, has continued its activities as part of the ISP supported Material Science for Solar Energy Network for Eastern and Southern Africa (MSSEESA). The group has MSc and PhD students enrolled, however the number has declined due to financial constraints. One PhD student is currently enrolled and two more have applied but cannot be admitted due to lack of funding. No other source of funding has been obtained since the end of ISP support. Since the phase out, the group has published approximately eight papers in international scientific journals, and has made one contribution to a

scientific conference. The group still has contact with its collaborating host department through joint proposal writing.

Thailand - IPPS Research Group THA:01 (1985–2003): Materials Science

The research group at the Department of Physics, Chulalongkorn University, Bangkok, is still active. The group leaders have retired, but the son of one of the leaders is now directing activities. The main focus of the laboratory is still thin film solar cells. The research group is one of 24 member research centers of the Thailand Center of Excellence in Physics (ThEP) aiming to strengthen physics research and postgraduate training in the country. The research laboratory is the leading center in the thin film focus area, and one of the former group leaders of the ISP supported research group is now the ThEP coordinator in the field of thin films. As a member of ThEP the group receives funding and has established connection with other research laboratories in the country. Through the Thailand-Japan Technology Transfer project, the group has established connection with several laboratories also in Japan, which provides the group with both research visits and instruments. In addition, the group has received grants from the Japanese ASAHI glass foundation, and from Chulalongkorn University. The group does not have any active collaboration with the former partners in Sweden. The group has had six PhD graduations since the end of ISP support in 2003, and there are currently three PhD students enrolled. PhD training can be conducted to a full extent locally but is preferred with short training periods aboard, if funding is available. Finding PhD students wanting to pursue PhD studies locally still remains a problem, as many students go abroad for studies, mainly with government scholarships. The main bottleneck for increased research capacity is the isolation of the group, and the fact that research community in the field in Thailand is still relatively small.

Thailand - IPPS Research Group THA:03/1 (1982–2004): Materials Science

The research group at Department of Physics at Chiang Mai University, Chiang Mai, is still active. The original group leader retired in 2006 shortly after ISP support ended. Together with a former, retired graduate of the group he founded the Thailand Center of Excellence in Physics (ThEP), of which he is now the Executive Director. The formerly ISP supported laboratory at Department of Physics at Chiang Mai University is one of the research centers supported within ThEP, and receives most of its current funding from there. A younger group member has succeeded the retired group leader and the research activities, publication and research collaboration are still active and ongoing. Currently, the research group is having some problems finding funding for investments in equipment. The main problem facing the group is, however, manpower, as they are having difficulties to attract postgraduate students.

Thailand - IPPS Research Group THA:04 (1987–2007): Geophysics

The former group leader of the group at Department of Geophysics at Prince of Songkla University, Hat Yai, is retired, but the activities of the group are still ongoing. The human capacity for research has gradually been built up. All four PhD educated staff members are still at the department contributing to teaching and research. They publish approximately one paper per year, which is the minimum requirement of the university. The PhD program in Geophysics started four years ago, and currently two PhD students are enrolled in the group. In addition, the group has functioned as a host group for PhD and MSc students from the ISP supported geophysics research group in Laos, through the ISP support to National University of Laos. The team is mainly funded by national sources (government and university), but also by private companies. The group is still in contact with its host department in Sweden through research cooperation, joint research project, co-publishing, and supervision of PhD students. In addition, the group has developed cooperation with a university in Serbia.

Uruguay - IPICS Research Group URU:01 (1978–2005): Neurochemistry

The research group located at Instituto de Investigaciones Biológicas Clemente Estable, Montevideo, has been very active in the participation and organization of training courses and conferences. The group is in contact with the former host department in Sweden through research cooperation, joint research projects, co-publishing, and administrative collaboration. The group has continued its activities after the phase out of ISP support with the help of funding from the government, international donors, and private funding from the industry. The group has graduated 8 PhD's since 2005, and currently there are several PhD students actively involved in the group. Since

the conclusion of ISP support, the group has published approximately 20 papers in international scientific journals, and has made about 40 contributions to scientific conferences and workshops. The group is involved with the formerly ISP supported School of Neuroscience, and is responsible for organizing the school every second year.

Uruguay - IPICS Research Group URU:02 (1974–2003): Biotechnology

The group at Catedra de Bioquímica, Universidad de la República, Montevideo, has continued its activities after the phase out of ISP support. The senior group members have remained in the group and have progressed very well in their academic careers at the department. The former PhD graduates have succeeded to start new research projects and to attract new graduate and postgraduate students, hence the group has grown and consolidated its activities. Currently there are six PhD students enrolled. Three PhD students have graduated since the end of ISP support, the group has published approximately 40 papers in international scientific journals, and has contributed to 120 scientific meetings. The group has organized a regional postgraduate course, "Solid Phase Enzyme Engineering: A Tool in Biotechnology", which was held at the Facultad de Química in Montevideo, 10-21 November, 2014 under the financial support and sponsorship from the United Nations University - Biotechnology for Latin America and the Caribbean, and the Program for Development for Basic Sciences-Uruguay. A new edition of this course is under planning for 2016. Although difficult in the beginning, the group members have managed to get funding from other sources after the end of ISP support, mainly from national funding agencies such as the National Agency for Research and Innovation and the Program for Development of Basic Sciences. The group has also received funding from the university and international research funding from the Spanish Agency for Cooperation, the Spanish National Research Council and the industry (e.g. CONAPROLE - a national dairy industry). The group is still in contact with the former host department through research cooperation, joint research project, co-publishing, and lecturing. In addition, the group has established new academic links and collaborations with foreign institutions through participation in a CYTED Network, which enabled scientific cooperation with research groups in Argentina and Spain.

No activities

In total, three research groups and six networks have ended their activities completely.

Africa - IPICS Network FOSNNA (2000 – 2009): Food Chemistry

The African regional network FOSNNA, in the field of food chemistry, had been supported since 2000. It was a collaboration between researchers at University of Ouagadougou (Burkina Faso), Ethiopian Health and Nutrition Research Institute (Ethiopia), Jomo Kenyatta University of Agriculture and Technology (Kenya), University Mohammed Premier Oujda (Morocco), Tanzania Food and Nutrition Center (Tanzania), Makerere University (Uganda), and University of Zimbabwe (Zimbabwe). The activities included scientific collaboration, student exchange and organization of meetings. The coordinator of the network took a new employment position in 2008 and the meeting with the network's executive committee to appoint a new one was never summoned, while funds were kept available to facilitate it. Instead, network activities stalled and the last year of network support was 2009. The activities at the respective nodes, however, may have continued with other funding. In fact, one of the nodes most active in receiving and training students, at Jomo Kenyatta University of Agriculture and Technology in Nairobi, Kenya, was invited twice to apply for IPICS research group support, but didn't submit any application. A site visit by the chemistry program director in 2010 clearly demonstrated that the team was already very successful, attraction substantial funding from other sources, such as the EU.

Africa - IPICS Network SARBIO (1995–2010): Biochemistry, Molecular Biology and Biotechnology

The Southern African Regional Network for Biochemistry, Molecular Biology and Biotechnology (SARBIO) aimed at promoting links between scientists in the Southern African sub-continent and the rest of Africa, and was last coordinated from Zimbabwe. Activities mainly focused on student and staff exchange between scientists at academic institutions in Kenya, Malawi, South Africa, Sudan, Tanzania, Zambia, and Zimbabwe. Activities of the network has faded, much because it was difficult to keep up as a center for networking activities in a situation with elevated political and economic instability in the country. Activities became scarce, and the application for

support 2011–2013 reduced the scope to developing postgraduate courses in its field of activity. It was declined on recommendation by the ISP chemistry scientific reference group, and the last year of support was 2010. SARBIO depended fully on ISP funding and has, therefore, not continued its activities after the phase out of ISP support. The SARBIO board members all moved on to new positions within their own institutions and efforts to continue networking were insufficient or lacking. Individuals engaged in SARBIO have, however, moved on to positions within Southern African Development Community and internationally, where they continue to contribute to the development of biochemistry and biotechnology.

Inter-regional - IPICS Network MOLCAS (1999–2008): Molecular Biology

The Cassava Molecular Diversity Network (MOLCAS) is an interregional network bringing together genetic resources and knowledge of cassava from national and international scientists through collaboration between national agricultural research centers in Africa, South America, Sweden and Europe. The activities of the networked stopped in 2008, soon after the network coordinator took a new position within an international organization. However, the single PhD student in the network was supported until submitting her thesis, which was finally successfully defended in 2011. The cassava diversity database built up through the network is still available at the website. Furthermore, some of the network nodes are still collaborating with each other.

Inter-regional - IPICS Network AFASSA (2003–2009): Natural Products Chemistry

The interregional network AFASSA functioned as a coordinating body of current and former ISP supported networks in natural products chemistry (NABSA, ALNAP, NAPRECA, SARBIO, ANRAP, and LANBIO), with the intention to facilitate intercontinental cooperation and student exchange. At the phase out of support it was coordinated from Sri Lanka. The distances between the nodes impaired the cooperation, and student exchange remained a challenge. The ISP chemistry scientific reference group recommended that in the few cases when interregional exchange is called for it should be arranged by the member networks and their ISP funding to be used. Therefore, the application for support in 2010 was declined, and the last year of support was 2009. After ISP stopped supporting activities faded. The coordinator of the network at the time of phase out tried to keep the network active but the response from the members where poor and therefore network activities ceased.

Latin America - IPICS Network LANFOOD (1994–2007): Food Chemistry

The Latin American Network for Food Research (LANFOOD) was coordinated from the Department of Food Science and Biotechnology, at Escuela Politecnica Nacional, Quito, Ecuador. The participating network nodes were Comisión de Eneía Atómica and Universidad de Buenos Aires, Argentina, Universidad de la Frontera and University Santiago de Chile, Chile, Instituto Costarricense de Investigación y Enseñanza en Nutrición y Salud, Costa Rica, Universidad del Valle, Colombia, CEPROBI, Mexico, and Universidad Adventista La Unión-Lima and Universidad Nacional la Molina, Peru. The collaborating activities decreased after ISP concluded support ended, much because the absence of funds for the mobility of the students and researchers, which was one of the important activities of LANFOOD. Some funding and relations was obtained with CYTED (Programa iberoamericano de ciencia y tecnología para el desarrollo), and ISEKI-FOOD (European Association for Integrating Food Science and Engineering Knowledge Into the Food Chain). The funds did not however fully satisfy the mobility needs of the network.

Complementary research work for the undergraduate and postgraduate students were continued for some time after ISP support at laboratories of the region, such as Mexico, Argentina, Brazil, and Uruguay. In Ecuador, a PhD program was established (see IPICS ECU:01), but invited candidates from Peru and Colombia couldn't follow the program due to the lack of financial support. In conclusion, besides the node in Ecuador, very limited activities have continued in most other nodes, due to lack of funding. The network as such is not functioning anymore and has not graduated any PhDs since the conclusion of ISP support. However, network members have published five papers in international scientific journals, and have made five contributions to regional scientific meetings.

Latin America - IPICS Network LATSOBIO (2003–2007): Biochemistry

The main objective of the Latin American Solid Phase Biotechnology network (LATSOBIO), coordinated from University de la Republic in Montevideo, Uruguay, was to promote high-level education in the area of solid phase protein biotechnology, with the aim to drive the development and strengthening of this area in Latin America,

targeting Ecuador, Colombia, Peru, Bolivia and Paraguay. Two main strategies were: 1) the organization and promotion of postgraduate courses/workshops in countries of the region and 2) the encouragement of South-South exchange, providing research training stages for scientists and postgraduate students from Latin America, thus contributing to the formation of human resources.

LATSOBIO was a relatively young network (five years old) and was dependent on ISP funds. The success of the activities performed during the period 2003-2007 encouraged the network to attempt to apply for support from national and international funding agencies. However, all efforts were unsuccessful. As a consequence, the LATSOBIO network was concluded in 2008.

Peru - IPICS Research Group PER:02 (2003–2007): Chemical Ecology

The activities at Department de Botánica, Universidad de Concepción, Bío-Bío, have not continued after the phase out of ISP support, due to lack of resources. The group has published about four papers in international scientific journals since the end of support, and has made three contributions to scientific meetings. The challenges facing the staff still at the department are adequate academic supervisors, facilities, infrastructure, management capacity, and support from university authorities.

Sri Lanka - IPICS Research Group SRI:03 (1981–2002): Organic Chemistry

After ISP support ended in 2002, the group at Department of Chemistry at University of Peradeniya, in Peradeniya, continued to receive Sida bilateral support up to 2004 (after start in 1994). However, the activities faded out when the group leaders retired 2007-2008, because there was no one to take over.

Sri Lanka – IPICS Research Group SRI:01/2 (1981–2010): Mass Spectroscopy

There is no remaining research activity in the group located at Department of Physics, University of Colombo, in Colombo. The group started to face challenged early in the collaboration because the building of instrumentation is very costly and requires, besides substantial funding, technical personnel trained at a very advanced level to manage the instrumentation. After the end of ISP support it was hard to obtain a sufficient level of funding from University of Colombo. To obtain larger grants from government agencies requires evidence from the research, something that could not be reached to a sufficient degree. At the moment, the three mass spectrometers built are not in use and there are no PhD students.

Unknown

The current activities of one research group are unknown to ISP.

Tanzania - IPICS Research Group TAN:01 (1981–2005): Nutritional Biochemistry and Biotechnology

Contact could not be established neither with the former leader nor the members of the previously ISP-supported activities research group, then located at the Tanzania Food and Nutrition Center, Dar es Salaam, and the activities since ISP support was concluded are unknown.

Appendix 3. Online questionnaire

Self-evaluation of phased out research groups and networks

During some period of time your research group or network received ISP (IPICS/IPPS) funding, which later was phased out. ISP hereby sends you a questionnaire to collect your opinions and experiences of the period of phase out as well as to get an update of the current situation in your research group/network.

Your participation is very important to us! The information will be used to improve ISP's routines for phase out of research groups and networks and will result in a report on the experiences and progress of the phased out activities.

Your response to all questions is voluntary. We will keep your answers strictly confidential, and you will not in any way be personally identified in the report.

The questionnaire consists of 33 questions and it should take about 10-15 minutes to answer, depending on your experiences.

Thank you for your time and participation!

If you have any questions please don't hesitate to contact Rebecca Andersson - Rebecca.andersson@isp.uu.se

Part 1: Phase out period

1. Given name and family name
2. Group leader/Node of:
 - Research group
 - Network
3. Name of research group/network
4. Discipline of science
 - Chemistry
 - Physics
 - Mathematics
5. Period during which your group/network received ISP (IPPS/IPICS) support.
6. Did you get sufficient information on why ISP decided to phase out support?
 - Yes
 - No, please describe what was lacking
7. Describe the reasons given by ISP for phasing out support to your group/network

8. How far ahead were you informed by ISP that the support would end?
9. Was the time period given for phase out sufficient?
- Yes, please specify why
 - No, please specify why
10. What would you say are the positive/negative consequences of the terminated ISP support?
11. Did you or your group have contact with ISP in any way after the end of support?
- Yes, please specify how
 - No
12. Based on your experience, how can ISP improve the phase out process?

Part 2: Sustainability and continuation of activities

13. In your opinion, what has the ISP support contributed with to your group/network/department? (in material and immaterial terms)
14. Have any additional activities developed as a result from the ISP support? (E.g. graduates or staff members from the groups have started up research groups or institutes elsewhere, etc.)
- Yes, please specify
 - No
15. Have your research group/network continued its activities after the phase out of ISP support?
- Yes
 - No, please specify why
16. Has your research group/network managed to secure funding from other sources after the end of ISP support?
- Yes
 - No, please specify why
17. If yes, from where have you received/currently receive research funding? Multiple answers are possible
- The government (E.g. National Research Council etc.)
 - University grants
 - International research funding/International donor
 - Private funding (business, industry)
 - Other, please specify

18. Are there currently any PhD students in your research group/network?
- Yes
 - No, please specify why not
19. Approximately how many PhD graduations has your group/network had since the end of ISP support?
20. Approximately how many publications in peer reviewed international journals has your group/network had since the end of ISP support?
21. Approximately how many contributions to conferences/workshops/courses/meetings has your group/network had since the end of ISP support?
22. Has your group/network organized any conferences/seminars since the end of ISP support?
- Yes, please specify when and where
 - No, please specify why not
23. At the present, do you have any contact with the former host department(s) in Sweden or any other country?
- Yes
 - No, please describe why
24. If yes, what type of contact? Multiple answers are possible
- Research cooperation, joint research project, co-publishing
 - Lecturing
 - Supervision of PhD candidate(s)
 - Administrative collaboration
 - Other, please specify
25. Has your group/network developed any new collaborations with foreign institutions since the phase out of ISP support?
- Yes, please specify with where and what type of collaboration
 - No, please indicate the main reason why
26. Does your department have all preconditions to handle in-house postgraduate training? (E.g. supervisors, facilities and infrastructure, management capacity etc.)
- Yes
 - No, please specify why and what is lacking
27. Have your research group/network come to any interesting research findings since the phase out of support that you would like to share?

28. Describe any interaction with government/society/industry/NGO's in the country that your group/network has had since the phase out of ISP support. Including meetings, participation in committees, unpublished reports to authorities, media exposure and public lectures, in the country, region or in global conventions
29. Have any of the research findings from your group/network had any influence on policy or practice in your country?
- Yes, please describe
 - No, please specify what the obstacles for this
30. What are the future prospects and plans for your research group/network?
31. In general, how do you believe that the ISP support can be improved?
32. Would your group/network like ISP to issue a certificate of the ISP funding period? If yes, the responsible Program Director will contact you to discuss the content of the certificate.
- Yes
 - No, not necessary
33. Any additional comments or thoughts.