Evaluation of the Institutional Grants Programme of the STINT Foundation

Brussels, 5 September 2009

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i. Executive summary

This is the second evaluation of the Institutional Grant Programme (IGP), after the initial assessment by SQW Limited in 2004. The aim of the evaluation is to assess the programme's achievements against the aims set for it by the STINT Foundation and against the beneficiaries' expectations.

Aims and history

The IGP is the largest programme of the STINT Foundation. Its objective is to strengthen Swedish research, by means of cooperation with institutions outside of Sweden. Within this overall context, STINT attaches particular importance to the benefits the IGP provides to young researchers. The programme is to support new research links, which are expected to be sustained beyond the funding period. While the IGP has its focus on research, the partnerships are encouraged to also become engaged in the area of teaching and learning. The programme is open for cooperation in all subject areas and with all countries world-wide.

The IGP was started in the year 1996. Since its inception, it has attracted close to 1,100 project applications, which have resulted in about 250 awards, or about 23 percent of applications. Application numbers over the years have fluctuated, as has the number of awards. In the two most recent years, the number of applications has decreased markedly. The total investment of STINT in the subset of projects under scrutiny here (i.e. those approved to start up to 2005) was 430 million SEK.

Methodology

The present evaluation was carried out in the first eight months of 2009, by the Academic Cooperation Association (ACA). The main authors are Bernd Wächter (ACA) and Neil Kemp (NK Education Ltd.). An important part of the work, an online questionnaire-based survey as well as its analysis, was carried out by the Higher Education Information Systems Ltd (Hanover, Germany). Chripa Schneller and Maria Kelo (both ACA), as well as Bernd Wächter and Neil Kemp, conducted the interviews carried out as part of this evaluation. Irina Lungu (ACA) assisted in the production of the final evaluation report.

The two main methods employed were, first, a series of six online questionnaire-based surveys and, second, a series of interviews. Both were designed on the basis of the programme's stated aims.

The online survey targeted, with separate questionnaires, the different types of researchers involved in IGP projects, i.e. Swedish Project Leaders, Foreign Project Leaders, and Junior Researchers (mainly Master's and Doctoral Students as well as Postdoctoral Fellows) both at Swedish and foreign institutions. For each of these three groups, (slightly) separate questionnaires were developed for the sub-sets of finished and ongoing projects. Overall, the surveys targeted 560 persons, 352 of whom responded (i.e. almost 63 percent).

Interviews were carried out with a total of 96 persons, most of whom were based in Sweden. 50 percent of those were Junior Researchers, 30 percent Swedish Project Leaders and 20 percent their foreign counterparts. The choice of interviewees roughly represented the

distribution of IGP projects in terms of subject areas, partner countries and Swedish institutions. The vast majority of interviews was conducted face-to-face. There was a smaller number of phone interviews, predominantly with researchers outside of Sweden.

The online survey as well as the interviews targeted researchers in IGP projects which were started between 1996 and 2005. Projects started at a later stage were excluded from this evaluation, since it was improbable that their outcomes and impact could already be measured.

The project team was supported by an Advisory Board composed of eminent Swedish researchers with a good knowledge of the IGP. This group met twice, at the beginning and end of the evaluation, to advise on the evaluation approach and to discuss the draft evaluation report.

At all stages of the evaluation, the project team could count on the competent support of the STINT Secretariat.

Motivation and prior knowledge of partners

Growing mutually beneficial and complementary research cooperation – and with high-class research partners - is clearly what motivates Swedish (and foreign) researchers to seek an IGP partnership. Very few projects pursue aims in the area of education (teaching and learning). Other objectives include the development of young staff and the internationalisation of the university involved.

The initiative to enter into an IGP partnership almost always comes from the Swedish side – which could also be due to the fact that only Swedes can apply and foreign researchers rarely know of the STINT Foundation.

The IGP grant is crucial for starting the cooperative ventures: the vast majority of researchers would either not have grown the partnership at all without the grant, or cooperation would have been less intense and research progress much slower. This is important also because there is no other programme which funds exactly what the IGP does.

Over half of all partners had already engaged in some form of research collaboration before growing the IGP partnership. Often, they had been colleagues in the early stage of their careers.

Activities

The IGP investment has resulted in a wide mix or inter-related activities, such as exchanges and research attachments of doctoral, postdoctoral and senior staff, joint field and other research, joint research workshops, conferences and seminars, student exchanges, conference participation, growing of wider networks and the development of programmes and curricula.

Our best estimate is that possibly 4,000 exchanges took place across all the projects started between 1996 and 2005, involving a minimum of 770 researchers. Slightly more Swedish researchers went abroad than foreign researchers came to Sweden.

Although there are slightly conflicting findings, overall indications are strong that education-related activities took place least often.

Achievements

Overall, this evaluation has revealed that the IGP is an unusually successful programme and greatly benefited Swedish research and universities. With very few exceptions, our research found that the IGP meets both its stated aims and objectives and that it results in a high degree of satisfaction of its beneficiaries. The following is – by necessity – a highly selective account of the IGP's successes. Many more could be enumerated, but this is beyond the bounds of an Executive Summary. The IGP

- resulted in links in which well over four fifths of both Foreign and Swedish Project Leaders stated that they had either 'fully' or 'largely' succeeded in "growing a high quality research partnership".

- generated a minimum of almost 1,200 publications in peer-reviewed international journals, or on average over six per project, as well as about 600 books, chapters in books or other publications, and about 1,000 papers delivered at international conferences.

- led to about 200 new research activities (beyond the work carried out in the IGP proper) and to some form of training in new research techniques for about 350 Swedish researchers.

- resulted in a net migration of foreign researchers to Sweden, particularly of research students and Postdoctoral Fellows. About 120 researchers were recruited to Swedish universities. The only other country with a net gain was the US (with about 20 migrants).

- generated additional funds from both other Swedish and international sources of about SEK 300 million. This compares with an investment by STINT of around SEK 430 million, and a leverage factor of close to 70 percent.

- produced 18 patents applied for and 24 projects taken up by industry for commercial development.

- grew partnerships which have been, by and large, sustainable. 86 percent of projects claimed they were still cooperating today – even though many of them at a lower level, due to decreased funds.

The outcomes and achievements of the programme were most impressive for the particular group of Junior Researchers. For example:

- The IGP-funded projects resulted in the award of 350 PhD degrees, or close to two per project.

- Junior researchers involved in IGP projects progressed smoothly and rapidly on the 'academic ladder': 95 percent of them attributed their career progress to some extent to the IGP involvement.
- For some 70 percent of Junior Researchers, there was a positive IGP impact in terms of new research skills acquired and publications produced.
- The IGP involvement has yielded many other positive benefits for Junior Researchers such as access to equipment and infrastructure, improvement of quality of academic work, broadened research interests/orientations, increased motivation and self-confidence, the growing of informal networks, help in academic appointments and cultural learning.

Areas of concern

Notwithstanding the impressive successes of the IGP, there are some challenges the programme faces and some areas for reflection. Not all of these are of the IGP's making, but they still need to be addressed.

First, our findings show that the 'educational dimension' of the IGP is underdeveloped. To be clear, when talking about the 'educational dimension', we refer to activities aimed at 'undergraduate' (sub-PhD level) teaching and curricular development, and not to the training of young researchers. Few projects have ambitions in this area, and activity levels are low. It is likely that the 'constituencies' for international collaboration in research and education overlap only little.

Second, the availability of Junior Researchers – and particularly of Doctoral Students – poses a problem for the IGP. This is most likely due to the relatively high cost of a PhD student (a salaried employee) in Sweden, with implications for the numbers of Doctoral Students available for IGP participation. The high cost of Doctoral Students in Sweden is not a problem which the IGP is in any way responsible for, but it nonetheless creates a challenge for the IGP. STINT might therefore want to consider identifying partners from the field of core research funding who might contribute to the salary cost of Doctoral Students involved in IGP projects.

Third, the present 'focus' of the IGP is an 'inclusive' one, meaning that the programme is open to applications from all subject areas and partner countries. This is perfectly compatible with the present priority – in award decisions – on academic quality and, moreover, fully endorsed by the majority of beneficiaries, who favour the inclusive approach. It is, however, also clear that the pursuit of possible priorities in the field of partner countries (with which STINT has experimented) or subject areas is not compatible with this approach.

Fourth, the IGP – and possibly also the STINT Foundation – is not quite as visible as one would wish for both in Sweden and internationally. Possibly, this is the reason behind a drop in applications under the programme in the last two years. We are convinced that STINT is not doing itself and its excellent work a favour this way. We are confident that a stepping up of measures in the area of information and marketing would be beneficial, fully respecting that human resource constraints dictate a selective and limited approach.

Fifth, we have found that the programme in its present form, i.e. its limitation to the funding of *new* partnerships, has proved to be successful, but we wonder if this should necessarily

exclude the possibility of transition or phasing-out grants for existing projects in a limited number of justified cases.

Sixth, we are impressed by the 'light' and flexible approach which STINT takes to the management of the IGP, and by its openness to the concerns and problems of the IGP beneficiaries. We would want to encourage STINT to continue to run the IGP this way. However, as a 'back side' of this flexibility, there is some degree of lack of clarity about basic programme rules. In addition, we are convinced that beneficiaries would not object to some guidance in respect of project delivery, reporting and related aspects.

Seventh, we fully understand that the STINT Foundation concentrates its contact efforts on the Swedish IGP partners. But this does not appear to preclude a minimum degree of visibility with the foreign project partners.

Eighth, we believe that the question of Intellectual Property Rights and ethical considerations more widely deserve STINT's attention.

Ninth, we consider that more international students might be attracted to Sweden through growing synergies with IGP including to promote the successes in key countries.

Recommendations

Recommendation 1
The STINT Foundation should continue to support the IGP, which is a highly successful programme. Therefore, we are proposing only minor modifications.

Recommendation 2
The STINT Foundation will need to decide on the importance it attaches to the 'education' component of the IGP. All indications are that, under the current focus on research excellence, the teaching and learning element of the IGP will always remain secondary. Should growing educational collaboration remain an objective of the IGP, we recommend that a quota of projects be set aside for an 'education IGP', applications for which would need to be assessed separately.

Recommendation 3
The STINT Foundation needs to take a policy decision with regard to possible country and subject area priorities for the IGP. The present policy of inclusiveness (non-prioritisation) is compatible with the overriding concern with excellence in research. If STINT should decide to introduce country and/or subject area priorities, the present key criterion of research excellence cannot be upheld, and STINT is advised to introduce different evaluation criteria.

Recommendation 4
We recommend that the STINT Foundation adopts a more proactive approach with regard to the provision of information about the IGP and its promotion and marketing. Such measures should target mainly, but not only, the Swedish research community. They could include:

- regular email alerts to heads of departments of Swedish universities;
- information and promotion workshops in two or three Swedish university locations prior to the deadline for the submission of IGP applications;

- the possible creation of an IGP alumni association, which would hold a highly publicised annual event, and whose members could also take roles in the above information and promotion seminars; and
- an electronic IGP Newsletter, to appear twice or three times per year.

Recommendation 5
We advise the STINT Foundation to review its rules for re-applications and applications for the extension of funding for running IGP projects. We suggest that STINT considers minimally the introduction of a 'transition' grant', for a limited number of projects to be selected on the grounds of need and prior project success.

Recommendation 6
We recommend that the STINT Foundation adheres to its rightly praised 'light management' style, but we also recommend to complement this approach with the introduction of a few measures aimed at creating a modest degree of formalisation and increased transparency. Some possible approaches for consideration include

- The setting and publication of clear guidelines and their efficient communication to project applicants and beneficiaries, via the STINT website and in written communication, concerning at least
    - the conditions for an extension of project duration;
    - the conditions for new applications from the same Project Leader;
    - the conditions for the substitution of partners;
    - the basic requirement for the project consortium (bi-laterality, multi-laterality, maximum number of partners, in case of limit).
- The publication of the criteria for the evaluation of project applications, ideally in the form of a score card and the communication of the result of the evaluation;
- The creation of a standard format for final and interim reports (ideally on an annual basis), with closed questions mainly, and an additional provision for 'free text remarks'.
- The development and provision to beneficiaries of guidance on project delivery, in the form of a 'good practice guide'.
- The development and provision of a model partner agreement, covering aspects such as respective roles, responsibilities and funding arrangements.
- A regular (annual) meeting of Swedish Project Leaders for the exchange of experience and good practice, possibly attended by some Foreign Project Leaders.

Recommendation 7
We recommend that STINT establishes a minimum degree of contact with the Foreign Project Leaders. They should be notified routinely at the project award stage, and they could additionally receive the IGP Newsletter.

Recommendation 8
It is recommended that STINT addresses Intellectual Property Rights (IPR) and other ethical issues. Arrangements in this field could be covered in the partner agreement and would need to be signed off by both the Swedish and the Foreign Project Leader.

1. Introduction: why this evaluation?

In 1996, the STINT Foundation launched its biggest funding programme to date, the Institutional Grants Programme (IGP). In line with the Foundation's mission, this programme is to strengthen Swedish research and higher education through internationalisation. The IGP funds international collaboration between research teams in Sweden and counterparts abroad and it seeks to create sustainable (lasting) ties between the partnering institutions. Since its inception, the IGP has supported a total of 251 such projects, with research groups in universities and research centres all over the world. The programme enjoys considerable prestige in the Swedish research community.

In the year 2004, the IGP was evaluated by SQW Limited, a UK consultancy firm based in Cambridge. Next to recommending some minor adaptation of the programme, the evaluation "*judged the programme to have been successful*." It found that it had provided access to leading researchers to new partner countries and to special environments for experimental purposes, it had increased the resources available to Swedish research and it had, in some cases at any rate, leveraged funds from the partner countries. So why was a new evaluation carried out only a few years after? There are two major sets of reasons.

First, the IGP pursues medium and long term aims. Its support of projects is expected not only to yield more immediate results, in the guise of research progress, but also and especially to create institutional linkages which last well beyond the funding period. Another key objective of the programme is on the training of Junior Researchers and on the development of their careers. The evaluation carried out in 2004 took place too early to be able to fully appreciate if these longer-term objectives had been met. The majority of the IGP projects that had been funded up to the year 2004 were, at the time, still ongoing and it was obviously too early to definitively judge if the programme aims had been met.

Second, the 2004 evaluation was (and was meant to be) an exercise of smaller dimensions than the present one. It was based on an email survey which generated responses from some 60 researchers. The online surveys conducted as part of the present evaluation are based on the responses of over 350 staff, covering the whole range of researcher categories involved in IGP projects. In the original evaluation, 40 researchers were interviewed. In the present assessment, 95 staff from of all categories were interviewed – the vast majority of them face-to-face.

We hope that the present evaluation will help the STINT Foundation in the further development of what we have found to be a highly successful instrument.

Bernd Wächter
Neil Kemp

2. Aims and History of the Institutional Grants Programme (IGP)

The STINT Foundation was set up in 1994, together with a number of similar entities for the support of Swedish research. The particular mandate of STINT is to internationalise Swedish research and higher education. In the Foundations' own words, it does so by

- facilitating the expansion of international networks of cooperation and exchange for Swedish research and higher education;
- assisting in the formation of collaborations and exchanges that renew research and higher education;
- helping develop alternative means of international collaboration;
- increasing Swedish university lecturers' international contacts;
- assisting Swedish universities and colleges of higher education in developing into attractive scholarly environments for foreign researchers, teaching staff and students; and
- supporting and promoting international collaboration and exchange as being an integrated and natural concern for national funding bodies.

STINT runs a considerable range of grant programmes, with a series of common features. The most important ones of these are the following:

- STINT programmes fund collaboration between Swedish higher education institutions, or individuals in these institutions, with counterparts in other countries.
- Most STINT programmes are open to all academic disciplines (although there are discipline-specific programmes, for example in the humanities and social sciences) and all countries of the world (but there are also country-specific schemes).
- STINT programmes do not fund Swedish (or foreign) higher education and research as such, i.e. they do not provide, as a rule, monies for salaries, equipment and infrastructure.
- STINT programmes concentrate funding on the extra costs created by international cooperation, i.e. essentially on the cost for travel and stays abroad.
- STINT programmes try to further international cooperation for both the research and education function, although the emphasis is mostly on the former.
- Within these bounds, STINT programmes can be categorised as 'group programmes' or 'individual programmes'.
- 'Individual programmes' usually fund stays abroad of a single researcher from a Swedish university, or a foreign researcher at a Swedish higher education institution.
- 'Group programmes' fund the cooperation of whole research teams in Sweden and abroad, consisting of experienced researchers, Postdoctoral Fellows, Doctoral and Master's Students, and over a longer period. The Institutional Grants Programme falls into this category, as does its equivalent for junior researchers, the Institutional Grants for Younger Researchers.

Aims and formula

The overarching aim of the Institutional Grants Programme (IGP) is to strengthen Swedish research and higher education. The Swedish research teams involved in the IGP are expected to improve the quality of their work in a substantial (as opposed to a marginal) way, as a result of the cooperation. Within this general orientation, STINT attaches particular importance to the benefits the IGP provides for young researchers (Master and Doctoral Students and Postdoctoral Fellows), in terms of research training and career enhancement.

The IGP focuses its funding on "new patterns of collaboration", i.e. it does not aim at funding already firmly established collaborations between universities and research teams in Sweden and abroad. Further, the expectation is that the cooperative links established through the IGP are sustainable, i.e. that collaborative activity continues between the partners beyond the period of the IGP grant.

The IGP is open to applicants from all subject areas. There are no quotas for disciplines. The IGP is also open for cooperation with partners from all parts of the world (though, in particular years, there have been 'priority countries').

The 'ideal' IGP collaboration covers activities both in research and in teaching. However, purely research-focused cooperation is also possible.

The IGP is 'institutional' in scope, i.e. it is a 'group programme' (see above). The 'institutional' nature of IGP collaboration implies that a considerable number of individuals and a wide range of staff and researcher categories are involved in the exchanges (senior researchers, academic teachers, Postdoctoral Fellows, Doctoral and Master's Students and others). This goes for both the Swedish and the foreign partners. At least some of the stays abroad should be of a considerable duration. Even though the overarching aim of the programme is a substantial benefit for Swedish higher education and research, the expectation is that exchange flows between partners are 'balanced'.

Apart from joint research, visiting scholars and researchers are expected to engage in tutoring, lecturing, and the development and delivery of joint courses and summer schools. The organisation of joint seminars, conferences and similar education and research-related events is likewise possible.

The typical IGP grant is for a 4-year period. Since grant holders may stretch the grant over a longer period of time, however, many cooperative ventures cover a longer period. A follow-up grant, for a continuation of the same project, or a new one, with the same partner is not possible (exceptions were made in 2002 and 2003). However, applications for a new IGP award by former grantees and with new foreign partners are possible.

In principle, IGP cooperation is bilateral, between one Swedish and one foreign institution (team). However, configurations involving more than one Swedish and more than one foreign team are possible, even if the two foreign institutions are from different countries. Often, but not exclusively, such constellations are the result of a move of a key researcher to another university, which the IGP then takes into the collaboration. This is just one example of the high flexibility of the IGP management by staff of the STINT Secretariat. This flexibility is not accidental, but part of the programme's philosophy.

The IGP grant can only be used for covering the cost of mobility (travel and stay abroad), as well as mobility-related items, such as seminars and, in some justified cases, other minor cost items such as laboratory costs or bench fees. Salaries are, with few exceptions, not eligible costs, nor is equipment and infrastructure. One notable exception with regard to salaries is stipends for staff while abroad, which can function as a salary-equivalent. The IGP funding *de facto* always requires 'matching funds', for salaries, infrastructure and laboratories, equipment, be it from the budget of the cooperating institutions or, more often, from external sources, such as research councils and foundations.

History

The IGP is the STINT Foundation's flagship programme, with a share of about 40 percent of the Foundation's budget. The programme was launched in 1996 and there have been application and selection rounds every year since, except in 2006. Over the period from 1996 to 2009, there were 1,084 applications, resulting in 251 approvals. The overall acceptance rate over the entire programme period was 23 percent.

Table 2.1: Applications and approvals over time

Year	Applications	Approvals	Success rate (%, rounded)
1996	91	18	20
1997	99	18	18
1998	88	16	18
1999	109	17	16
2000	84	21	25
2001	86	27	31
2002	93	27	29
2003	97	26	27
2004	80	24	30
2005	88	15	17
2006	-	-	-
2007	82	18	22
2008	50	16	32
2009	37	8	22
All years	1,084	251	23
Source: STINT Secretariat			

Table 2.1 shows that, in most years, application numbers ranged between 80 and 100, with a peak of 109 applications in 1999. In the last two years, application numbers have dropped significantly. Success rates, expressed as a percentage of applications submitted, varied from 16 percent in the year 1999 to 32 percent in the year 2008, with an average of 23 percent. Despite these variations, the IGP has been, at every point in its history, a competitive programme, always rejecting more than two out of three applicants.

Those 209 IGP projects approved in the period under scrutiny in this evaluation, i.e. those which started between the programme's inception year 1996 and 2005, had an overall budget of close to SEK 430 million, as can be seen in Table 2.2.

Table 2.2: IGP funding 1996-2005 (project start year)

Year	Nos projects supported	Subject areas				Total funding SEK '000	Funds per project SEK '000
		Natural Sciences	Medicine	Technology	Humanities-Social Sciences		
1996	18	5	4	6	3	68,000	3,778
1997	18	5	5	4	4	44,800	2,489
1998	16	5	3	3	5	34,700	2,169
1999	17	5	4	4	4	33,690	1,982
2000	21	7	4	5	5	47,560	2,265
2001	27	9	6	8	4	44,720	1,656
2002	27	5	12	5	5	49,632	1,838
2003	26	7	4	12	3	36,480	1,403
2004	24	9	6	6	3	39,000	1,625
2005	15	7	2	5	1	31,300	2,087
Totals	209	64	50	58	37	429,882	2,057
Source: STINT Secretariat							

Grant amounts for individual projects have ranged from about SEK 4 million at the high end, to about SEK 130,000 at the other. Average funding per project was slightly more than SEK 2 million over the programme's entire lifespan. Averages per project fluctuate over the years, with a peak in the start year 1996 and a low in 2003. Overall, the trend has been for average funding per project to reduce over time.

3. Methodology

The present evaluation was carried out in the eight months from January to August 2009. Its main authors are Bernd Wächter, the Director of the Academic Cooperation Association (ACA) and Neil Kemp, of NK Education Ltd. An important part of the evaluation, an online questionnaire-based survey, was carried out by Nicole Rohde and Kai Mühleck of Higher Education Information System Ltd. Maria Kelo and Chripa Schneller, of ACA, conducted a number of interviews with researchers who had received IGP support. The remaining interviews were carried out by Bernd Wächter and Neil Kemp. Irina Lungu and Chripa Schneller, of ACA, helped draw up the final report. The project team had the competent support of an Advisory Board, made up of leading scientists who had been involved in the IGP, in different capacities.

The two main methods employed were a questionnaire-based online survey as well as interviews. In addition, an email pre-survey was conducted and material of various sorts on the funding of (international) research in Sweden and Europe was perused. The individual elements of the methodology are described in detail further below.

The target groups of this study were Swedish and foreign researchers which had been awarded IGP grants in the years between 1996 and 2005. In agreement with the STINT Foundation, projects awarded from 2007 onwards[1] were excluded since it was considered very unlikely that their outcomes and impact could already be measured.

The overall purpose of this evaluation study is to assess the outcomes and impact of the IGP against its stated aims, and to advise the STINT Foundation on possible adaptations to the programme, if necessary.

3.1 Pre-survey

The pre-survey was entirely technical in nature and served one single purpose: to identify and collect contact information of members of the IGP research teams beyond the Swedish Project Leader, which were vital for the later online surveys and interviews. The STINT Secretariat provided – in the very vast majority of cases up-to-date – information on the names, email addresses and telephone numbers of the Swedish Project Leaders. But it did not have such information either for the other members of the Swedish teams, nor for the Foreign Project Leader and other researchers involved outside of Sweden.

The pre-survey was conducted in the first week of January 2009 and targeted the Swedish Project Leaders whose contracts had been awarded in 2005 or earlier. In principle, these were 209. However, it was agreed with STINT that a small number of discontinued (failed)

[1] There were no awards in 2006.

projects would be excluded from the evaluation, and in a few other cases it turned out that the contact information of the Swedish Project Leader was incorrect and could not be identified through additional searches either, or that the person had died. This reduced the sample finally to 191 Swedish Project Leaders. Over 70 percent of those Swedish Project Leaders responded, and provided the names and contact details of one or more researchers involved in their IGP cooperation. This way, a total of about 600 researchers involved in IGP teams (inclusive of the Swedish Project Leaders) could be identified. As will be seen further below, the total sample later shrunk to 560 persons, mainly because the contact details of some 40 researchers proved incorrect and could also not be identified by other means.

3.2 Online questionnaire surveys

One of the two prime instruments to collect evidence on the IGP cooperation was an online questionnaire survey – or, to be precise, six. Separate questionnaires were produced for

- Swedish Project Leaders (SPL);
- Junior Researchers (JR), i.e. Postdoctoral Fellows (a category under which, as it turned out, a wide range of staff from senior scientists to persons who had just completed their PhD had been reported), as well as Doctoral and some Master's Students; and
- Foreign Project Leaders (FPL).

For each of these three groups, a separate questionnaire was produced for the sub-groups of finished and ongoing projects. The questionnaires are contained in the annex to this study.

Before the launch of the three surveys, and after a pre-test of the questionnaires with a subset of the final sample, an email 'encouragement letter' was sent out by STINT, explaining that and why an evaluation of the IGP was being conducted, introducing the evaluation team, announcing the survey and encouraging addressees to complete the questionnaire. The survey was opened on April 20th for completed projects and on April 24th for ongoing projects with an email to addressees containing a link to the online questionnaire. Two reminder emails were sent to non-responsive addressees on May 11th and May 25th. The survey was closed in early June.

Next to verifying or completing basic data and information on the project and the respondent, the questionnaires (for the Swedish and Foreign Project Leaders) collected information and data covering the IGP project as a whole, with regard to the following issues:

- aims of and motivations for the collaboration;
- partner choice;
- project delivery;
- project outcomes and impact;
- sustainability of the partnerships; and
- assessment of overall success.

The questionnaires for the Junior Researchers concentrated on outcomes of their particular stay(s) abroad, and on the career patterns and progress after the period abroad.

Country classification

A six-category classification for countries was used throughout the analysis. The country groups were created by employing a mix of geographical, economic and research and academic infrastructure considerations.

- *North America*, comprised of USA and Canada
- *West Europe*, comprised of: 'old EU' (EU-15), Norway, Iceland, Switzerland, Israel, Australia and New Zealand
- *East Europe*, comprised of the 12 EU members who joined the Union since 2004, and other Eastern European countries
- *East Asia* (or 'wealthy' Asia), comprised of Japan, Korea, Taiwan and Singapore
- *Middle Income Countries (MICs)*, comprised of Latin America, China, Thailand, Malaysia and Hong Kong
- *Low Income Countries (LICs)*, comprised of India, Pakistan, South Africa and Indonesia.

Subject Areas

When grouping individual disciplines, we used the STINT Foundation's own classification system, with the four broad subject areas below:

- *Medicine:* All clinical and non-clinical medical and paramedical sciences and related disciplines;
- *Natural Sciences:* All bio- and physical sciences including mathematical and computer sciences;
- *Technology:* all aspects of engineering, technological and applied sciences;
- *Humanities-Social Sciences.*

Samples and responses

Table 3.2.1: Survey sample and response

Researcher category	Sample	Response	Response (%)
Swedish Project Leaders	191	121	63.3
Foreign Project Leaders	140	85	60.7
Junior Researchers	229	146	63.8
Total	560	352	62.9

The overall return rate, at close to 63 percent (see Table 3.2.1), was high by the standards of comparable surveys. Differences in response by categories of researchers were relatively small, with Junior Researchers (JR) reaching the highest and Foreign Project Leaders (FPL) the lowest return rates.

Table 3.2.2: Survey sample and response by start year[2]

Year	Projects	SPL sample	SPL response (%)	FPL sample	FPL response (%)	JR sample	JR response (%)	Sample all	Response All (%)
1996	15	15	60.0	6	83.3	14	57.1	35	62.9
1997	30	30	46.7	21	66.7	31	54.8	82	54.9
1999	14	14	50.0	10	70.0	20	40.0	44	50.0
2000	20	20	65.0	12	75.0	17	76.5	49	71.4
2001	25	25	56.0	17	41.2	31	64.5	73	56.2
2002	27	27	70.4	21	47.6	36	61.1	84	60.7
2003	23	23	65.2	22	63.6	31	64.5	76	64.5
2004	22	22	81.8	18	44.4	25	64.0	65	64.6
2005	15	15	80.0	13	84.6	24	91.6	52	86.5
Total	191	191	63.3	140	60.7	229	63.8	560	62.9

The sample of addressees is not evenly distributed over the years of IGP operation, which is largely a reflection of the very different numbers of projects that started in each year (and to a lesser extent of the different response rates of Swedish Project Leaders in individual years of IGP operation). The sample has a slight concentration in the middle years of the programme.

Response rates across all types of researchers ranged from 50 percent (for the year 1999) to over 86 percent for projects that had started in 2005. By and large, however, the distribution of returns over time did not deviate dramatically from that of approvals.

Table 3.2.3: Survey sample and response by partner country

Country Group	Projects	SPL sample	SPL response (%)	FPL sample	FPL response (%)	JR sample	JR response (%)	Sample All	Response All (%)
North America	61	61	62.2	45	53.3	84	69.0	190	63.2
West Europe	44	44	59.1	35	77.1	46	60.9	125	64.8
East Europe	15	15	93.3	11	72.7	25	48.0	51	66.7
East Asia	21	21	61.9	14	64.3	18	50.0	53	54.4
MICs	40	40	57.5	29	44.8	45	71.1	114	59.6
LICs	10	10	70.0	6	66.7	11	63.6	27	74.1
Total	191	191	63.3	140	60.7	229	63.8	560	

Overall, the sample of addressees was heavily geared towards countries with the more developed higher education and research systems (as a result of the projects selected for funding). The share of addressees in the first two groups (North America and West Europe) was over 56 percent (315 out of 560). Response rates varied from 74.1 percent at the top end (LICs) to 54.4 percent at the bottom (East Asia).

[2] Please note that this Table, unlike Table 2.1, does not contain projects in the year 1998. As a result of an idiosyncrasy in the numbering system of IGP projects, 1998 projects are included in those listed under 1997.

Table 3.2.4: Survey sample and response by subject area

Subject area	Projects	SPL sample	SPL response (%)	FPL sample	FPL response (%)	JR sample	JR response (%)	Sample all	Response all (%)
Natural Sciences	58	58	84.4	49	67.3	83	72.3	190	74.7
Medicine	47	47	42.6	32	46.8	52	63.5	131	51.1
Humanities - Social Sciences	33	33	66.7	23	65.2	37	62.2	93	64.5
Technology	53	53	56.6	36	63.9	57	52.6	146	56.8
All	191	191	63.3	140	60.7	229	63.8	560	
Source: IGP survey data									

As is apparent from Table 3.2.4, the largest number of addressees was in the Natural Sciences, followed by Technology, Medical Sciences and Humanities/Social Sciences. Return rates varied from 74.7 percent (Natural Sciences) to 51.1 percent (Medicine).

3.3 Interviews

Next to the online questionnaire survey, the second major set of instruments used in this evaluation was interviews. Interviews were conducted with all categories of researchers involved in IGP cooperation mentioned above, i.e. with persons who were, at the time of the cooperation

- Swedish Project Leaders (SPL);
- Junior Researchers (JR); or
- Foreign Project Leaders (FPL).

Interviews in Sweden were conducted exclusively face-to-face. Researchers outside of Sweden (mainly Foreign Project Leaders, but sometimes also Swedish researchers who had moved to another country), were interviewed in most cases by phone, but a few, exclusively from Europe, were interviewed face-to-face. After consultation with the STINT Foundation, it was decided to target at least 50 percent of interviewees from among the groups of Junior Researchers (Postdoctoral Fellows and Doctoral Students), about 30 percent from among the Swedish Project Leaders and the remainder from among Foreign Project Leaders. Further, it was decided that the choice of interviewees should be roughly in line with the distribution of addressees in the online survey over subject areas, partner countries and Swedish universities. No interviews were conducted with researchers from projects with very limited activities, that is, those which received funding of less than SEK 1 million. For reasons of practicality, but also in order to gain a multi-perspective view of the work inside individual projects, it was decided to concentrate on entire teams wherever possible, rather than on single individuals from within a project.

With few exceptions, interviews were conducted one-to-one, i.e. group interviews were avoided. The average interview lasted about one hour, often with follow-up email exchange.

As had already been experienced in the online survey, researchers responded mostly positively to interview requests. Only about one in seven researchers did not respond to the email request for an interview or refused to grant an interview. In some cases, interviews with, in principle, cooperative researchers could not take place due to the different schedules of interviewee and interviewer or because the potential (face-to-face) interviewee had moved away from Sweden. About one fifth of the originally planned interviewees had to be substituted by others.

Table 3.3.1: Interviewees by researcher category

Researcher category	Number of interviewees	Share of interviewees (%)	Ideal share of interviewees (%)
Swedish Project Leaders	32	33.3	30.0
Junior Researchers (Postdoctoral Fellows)	22	23.0	25.0
Junior Researchers (PhD students)	27	28.1	25.0
Foreign Project Leaders	15	15.6	20.0
Total	96	100	100
Source: IGP interview data			

Table 3.3.1 indicates that the actual distribution of interviews across researcher categories came very close to the distribution originally aimed for ('the ideal share'). Only the share of Foreign Project Leaders remained considerably below the target.

Table 3.3.2: Interviewees by subject areas

Subject area	Number of interviewees	Share of interviewees (%)	Ideal share of interviewees (%)
Medicine	24	25.0	23.5
Natural Sciences	29	30.2	33.9
Technology	33	34.4	26.0
Humanities - Social Sciences	10	10.4	16.6
Total	96	100	100
Source: IGP interview data			

Taking as a measure the share by subject area of all addressees in the online survey ('the ideal share'), the distribution of interviewees diverges slightly from the ideal. The share of Natural Sciences is almost four percent below the 'ideal', and more than six percent in the case of Humanities-Social Sciences. On the other hand, the Technical Sciences and Medicine are over eight percent above target.

Table 3.3.3: Interviewees by country groups of partner institution

Partner country category	Number of interviewees	Share of interviewees (%)	Ideal share of interviewees (%)
North America	35	36.5	33.9
West Europe	26	27.1	22.4
East Europe	8	8.3	9.1
East Asia	12	12.5	9.5
MICs	13	13.5	20.3
LICs	2	2.1	4.8
All	96	100	100
Source: IGP interview data			

Table 3.3.3 indicates the distribution of interviewees with respect to the country in which the partner institution is located. Both the Swedish interviewees and the Foreign Project Leader(s) have been allocated to this country (and the respective country group it belongs to). Again, there are deviations from the 'ideal' distribution. They are strongest with the Low Income Countries (under-representation) and West Europe (over-representation).

3.4 Advisory Board

The evaluation team has received very valuable support and counsel from an Advisory Board. This group was composed of five personalities well versed in matters of Swedish research and international cooperation. All of them had an intimate knowledge of the IGP programme, with which they had been involved in various capacities. The members of the Advisory Board were:

- Dr Olle Edqvist (physics), formerly at the Foundation for Strategic Research, at present a senior researcher at the Swedish Institute for Studies in Education and Research (SISTER) and the author of a book on the internationalisation of Swedish research.
- Dr Ewa Ehrenborg (medicine), a Professor at the Department of Medicine of Karolinska Institutet and a member of the present STINT review group in Medicine.
- Dr Bärbel Hahn-Hägerdal (microbiology), a Professor at Lund University, a previous member of the STINT review group in Technology and the beneficiary of two IGP grants.
- Dr Björgvin Hjörvarsson (physics), Professor at Uppsala University, a member of the present STINT review group in Technology and the beneficiary of two IGP grants.
- Dr Leif Lindmark (management), Professor at the Stockholm School of Economics, a member of the present STINT review group in Humanities and Social Sciences and a frequent reviewer for other Swedish authorities.

The Advisory Board met twice, in the inception phase of the evaluation (12 January 2009) and in the final phase of the evaluation (26 August). The first meeting mainly served to help fine-

tune the methodology originally proposed. The second meeting was devoted to a discussion of the draft evaluation report.

Throughout the work on the present evaluation, the evaluation team had the full support of the STINT Secretariat.

3.5 Terminology and related matters

In this report we refer to the partnerships and their activities funded under the IGP as *projects*. We are aware that the STINT Foundation prefers to speak of 'exchanges', largely because these are what the IGP funds. But we have found that most partnerships view the exchanges as an integral part of a wider cooperation, usually including joint research, and we therefore believe it justifiable to use this term. However, we use terms such as *partnerships*, *collaborative ventures*, and *cooperations* and *collaborations* as synonyms.

We use the term *Swedish* to refer to persons (staff, students) with an affiliation to the Swedish university. In other words, 'Swedish' means 'Sweden-based' and is not meant to denote the citizenship of the person in question. The term 'foreign', when used in relation to persons, follows the same logic. This use of terminology follows considerations of brevity and style. We are aware that a person referred to as 'Swedish' can be a non-Swede, and a person referred to as 'foreign' might well be a Swede.

The wide range of researchers and students addressed through the online questionnaire surveys and the interviews conducted in the course of the present evaluation have been categorised into three groups, i.e. *Swedish Project Leaders, Junior Researchers,* and *Foreign Project Leaders.*

- Even though the *Swedish Project Leaders*, are, in the very vast majority, full professors and often heads of department, this is a *terminus technicus* which denotes the person in charge of the IGP project at the Swedish university. Some Swedish Project Leaders were found to be associate professors.
- A *Foreign Project Leader* is, obviously, the functional equivalent of the Swedish Project Leader at the foreign partner institution. In practically all cases, this is the leader of the foreign research team.
- *Junior Researchers* are persons, in Sweden or abroad, who form part of the respective research group (team) and who are not the Project Leader. We had originally assumed that these were mainly, if not only, Doctoral Students and Postdoctoral Fellows, because the different persons reported in the course of the pre-survey (see above) had been classified by Project Leaders into these two groups. In the course of the online survey and the interviews, we learned that we were dealing with a much wider range of persons, including Master's Students, Doctoral Students, Postdoctoral Fellows, (Senior) Lecturers, Associate Professors and occasionally Full Professors, but also some non-research staff, such as Technicians. Where appropriate, this finer distinction is made in the further course of this evaluation study.

We are conscious of the fact that researchers enrolled on a doctoral programme are, as a rule, members of university staff in Sweden. Despite this and in order to follow international

usage, we nevertheless refer to these researchers as *Doctoral Students* or *PhD Students* in the context of this report.

4 Findings

This section presents the findings of our research, derived from the various surveys including the online questionnaires as well as the 96 interviews conducted. The chapter is organised into six thematic sections, which are devoted to:

- The aims and motivations for entering into an IGP collaboration and prior contacts of project partners;
- The activities carried out as part of the IGP projects;
- The outcomes and impact which the project activities have resulted in;
- The impact of the IGP on the particular group of Junior Researchers;
- Various aspects related to the administration of the IGP and the delivery of projects; and
- Issues related to the 'focuses' of the IGP.

4.1 Aims, motivation and prior contact

Who was the 'prime mover' behind the IGP cooperation, i.e. from whom came the impetus to enter into the collaborative venture? The Swedish and Foreign Project Leaders were both asked this question in the online survey.

Table 4.1.1: Initiation of the project

Initiator	Swedish Project Leader (SPL)	SPL %	Foreign Project Leaders (FPL)	FPL %
Swedish University	119	98	79	93
Foreign University	2	2	6	7
Total	121	100	85	100
Source: Online survey of Swedish and Foreign Project Leaders				

Both the Swedish and the Foreign Project Leaders state in their overwhelming majority that the initiative to apply for IGP funds came from the Swedish side (see Table 4.1.1). To an extent, this is trivial: only the Swedish partner may apply for IGP funding, and many respondents may have taken this question to ask who actually submitted the application. In the interviews, it turned out that, in quite a number of cases, the initiating role of the foreign partner was not quite as negligible as it might have appeared from the survey. Often, the partners jointly developed the intention to enter into cooperation, and then set out to identify sources of possible funding.

What were the main reasons for developing the joint project? Table 4.1.2 seeks to provide the answers to this question.

Table 4.1.2: The major and important reasons for developing the cooperation (%)

Reasons	SPL Major reason	SPL Important reason	FPL Major reason	FPL Important reason
Cooperate with high-class researchers and/or with research team with complementary skills and knowledge	79	18	92	8
Access resources or infrastructure not available at my university	20	23	24	19
Access data or samples not available at my university	14	24	11	24
Secure additional funds for my research team/university	10	43	13	30
Learn new research methods and techniques	30	44	34	45
Provide opportunity for development of my staff and students	58	35	62	30
Work in the part of the world specific to my research interests	17	30	32	22
Attract staff to work in my team, including young researchers	28	38	4	23
Enhance the internationalisation of my university	45	39	45	39
Develop new curricula and teaching programmes	15	28	19	15
Develop capacity at foreign partner university	12	26	29	37
Source: Online survey of Swedish and Foreign Project Leaders				

Swedish and Foreign Project Leaders had been asked to categorise 11 possible motivations for cooperation on a scale from “major”, via “important” and “minor” to “no reason”. Table 4.1.2 shows the proportion of Swedish and Foreign Project Leaders who had ranked each motivation as a “major” or “important reason” for developing their partnership. The major message from the analysis of these data is that the motivations are clearly on the research side. Educational motivations (“Develop curricula and teaching programmes”) come out at the bottom for both types of Project Leaders. The clear number one motivation, when combining the values for “major” and “important reason”, is cooperation with high-class researchers (97% of Swedish and 100% of Foreign Project Leaders), followed by the provision of opportunities for the development of Junior Researchers (93 and 92%, respectively). The no. 4 reason cited by both groups was to learn new research methods and techniques, which is also directly research-related. The third reason suggested was to contribute to the internationalisation of the project leader’s university. Admittedly, while this is a rather general motive which almost everybody in the higher education community is likely to subscribe to, it is nonetheless indicative of a wider attitude of the staff involved in IGP.

Further, it was interesting to observe that many more Foreign than Swedish Project Leaders perceived themselves as involved in an (altruistic) exercise of ‘academic capacity development’ in Sweden rather than in pursuit of their own interests (66% vs. 38%). Additionally, more than twice as many Swedish Project Leaders as Foreign Project Leaders were motivated to attract young researchers to their teams (66% vs. 27%). This was found to hold across all types of respondents, i.e. it does not markedly vary with regard to partner country, subject area or other descriptors.

From this analysis, it would appear very much that the motives of those involved in the IGP did directly tally with one of the programme’s main objectives, the enhancement and

strengthening of Swedish research. Sweden's foreign IGP partners appeared to be content with contributing to Sweden's academic and research benefit, rather than singularly pursuing their own.

The interviews conducted shed further light on the motivations to enter into an IGP collaboration. Practically all interviewees from the sub-groups of Swedish and Foreign Project Leaders confirmed that their main aim had been to collaborate with academically strong partners. Almost every Swedish and Foreign Project Leader underscored the importance of providing students and young researchers with the opportunity of working in a different (and foreign) partner institution. Beyond that, most Project Leaders stated that 'complementarity' was a very strong driver behind their partnership. What exactly made a partnership constellation 'complementary' varied from case to case, but they all seemed to be defined by each being able to offer something which the other did not have, but needs and seeks to access. This could have been infrastructure and/or equipment, 'raw materials' such as samples and data or skills such as the mastery of particular research techniques. In some projects of an interdisciplinary nature, the motivation was often found to be gaining access to different - but for the project indispensable - knowledge from the other field, which had been the key driver behind the partners working together. Complementarity and access can take unexpected forms: in one project the Swedish team, through the international cooperation, was able to work first-hand on a disease that is rare in Sweden but frequent in the partner country. Another was for the Swedish team to access a major item of equipment and apply it in a new and innovative way which the foreign partner had not itself considered. A further driver was often simply 'critical mass': each research team alone was too small to tackle successfully the research agenda in front of them.

Is the award of an IGP grant decisive for the collaborative project to come about, i.e. does the existence of the IGP constitute in itself a reason to start a collaboration? As Table 4.1.3 shows, a four-fifths majority of Swedish Project Leaders stated that they would not have carried out the cooperation without the IGP grant. More Foreign Project Leaders than Swedes - about three in ten – would have gone ahead without STINT funding.

Table 4.1.3: Decisiveness of the IGP grant to start the cooperation

Answer	SPL (%)	FPL (%)
Yes	20	31
No	80	69
Source: *Online survey of Swedish and Foreign Project Leaders*		

There were some small variations according to subject areas. Swedish Project Leaders suggested that 25 percent of Technology projects would have gone ahead without IGP support, whereas in the Humanities-Social Sciences, only 13 percent of projects would have proceeded. There were no significant variations according to country groups reported by the Swedish Project Leaders.

When the views of the Foreign Project Leaders were considered, the importance of IGP support for the Humanities-Social Sciences was apparent, as only 14 percent would have gone ahead without the support from the IGP. However, over 30 percent of the Foreign Project Leaders said that they would have gone ahead with the cooperation in the other three subject areas without IGP funds. We also assessed whether there might be any variation in this finding according to country groupings (see Table 4.1.4). While some of the sample sizes

are probably too small to draw any major conclusions, some trends become apparent. For example, no projects with partners from the Middle Income Countries would have come about without IGP support, whereas over 40 percent of projects with partners in East Asia and East and West Europe might have gone ahead.

Table 4.1.4: Proportion of Foreign Project Leaders who would have progressed with the cooperation without IGP support

Region	Yes	No	Totals	% progress without IGP support
North America	7	17	24	29%
West Europe	9	13	22	41%
East Europe	3	4	7	43%
East Asia	5	7	12	42%
MICs	0	11	11	0%
LICs	2	2	4	50%
Source: Online survey of Foreign Project Leaders				

The findings of the online survey were confirmed - but also qualified - by the results of the interviews. About half of all interviewees stated that they would indeed not have been able to start the cooperative venture without the IGP support. The other half reported that they would most probably have entered into the cooperation nonetheless, but that the scale of cooperation would have been considerably diminished and that research progress would clearly have been slower.

How did IGP partnerships come together and how well did the partners know each other prior to the start of their cooperation? This is an important question, given the fact that the philosophy of the IGP is to fund *new* cooperation, and not ongoing partnerships. In the online survey, we enquired how well and in which way partners knew each other. The results of the respective questions are contained in Table 4.1.5.

Table 4.1.5: How did partners know each other (in %; multiple answers possible)

Form of prior knowledge	SPL (%)	FPL (%)
We were already in a research cooperation and/or we had previously published jointly	50	61
Partner worked for me as a doctoral student / research fellow	9	8
I had worked for the partner as a doctoral student / research fellow	12	7
I had visited their team	57	42
They had visited my team	44	47
We met at a conference	34	34
I was aware of their publications and we had communicated	48	49
I was not aware of them before they contacted me for the IGP application	3	5
• ***Source:*** *Online survey of Swedish and Foreign Project Leaders"*		

It was somewhat surprising to observe that the closest form of previous cooperation or knowledge of each other (i.e. having had prior research cooperation or joint publications) received the highest score from the Foreign Project Leaders and also was very high, at second, among their Swedish counterparts. At a first glance, this would suggest that the IGP was used to support fewer *new* partnerships or forms of cooperation than intended by the

programme's objectives. In turn, this could imply that applicants had either not made the degree of prior cooperation known to STINT in their application, or that the evaluation and final selection of projects to be funded paid much less attention to the requirement that partnerships must be new than the projects that were supported indicates. It is, however, possible that 'earlier research cooperation' really means, for example, having been Postdoctoral Fellows in the same laboratory years back, i.e. a less organised, more personal kind of cooperation or even working together on a different research topic. What would support this latter interpretation is that in the interviews conducted, no single case of a very recent and systematic collaboration between the two research teams involved in the IGP project was identified. Rather, having worked together earlier in one's career in the same research team was found to be common, as were the cases where partners knew each others' publications, and then visited one another to find out if there was common ground for cooperation.

An astonishing share of the interviewees stated that they had systematically searched in scientific literature for a partner and, after identification of 'candidates', paid them a visit to explore joint research possibilities and interest. This is consistent with the online survey, where nearly 50 percent of Swedish and Foreign Project Leaders stated that literature searches contributed to the partner search. Meetings at conferences also frequently triggered off collaborative ventures. In practice (i.e. the individual case) it is usually a combination of the various forms of prior knowledge and contact that finally led to the IGP application.

The proportions of motivations (in the online survey) varied somewhat according to partner country and subject area. The largest numbers that reported previous research collaboration were those involving US institutions. Essentially, the majority of projects with US institutions involved partners who had worked or published together previously. Other partner countries where a significant number of the partnerships grew from close prior professional contact included Australia, Brazil, China, Japan, Russia and Germany.

The interviews and the answers to the open questions revealed further - though less frequent - types of earlier knowledge and contact.

- Sometimes, the cooperation with a third person in touch with both team leaders lay at the root of the IGP partnership.
- In one very successful IGP project, the partnership reunited a team originally from one single foreign institution, which was 'torn apart' by the appointment of one team member as a full professor at a Swedish university. The IGP enabled the team to finish their research, while at the same time granting the Swedish university access to it.
- In some cases, as in one example in the area of marine biology, the choice of the partner was 'obvious', since the partners were part of a small network of European marine biology stations with traditionally close ties.
- In another case, STINT had been the 'facilitator', through organising a trip of Swedish researchers to Mexico, with a view to stimulating new partnerships with institutions in that country.
- But chance was also seen to have played a role: one researcher found her partner through a stay of her daughter abroad, which led to a visit to a research team located in the same city, which otherwise she might have never contacted.

- In some cases, membership of a wider international cooperation, for example in the EU RTD Framework Programmes, led to the IGP partnership. (There were also found to be 'reverse' cases where the IGP cooperation had been developed further into participation in a Nordic or EU cooperation scheme).

In spite of considerable analysis and review, no straightforward correlation was found between the levels of prior knowledge and project success.

4.2 IGP activities

The evaluation sought to develop a 'total picture' of the activities supported through the IGP, in order to better understand their impact. The total levels of research activities, their nature, subject areas and countries of focus were identified through the review of STINT documentation, contact with Project Leaders, feedback through the online questionnaire surveys and also through interviews with staff. It is fair to say that the investments through the IGP have led to a wide and complex mix of inter-related activities. Project staff proved to be very innovative in their use of the IGP grants and activities have included:

- Doctoral and postdoctoral staff research attachments
- Senior staff exchanges and advisory visits
- Joint field and other research
- Focused research workshops
- Joint seminars and conferences
- Student exchanges
- Staff exchanges
- Participating in international and national conferences and other events
- Growing national and international specialist research networks
- Developing joint programmes and curricula

As was explained previously, there was a total of 209 projects supported by IGP in the period covered in this evaluation (1996-2005). The numbers, according to subject areas and partner countries, are provided in Table 4.2.1. It becomes apparent that the focus of activities has been particularly on North America and in the Natural Sciences. East Asia and East Europe have the largest proportions of projects in Technology and North America and East Asia have most in Medicine. As can be seen the proportion of projects with institutions in the Lower Income Countries (LICs) is the smallest. In the area of Humanities-Social Sciences, the share of projects with institutions in North America is smallest (only 10%) and highest in projects with Low Income Countries, though the absolute numbers involved in the latter are small.

Table 4.2.1: Numbers of IGP supported project for the period 1996-2005 by subject areas and country groups

	Technology		Natural Sciences		Medicine		Humanities-Social Sciences		Totals	% age share
	Nos	%	Nos	%	Nos	%	Nos	%		
North America	16	22.9	27	38.6	20	28.6	7	10.0	70	33.5
West Europe	12	26.1	13	28.3	10	21.7	11	23.9	46	22.0
East Europe	6	31.6	5	26.3	3	15.8	5	26.3	19	9.1
East Asia	10	45.5	4	18.2	6	27.3	2	9.1	22	10.5
MICs	11	26.2	13	31.0	10	23.8	8	19.0	42	20.1
LICs	3	30.0	2	20.0	1	10.0	4	40.0	10	4.8
Totals	58	27.8%	64	30.6%	50	24.0%	37	17.7%	209	100.0
Source: STINT Secretariat										

Numbers of visits and staff exchanges

Arriving at trustworthy numbers for visits and staff exchanges for the ten years under consideration was not straightforward as data from different sources varied. However, we do consider we have reached a balanced analysis after consideration of all the sources. Table 4.2.2 sets out the best estimates for the numbers of visits as reported by Swedish and Foreign Project Leaders.

Table 4.2.2: Total exchanges of Swedish and foreign partner staff by levels of appointment

	Swedish staff visits				Foreign staff visits		
	Nos involved	Total visits	Mean duration		Nos involved	Total visits	Mean duration
Project leader	111	354	2m		104	253	1m
Senior staff	78	273	2m		70	268	1.5m
Research Fellows (or equivalent)	68	166	5m		68	154	8m
Doctoral (PhD) researchers	99	386	5m		84	305	8m
Master's Students	41	102	4m		46	118	1.5m
Totals	397	1281	-		372	1098	-
Source: Online survey of Swedish Project Leaders, results corrected for survey response rates.							

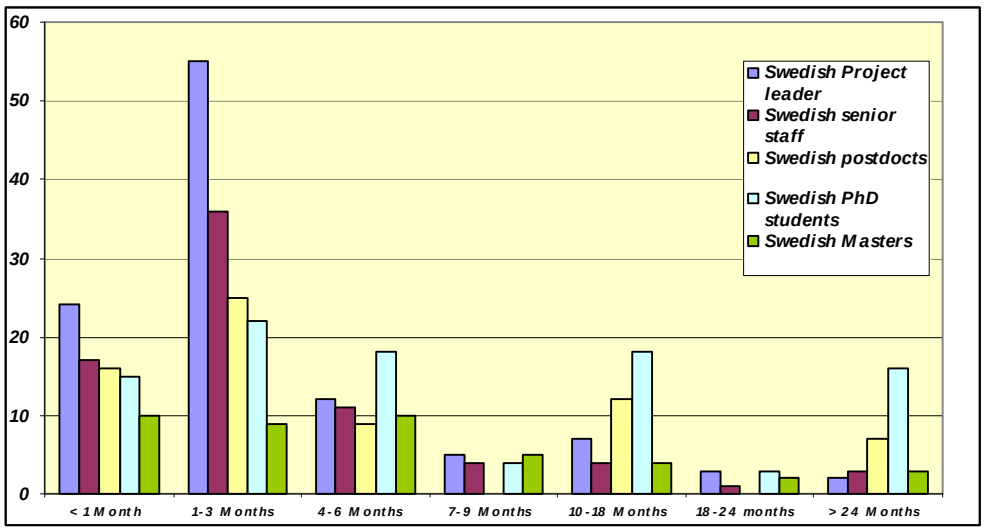
As can be seen from Table 4.2.2, about 1,280 Swedish staff visits and 1,100 foreign staff visits were identified through the Project Leaders. These visits were reported to have involved directly a total of about 770 staff. If this figure is corrected to take account of the response rate for each of the groups in the survey, the projected totals are approximately 2,020 and 1,750 respectively. This implies that the IGP has generated possibly 4,000 staff exchanges across all the projects over the period 1996–2005. Given that the total investment through IGP was approximately SEK 430 million, this suggests an investment (by IGP) of very approximately SEK 100,000 per staff-visit (both for visits to Sweden and to the foreign partners).

The pattern of the visits is also set out in Table 4.2.2 and from this it is apparent that senior staff from Sweden, on average, visited the foreign partner more frequently and spent more

time in the partner institution than their foreign counterparts did in Sweden. The average number of visits for each Swedish Project Leader was 3.2, and thus one third higher than the average of the Foreign Project Leader, which was 2.4 visits per project. The analysis of the number and frequencies of visits indicated that while very approximately the total numbers of staff involved were similar at each level, on average the Swedish senior staff spent more time in the partner institution than vice versa. Both these observations are probably not too surprising given that the initial motivation for almost all the partnerships came from the Swedish side.

Duration of visits: Reviewing the duration patterns of visits also provided useful insights as to how the programme activities were delivered. The distribution of visits is set out in Figures 4.2.1 and 4.2.2 for the Swedish and foreign staff respectively. From both these figures, the larger numbers of short visits by senior staff in both directions become apparent. Additionally, it is apparent that Foreign Project Leaders spend less time in Sweden than Swedish Project Leaders do in the foreign partner institution. These findings indicate that the role of the Project Leaders was to ensure direction of the projects and perhaps run specialists workshops, rather than themselves undertaking longer research focused attachments. Interviews with the Project Leaders reflected this: their view was that the main research functions needed to be carried out by Doctoral Students or Postdoctoral Fellows, occasionally complemented by a specialist technician or other specialist members of staff.

Figure 4.2.1: Duration of Swedish staff visits to the foreign partner institution by numbers of staff visiting and their level of appointment*



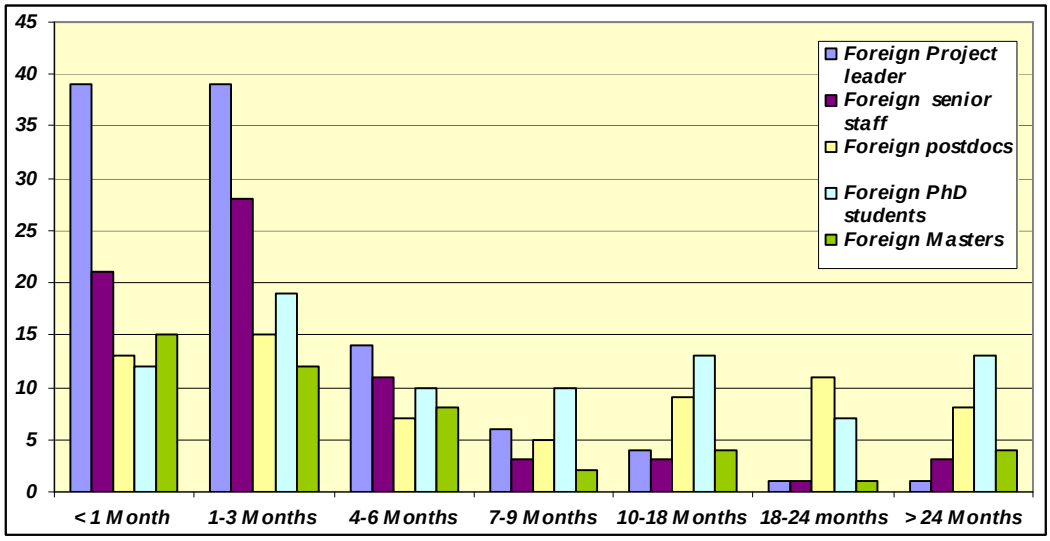
**All data from online survey of Swedish Project Leaders (1996-2005), not corrected for survey response rates.*

The average visit duration of foreign Doctoral Students and Postdoctoral Fellows to Sweden was significantly longer than that of their Swedish counterparts to the foreign partner institution (8 months compared with 5 months). However, a significant proportion of both foreign and Swedish researchers spent 12 months or more in the partner institution. For example, 29 percent of foreign Postdoctoral Fellows reported staying for over 12 months in Sweden and some 12 percent remained for over two years. About 25 percent of Swedish Postdoctoral Fellows spent 12 months or more with the foreign partner and 10 percent reported more than two years. In the group of Doctoral Students, the proportion of those

staying longer periods was even greater: 38 percent of foreign Doctoral Students reported staying in Sweden for a year or more and 15 percent for over two years.

From this analysis, a pattern emerges for both foreign and Swedish Doctoral Students and Postdoctoral Fellows: a good proportion made short visits (i.e. up to 3 months) and a smaller, but nevertheless significant group spent much longer (>18 months) with their partner. The duration of visits can have an impact on research outcomes, which was considered as part of this study and is addressed later.

Figure 4.2.2: Duration of foreign staff visits to the Swedish partner institution by numbers of staff visiting and their level of appointment*



** All data from online survey of Swedish Project Leaders (1996-2005), not corrected for survey response rates.*

Although there was a smaller proportion of women involved in the projects, on average they spent significantly longer than their male counterparts on their working attachment in the partner institution: over 60 percent of the female staff involved spent three months or more at the partner institution, whereas for men the proportion was 35 percent. The proportion of foreign women involved in the projects (46%) was slightly greater than that of Swedish women (39%). There was no immediately apparent explanation for this.

Balance of young researcher exchanges

The balance of exchanges was very much in favour of Junior Sweden-based Researchers: almost twice as many Swedish Doctoral Students and Postdoctoral Fellows visited the foreign partner institution as Foreign Swedish Researchers spent a work attachment at the Swedish institution. The numbers involved are shown in Table 4.2.3.

Table 4.2.3: Total numbers of young Swedish and foreign researchers undertaking visits to the partner institutions, by subject area

Subject area	Nos projects	Young foreign researchers to Sweden		Young Swedish researchers to foreign partner		Ratio Swedish to foreign staff visits
		Total nos	Nos per projects	Total nos	Nos per projects	
Natural Sciences	58	75	1.29	142	2.46	*1.90*
Medicine	47	68	1.45	122	2.60	*1.79*
Technology	53	69	1.30	113	2.14	*1.64*
Humanities-Social Sciences	33	31	0.95	73	2.22	*2.34*
Totals	191	243	1.27	451	2.36	*1.85*
Source: Online survey of Swedish Project Leaders (1996-2005), data not corrected for survey response rates.						

From Table 4.2.3 a number of variations according to subject area are apparent:

- The largest absolute numbers of visits, in both directions, occurred in the Natural Sciences (217 visits reported).
- In relative terms, medical researchers were the most mobile and in both directions;
- The imbalance between the Swedish and the foreign group was smallest in the area of Technology and largest in Humanities-Social Sciences. Humanities-Social Science researchers were mobile from Sweden, but there were significantly fewer foreign researchers in Sweden.

Subject areas, countries and duration: Further to the overall imbalances in exchanges mentioned above, there were other very definite differences in activity with regard to subject areas and partner countries, which are described below.

Foreign junior staff: Table 4.2.4 details the numbers of foreign Junior Researchers (Doctoral Students and Postdoctoral Fellows) according to their duration of stay. The patterns emerging from these numbers are presented in Figure 4.2.3.

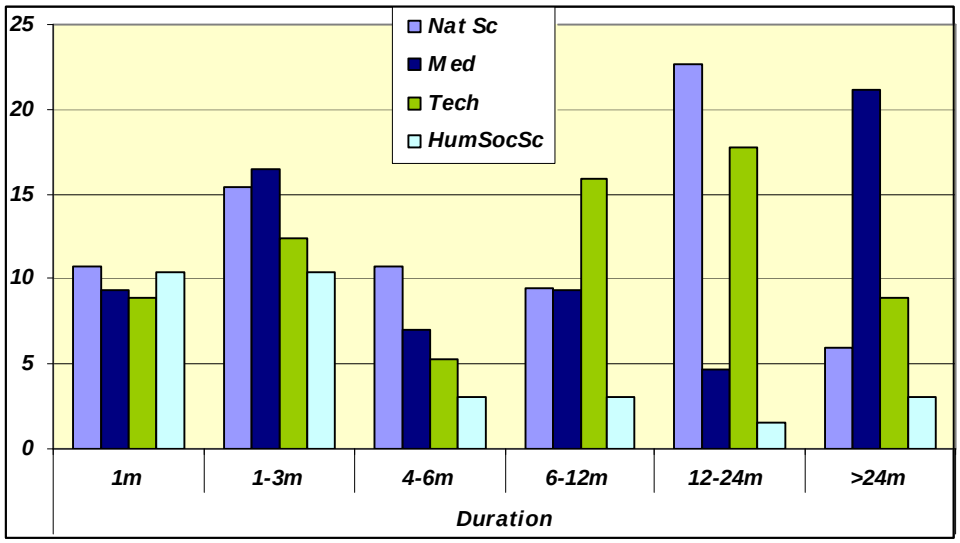
Table 4.2.4: Duration of stay of foreign Junior Researchers (Doctoral Students and Postdoctoral Fellows) in Swedish institutions, by subject areas

Subject area	Duration							Visits per project
	1m	1-3m	4-6m	6-12m	12-24m	>24m	Totals	
Natural Sciences	11	15	11	10	23	6	*75*	1.3
Medicine	9	16	7	9	5	21	*68*	1.5
Technology	9	12	5	16	18	9	*69*	1.3
Humanities-Social Sciences	10	10	3	3	1	3	*31*	0.9
Totals	*39*	*55*	*26*	*38*	*47*	*39*	*243*	1.3
Source: Online survey of Swedish Project Leaders (1996-2005), not corrected for survey response rates.								

From Table 4.2.4 and Figure 4.2.3, a few key points emerge concerning young foreign researchers. A major finding is that for science and technology related subject areas and for longer durations of stay, there were more foreign researchers in Swedish institutions than there were Swedish researchers abroad, essentially reversing the overall trend. Further, the following becomes apparent.

- Technology researchers had durations of stay spread across all periods, although the largest proportion spent six months or more, with about 40 percent staying in Sweden for over 12 months.
- Young medical researchers were even more likely to stay in Sweden for longer periods, with 31 percent reporting stays lasting more than two years.
- Natural Science researchers were the largest group, with patterns of duration of stay similar to those in the other science and technology related areas. About 40 percent remained in Sweden for 12 months or more.
- Junior Researchers in the Humanities and Social Sciences were fewer than in all other subject areas and also visited for much shorter periods, on average, compared with their science and technology counterparts. Two thirds stayed in Sweden for less than three months and only 12 percent remained for more than 12 months.

Figure 4.2.3: Duration of stay of foreign Junior Researchers (Doctoral Students and Postdoctoral Fellows) in Swedish institutions, by to subject areas*



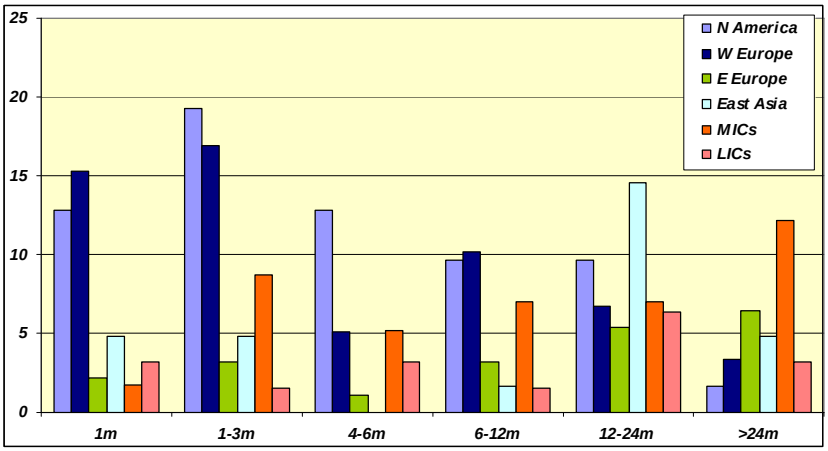
**All data from online survey of Swedish Project Leaders (1996-2005), corrected for survey response rates.*

The duration patterns of Junior Researchers into Sweden according to the partner countries are provided in Figure 4.2.4. A few definite trends become apparent, which include:

- Junior Researchers from North America and West Europe spent relatively shorter periods in Sweden; about 50 percent remained for durations of three months or less;
- Junior Researchers from Middle Income Countries (MICs) stayed for significantly longer periods. 45 percent of them stayed in Sweden for 12 months or more;
- Junior Researchers from East Europe came for stays somewhat similar in duration to those from MICs, with only small numbers on short visits, and the majority on visits of longer duration;
- Young Researchers from East Asia on average spent the longest time of all the country groups in Sweden, with 65 percent staying for more than 12 months;

- Young Researchers from Low Income Countries (LICs) tended to have patterns of duration of stay in Sweden somewhat similar to those from MICs and East Europe.

Figure 4.2.4: Numbers of foreign Junior Researchers in Sweden, by partner countries*



*****All data from online survey of Swedish Project Leaders (1996-2005), corrected for survey response rates.*

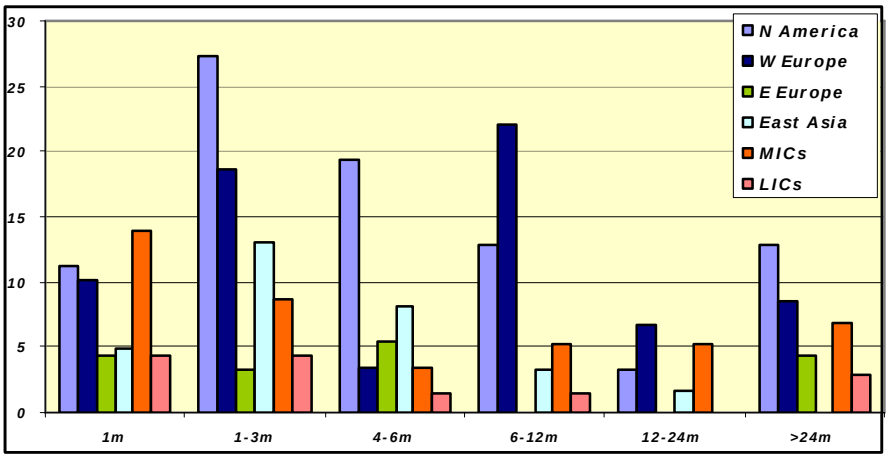
Swedish staff mobility: Both the number and duration of visits to foreign partner institutions by Swedish Junior Researchers indicated a strong bias to working in North America and West Europe. Table 4.2.5 shows that project visits to these two regions account for almost 60 percent of all outbound visits. While this was to be expected given the concentration of projects in these two regions, there was also found to be a greater number of visits per project to the respective regions. The frequency of visits to East Europe in particular was found to be low and just half of that for West Europe and North America.

Table 4.2.5: Numbers of visits to foreign partner institution of Swedish Junior Researchers, by country groups

	Total Visits	Total Projects	Visits Per project
North America	87	38	2.3
West Europe	69	26	2.7
East Europe	17	14	1.2
East Asia	31	13	2.4
MICs	43	23	1.9
LICs	14	7	2.0
Totals	262	121	2.0
Source: online survey of Swedish Project Leaders (1996-2005)			

When the duration of visits was considered, similar trends became apparent. Figure 4.2.5 unsurprisingly again shows the dominance of both North America and West Europe as destinations for visits from Sweden, but it also demonstrates that visits to these two destinations were on average of a shorter duration. For West Europe the single largest group of Swedish researchers stayed between 6 and 12 months.

Figure 4.2.5: Duration and number of Swedish young researcher, by country groups*



**All data from online survey of Swedish Project Leaders (1996-2005), corrected for survey response rates*

Growing new networks

A key activity that developed as an outcome of the projects was the growing of international research networks, particularly such that focused on specific research topics. Several IGP recipients reported the importance of the IGP support for initiating and sustaining this activity within their projects. Essentially the initial partnership had stimulated the growth of a wider network, which then resulted in new activities that grew around and thereby sustained these networks. The flexibility with which IGP funds can be used facilitated this process.

> *We have organised two international symposiums/symposia (Sweden and Spain) as a direct result from the cooperation and two (Costa Rica and Italian) as an indirect one. The proceedings of these symposiums have been published (www.edice.org). We have also published spin-off collaborations with scientists in Melbourne and Newcastle. This has all extended exchange of scientists and students.*

> *UNAM arranged two excellent courses for PhD students that were of great importance for the future research focus of several of the Swedish participants, and which resulted in an important broadening of our research in tropical and subtropical areas in Latin America and Africa.*

Master degree students

Overall, considerably fewer students at Master's level were involved in IGP projects than Doctoral Students and Postdoctoral Fellows. On average, only 1.1 Master Student was involved per project. Table 4.2.6 sets out the numbers involved as reported by the Swedish and Foreign Project Leaders. From these data it is apparent that West Europe dominates as the main country group for Master Students, for both directions of exchanges. Interestingly, in relative terms, i.e. when taking into account the numbers of projects in each country grouping, the numbers of mobile Master Students per project were also significant for partnerships with Eastern Europe, although the totals involved are small.

Table 4.2.6: Visits of Master Students to partner institution, by partner countries and subject areas

Countries	Nos projects	From Sweden	To Sweden		Subject areas	Proportions from Sweden	Proportions to Sweden
North America	87	15	13		Medicine	5%	4%
West Europe	69	20	22		Technology	47%	50%
East Europe	17	3	11		Natural Sciences	40%	30%
East Asia	31	8	6		Humanities- Social Sciences	7%	16%
MICs	43	12	14			100%	100%
LICs	14	7	4				
Totals	121	65	70				
Source: online survey of Swedish Project Leaders(1996-2005), corrected for survey response rates							

This relatively lower level of Master Students' engagement was further investigated in the interviews. One reason suggested was that the tight schedule of course work and dissertation (and their intensity) for Swedish Master Students was not conducive to spending time with other research teams abroad. On the foreign partner's side, similar issues played a role: in a number of countries, few Master Students were available mainly because it was not normal practice for students to follow such programmes. In a number of cases, interviewees explained that final year undergraduate students had successfully been involved in the project. Still, from our fuller surveys of Master degree students who had been funded through IGP grants, it became clear that their international experience had very definitely enhanced their career (see further in this report).

Education

As explained before, the 'ideal' IGP project is not limited to research collaboration, but includes an education element. As the IGP guidelines state:

> *Visiting scholars and scientists should be encouraged to engage in tutoring, joint courses and summer schools. Seminars, conferences, summer schools and similar activities directly connected to the project can also be financed.*

It was not possible to gather quantitatively consistent data, given both the 'looseness' of the definition of the 'education component' and the individual staff's interpretation as to what activity might fall into this category. However, the topic was addressed both in the online surveys and in the face-to-face and phone interviews. The main educational activities identified included:

- Lectures by visiting staff;
- Specialist research workshops and seminars;
- Joint workshops for all partnership staff;
- Conferences;
- Credit programmes and arrangements for student exchanges; and
- The creation of joint or double degrees.

In the online survey of Swedish Project Leaders, 57 percent stated that "to develop new curricula and teaching programmes" had not at all or had only been a minor reason for

starting the IGP project (see earlier in this report). The respective share of Foreign Project Leaders for whom the development of such programmes had been no or only a minor reason was even higher, at 66 percent. In the course of the interviews conducted, we did not identify a single project with a strong focus on the development of curricula and teaching programmes.

However, those 121 projects which suggested there had been at least some education element in their projects reported the development of a total of 175 'new joint programmes'[3], or 1.4 programmes per project. If these 'joint programmes' were full joint or double degrees (which we had meant to identify), this would be an astonishingly high number, and stand in stark contrast to the comparatively low importance which Project Leaders generally attach to activities in the field of teaching and learning. From the evidence conducted in our interviews, we have strong reasons to believe that respondents in the online survey did not refer to full degrees, but rather to running workshops and seminars (also, and perhaps mainly, for Junior Researchers) and, in some cases, to the supervision and tutoring of students by visiting staff.

Table 4.2.7 provides a breakdown of the subset of 110 'new joint programmes' by partner countries and subject areas reported by Swedish Project Leaders. From this the dominance of 'joint programmes' with partners in North America is apparent, as is the lead position of Natural Sciences.

Table 4.2.7: New joint education programmes, by partner countries and subject areas

Countries	New joint programmes	Subject areas	New joint programmes
North America	33	Medicine	19
West Europe	23	Technology	26
East Europe	13	Nat Sc	44
East Asia	13	Hum/ Soc Sc	21
MICs	22	Total	110
LICs	6		
Totals	110		
Source: Online survey of Swedish Project Leaders (1996-2005), corrected for survey response rates			

4.3 Outcomes and impact

There is no doubt that the IGP supported projects have resulted in great success for all involved: for the institutions and the staff and for Sweden and the partner countries. Evidence for this success has come from a variety of sources: from the Swedish and Foreign Project Leaders, from the other researchers and from the assessment of the research outcomes, both qualitative and quantitative.

The necessary starting point for the evaluation of outcomes and impact was to consider achievements against the objectives which the STINT Foundation has set for the IGP and

[3] The number of 175 is the total of reported programmes from both the Foreign and the Swedish Project Leaders. Since these are 'joint' programmes, there is bound to be a degree of double counting.

also against the objectives defined by the Project Leaders for their individual projects. In the online questionnaire survey, the Project Leaders identified the following as the key objectives for their research partnership; the evaluation considered these in turn (please refer to Section 4.1 for explanation of the percentage markings):

- Major reason (95%):
  To cooperate with high-class researchers and/or to work with a research team with complementary skills and knowledge
- Medium reason (70%):
  To learn new research methods and techniques
- Minor reason (39%):
  To access resources or infrastructure not available at my university
- Minor reason (40%):
  To access data or samples not available at my university
- Minor reason (45%):
  To work in the part of the world specific to my research interests

The approach adopted for this evaluation involved the employment of a mix of assessment methods to review progress against the identified priorities. The methods used included the following:

- Assessment of research output measured through:
  - Numbers of publications in international journals, other publications and papers presented at conferences.
  - Assessment of impact and progress against the research objectives by the Swedish and Foreign Project Leaders.
  - Numbers of patents applied for and projects taken up by business.

- Assessment of the development of Junior Researchers (note that this area is discussed separately in Section 4.4)
  - Numbers involved in research projects.
  - Degrees awarded.
  - Career progression.
  - Satisfaction levels according to Junior Researchers and Project Leaders.
- Ability to attract additional funding: the amounts indicated from the research teams were measured.
- Recruitment of staff to the research teams (the numbers of new staff were measured, wherever possible and the net migration to Sweden was assessed).
- Institutional internationalisation and capacity building.
- Developments in new curricula and teaching.
- Other outcomes and benefits – assessed in particular through the interviews and open questions in the online survey.

Research impact

The large majority of Project Leaders indicated that by far their most important reason for growing the partnership had been *'to cooperate with high-class researchers and/or to work with a research team with complementary skills and knowledge'*.

The achievements against this objective were investigated through the questionnaire survey and the interviews. Impressively, 83 percent of the Swedish Project Leaders stated that the project objectives had been met either 'fully' or 'largely' (see Table 4.3.1). Only one Project Leader suggested that the objectives had not been met at all. A similar very high level of success against objectives was reported by the Foreign Project Leaders, with 86 percent of them rating their partnership as 'very successful' or 'successful' (see Table 4.3.2). Tables 4.3.1 and 4.3.2 also reveal that the high levels of satisfaction apply to all subject areas, though with differences. Please note that the marking '% high success' is the sum of those Project Leaders reporting either 'fully' or 'largely successful' responses to the question in the survey.

Table 4.3.1: Ratings by Swedish Project Leaders in terms of 'Success towards growing a high quality research partnership'

Subject Area	Totals	Success towards growing a high quality research partnership				
		Fully	Largely	*% high success*	Moderately	Not at all
Natural Sciences	45	20	17	*82%*	7	1
Medicine	19	9	8	*89%*	2	0
Technology	32	16	11	*84%*	5	0
Humanities-Social Sciences	18	6	8	*78%*	4	0
Total	114	51	44	*83%*	18	1
Source: online survey of Swedish Project Leaders						

Table 4.3.2: Ratings by Foreign Project Leaders in terms of 'Success towards growing a high quality research partnership'

Subject Area	Totals	Success towards growing a high quality research partnership				
		Fully	Largely	*% high success*	Moderately	Not at all
Natural Sciences	35	16	15	*89%*	4	0
Medicine	13	8	2	*77%*	2	1
Technology	22	12	8	*91%*	2	0
Humanities-Social Sciences	11	4	5	*82%*	2	0
Total	81	40	30	*86%*	10	1
Source: online survey of Foreign Project Leaders						

In an attempt to assess whether there might be any additional underlying trends associated with these satisfaction ratings, it was decided also to 'score' the success levels provided by Project Leaders. After consideration of a number of possible approaches and their likely impact, the following marking system was adopted:

Fully achieved	=	3 points
Largely achieved	=	2 points
Moderately achieved	=	1 point
Not at all achieved	=	-2 points

The above scoring was then applied to the responses of both the Swedish and Foreign Project Leaders, after correcting for the relative response rates. Table 4.3.3 provides the results. There is seen to be considerable differences between the various subject areas and between the success rates assigned by the Swedish and Foreign Project Leaders. For example, the Foreign Project Leaders reported the highest success rates in the Natural

Sciences and the lowest in Humanities-Social Sciences. The Swedish Project Leaders rated Technology and Medicine as the most successful subject areas and Natural Sciences as the relatively least successful. In appreciating these differences, it is important to note, however, that the set of returns is very positive throughout. The data are thus indicative of small differences within an overall very positive response pattern.

Table 4.3.3: Relative response scores for Swedish and Foreign Project Leaders according to perceived success*

Subject Area	Total responses	FPL responses		SPL responses	
		Total score	Score per response	Total score	Score per response
Natural Sciences	58	122	2.1	46	0.8
Medicine	47	60	1.3	106	2.3
Technology	53	85	1.6	133	2.5
Humanities	33	37	1.1	57	1.7
Total	191	304	1.6	342	1.8
Source: online survey of Swedish and Foreign Project Leaders on success in attempt 'To co-operate with high-class researchers and/or to work with a research team with complementary skills and knowledge					

Whatever system might be employed to analyse the responses and data presented, the underlying message remains very clear: the Project Leaders all rate highly the successes of the research projects supported by the IGP.

Publications

A key criterion of success frequently employed to evaluate research impact and quality is the number of publications in international refereed journals. In the online survey, Project Leaders were therefore asked to 'please indicate the outcomes directly resulting from the cooperation – numbers of publications in international refereed journals?'

The results according to subject area are presented in Table 4.3.4. The sum of these responses from the Project Leaders, and corrected for the relative response rates, indicated an impressive total of 1,165 refereed publications that had resulted from projects supported through the IGP. While there is a degree of consistency with regard to the Natural Sciences, Technology and Medicine (ranging between 6.4 and 7.5 papers per project), publications in the area of Humanities and Social Sciences were very significantly fewer, at 2.1 publications per supported project. At a first glance, this would appear to indicate a considerable relative underachievement of projects in this area. But the data might (and probably do) also reflect different traditions of publishing in Humanities and Social Sciences-related areas, compared with other subject areas.

Table 4.3.4: Number of publications in international refereed journals, by subject areas

Subject areas	Technology	Humanities-Social Sciences	Medicine	Natural sciences	Totals
Nos of papers	341	70	319	435	1165
Nos of projects	53	33	47	58	191
Papers per project	6.4	2.1	6.8	7.5	6.1
Source: online survey of Swedish Project Leaders					

When regions for partnerships were considered, the absolute numbers of publications produced were highest for projects with North America and West Europe (see Table 4.3.5). However, on a per-project basis, the highest publication rates were found in projects with East Asia and East Europe and the lowest in partnerships involving Lower Income Countries (LICs).

Table 4.3.5: Number of publications in international refereed journals according to regions

Country Areas	Papers	Corrected	Projects	Papers per project
North America	273	439	61	7.2
West Europe	147	249	44	5.7
East Europe	122	131	15	8.7
East Asia	120	194	21	9.2
MICs	118	205	40	5.1
LICs	34	49	10	4.9
Source: online survey of Swedish Project Leaders				

In addition to the refereed articles published in international journals, the numbers of other publications produced by IGP supported projects were assessed. The guidance to Project Leaders was to detail the total numbers of other papers produced (i.e. in non refereed journals) plus review articles and book chapters. The totals are presented in Table 4.3.6 and these indicated a number of similarities with the patterns observed with regard to publications in refereed journals. Projects with partners in North America and West Europe were still responsible for the largest numbers of articles in absolute terms, and partnerships with East Europe resulted in the highest publication rate. Partnerships with East Asia and Lower Income Countries (LICs) appeared to be the least productive.

Table 4.3.6: Total other publications in journals, books and review articles

	Books + Articles	Other publications	Corrected total	Nos projects	Pubs per project
North America	98	51	240	61	3.9
West Europe	42	35	131	44	3.0
East Europe	45	61	114	15	7.6
East Asia	9	16	40	21	1.9
MICs	16	16	55	40	1.4
LICs	8	11	27	10	2.7
Source: online survey of Swedish Project Leaders, corrected for response rates					

In terms of other quantified outputs associated with the projects surveyed, the Project Leaders estimated that there were over 1,000 papers delivered at international conferences.

New research activities

Two major objectives identified by the Swedish Project Leaders were to develop new research activities and to train staff in research techniques. The success against these objectives was explored both through the online surveys and the interviews. The question put in the surveys was: 'Please would you indicate the outcomes directly resulting from the

cooperation: New research or activities initiated and numbers of Swedish staff trained in new techniques and/or ideas?'

Overall, Project Leaders reported a high level of success. They stated that a minimum of 355 Swedish staff had received some form of training in new techniques through the projects, and that nearly 200 new research activities had been initiated. While the concept of 'new research activities' might be viewed as too vague to be used as a precise quantitative measure of outcome, it does still provide a positive indication of success. The numbers of Swedish researchers indentified as having been trained clearly represent a significant impact of the IGP.

There was seen to be only a limited correlation between Swedish staff trained in new research techniques and countries of the partnership. By a clear margin, the largest numbers trained were those working with institutions in US and West Europe. However, in a relative perspective, i.e. when corrected for the numbers of projects in each country group, this share reduced considerably and East Europe and East Asia were seen to be important.

There were also some variations according to subject areas: over three quarters of the Project Leaders in Natural Sciences and Technology reported that they had achieved their objectives either fully or largely. For Humanities-Social Sciences and Medicine, this proportion reduced to just over 60 percent of satisfaction. Although relatively lower, it does still suggest a high level of achievement.

Attracting professional staff to Sweden

A further objective identified by Swedish Project Leaders was to attract new professionals to work in their teams in Sweden. Their relative success towards achieving this aim was addressed in the online survey. It was found that over 120 researchers came to Sweden to work within the IGP project teams. Table 4.3.7 summarises the responses of Project Leaders when asked about the extent of their success. These data reveal that the largest overall 'scores' of satisfaction were for projects in Natural Sciences and the lowest for projects in Medicine. However, on a per-project basis, Technology received the highest staff recruitment success rating and Humanities-Social Sciences the lowest.

Table 4.3.7: Levels of satisfaction reported by Swedish Project Leaders in relation to attracting new staff for their team*

Subject Area	Attracting staff to work in my team in Sweden				Corrected total score	Per project
	Fully (3)	Largely (2)	Moderately (1)	Not at all (-2)		
Natural Sciences	11	14	15	4	81	1.4
Medicine	3	6	6	1	59	1.4
Technology	8	10	7	3	79	1.5
Humanities-Social Sciences	5	3	4	4	25	0.8
Total	27	33	32	12	244	1.3
Source: online survey of Swedish Project Leaders, corrected for response rates						

Based on the data provided by the Swedish Project Leaders through the online questionnaire survey, Table 4.3.8 provides an analysis of staff recruitment according to the countries in which the partner institutions were based. The data reveal that over 120 new foreign

researchers were recruited to Sweden to work on IGP supported projects. The projects that attracted the largest numbers of staff to Sweden involved partnerships with institutions in North America and West Europe. However, when considered on a per-project basis, East Europe, East Asia and the Lower Income Countries were found to be more prominent.

Table 4.3.8: Numbers of new staff recruited to Swedish institutions, by country groups

Countries	New staff (corrected)	Nos projects	Staff recruited per project
North America	27	61	0.4
West Europe	20	44	0.5
East Europe	20	15	1.3
East Asia	26	21	1.2
MICs	17	40	0.4
LICs	11	10	1.1
Totals	121	191	0.6
Source: online survey of Swedish Project Leaders, corrected for response rates			

The numbers of new staff recruited were also estimated on the basis of subject areas for the research partnership and these data are detailed in Table 4.3.9. From this it is apparent that Medicine was the most successful subject area in terms of numbers recruited followed by Humanities-Social Sciences. This might seem at a first glance to contradict the findings in Table 4.3.7 regarding the perceived 'success' ratings by subject. However, this is not necessarily the case as Swedish project staff in the areas of Medicine and Social Sciences might have been more ambitious in terms of their targets to recruit new staff for the projects, hence they reported less satisfaction as they had not met their own high requirements.

Table 4.3.9: Numbers of new staff recruited to Swedish institutions, by subject areas

Subject areas	New staff (corrected)	Nos projects	Staff recruited per project
Medicine	40	47	0.9
Technology	32	53	0.6
Natural Sciences	33	58	0.6
Humanities-Social Sciences	27	33	0.8
Source: online survey of Swedish Project Leaders, corrected for response rates			

Those Project Leaders reporting the greatest success in recruiting new staff to their teams also reported, *pro rata*, the largest number of publications. The opposite was also seen to hold as the lack of new staff or their delay in appointment was found to be the largest single constraint towards delivering the planned objectives for the research (see Section 4.5).

The IGP has resulted in net migration of highly skilled staff to Sweden. The separate survey of Junior Researchers had sought information relating to their international mobility, by considering where they now lived, where they had previously lived and what their citizenship was (nationality). About two thirds of the non-Swedish Junior Researchers reported that they now worked in Sweden and, from the numbers reporting, this implies that about 120 staff migrated to Sweden as a result of the IGP projects. This number was consistent with the results from the survey of Swedish Project Leaders. The only partner country for IGP projects

which was a net recipient of researchers was the US. Indications are that possibly 20 staff had migrated there.

Funding of projects

As reported previously, a large majority (80%) of the Swedish Project Leaders stated that they would not have undertaken the cooperation without IGP funding. For the Foreign Project Leaders, the equivalent proportion was smaller, at 69 percent. Table 4.3.10 indicates the necessity of the IGP support to initiate projects, in terms of subject areas and as assessed by the Swedish Project Leaders. The data reveal that IGP funds were most instrumental for developing new projects in Humanities-Social Sciences and least important for Medicine. The Foreign Project Leaders assigned similar levels of importance in their subject assessments, although they reported that IGP support for the Humanities-Social Sciences was even more essential.

Table 4.3.10: Importance of IGP funds, by subject areas

Subject Area	Carried out without IGP Grant		% yes
	Yes	No	
Natural Sciences	8	38	17.4
Technology	8	27	22.8
Medicine	5	14	26.3
Humanities-Social Sciences	3	18	14.3
Total	24	97	19.8
Source: online survey of Swedish Project Leaders, corrected for response rates			

The IGP support not only proved to be instrumental for the initial development and delivery of the projects. The receipt of the IGP grant, together with the projects' successes, also provided Project Leaders with significant leverage to obtain additional funds from other sources which would support the projects. Enquiring with Swedish and Foreign Project Leaders whether they had ultimately received additional funds as a result of the IGP investment, we found that this was the case with one third of IGP projects (see Table 4.3.11). The Foreign Project Leaders reported the greatest success in this regard, with 55 percent of them having been able to secure additional funding.

Table 4.3.11: Additional funds from other sources

Answer	Swedish Project Leaders (%)	Foreign Project Leaders (%)
Yes	37	55
No	63	45
Source: *Online survey of Swedish and Foreign Project Leaders. Question: 'Do/Did you obtain funds from other sources to support directly the cooperative activities?'*		

The importance of the IGP in terms of attracting additional funds is summarised by one Foreign Project Leader (admittedly an outstanding rather than standard case):

> *The STINT funding for my cooperation was essential to receive my research grant for the cooperation from my government. My government requires matching funds from the partner countries to support a sizable grant for the international cooperation. Thus, having the STINT matching fund from Sweden raised the score of the evaluation of my research*

proposal for the international cooperation, so that I was able to receive the grant from my government for the international cooperation.

In terms of subject areas (see Table 4.3.12), projects in the Natural Sciences and Medicine were found to be the most successful in attracting additional resources, while Technology projects were the least.

Table 4.3.12: Other funding support for the Swedish partner resulting from IGP investment in the project, by subject areas

Subject Area	Obtained other funds		
	Yes	No	% obtaining funds
Natural Sciences	20	27	42.6
Technology	10	25	28.6
Medicine	8	11	42.1
Humanities-Social Sciences	7	13	35.0
Total	45	76	37.2
Source: online survey of Swedish Project Leaders, corrected for response rates			

Table 4.3.13 below provides an overview of the above-mentioned additional funds received by Swedish institutions, according to source and levels of funding. From these data it is apparent that for those projects that secured additional funds the major source, in terms of total numbers of projects, was the respondent's own university. However, when the total value of the additional funds is considered, it was clear that other Swedish government sources (particularly the Research Councils) and Swedish foundations were the major contributors overall. Also of note were successes at winning EU support as well as support from sources in the partner country, although for the latter the sums involved are smaller. Projects which attracted EU support are mainly in the areas of Technology and Bioscience, which is not surprising given the subject area priorities in EU research funding in the past.

Table 4.3.13: Additional funds reported by Swedish Project Leaders, by source and amounts

Source of additional funds	Funds reported	Up to SEK 1 Million	SEK 1 to 5 million	SEK 5 to 10 million	>SEK 10 million	Total
	Nos projects	Nos projects	Nos projects	Nos projects	Nos projects	Nos projects
Swedish government	16	10	5	0	1	32
Swedish foundation	22	16	5	0	1	44
Swedish private organisation	7	4	3	0	0	14
My institution	19	16	3	0	0	38
Other national source	3	3	0	0	0	6
Foreign partner organisation	13	12	1	0	0	26
Other source in partner country	6	5	1	0	0	12
European Union	10	5	4	1	0	20
Other international source	6	5	1	0	0	12
Source: *online survey of Swedish Project leaders*						

Analysing the success of securing additional funds by partner countries, projects with US partners were in the lead, in absolute terms, but also on a per-project basis, i.e. about half of

all projects with US partners attracted additional funding. Across all the projects, the US is the largest partner for Sweden and the ability to attract additional funds did probably enhance further the importance of growing US research cooperation.

A very approximate value for the total additional sums as reported by the Swedish Project Leaders is SEK 165 million.

The Foreign Project Leaders also reported success in securing additional funds to support the partnerships. The largest numbers of contributions came from the foreign partner institutions themselves, followed by their government. A very approximate total sum for these additional funds was SEK 175 million (after correcting for response rates).

Table 4.3.14: Additional funds reported by Foreign Project Leaders according to source and amounts

	Funds reported	Up to SEK 1 million	SEK 1 to 5 million	SEK 5 to 10 million	>SEK 10 million
Source of additional funds	Nos projects	Nos projects	Nos projects	Nos projects	Nos projects
My government	21	17	4	0	0
Local foundation	17	16	0	0	1
Private organisation	3	3	0	0	0
My institution	27	26	0	1	0
Other national source	2	1	0	0	1
International organisation	5	4	0	1	0
Other international source	0	0	0	0	0
Totals	75	67	4	2	2
Source: Online survey of Foreign Project Leaders					

The total additional funding reported by Swedish and foreign IGP beneficiaries as outlined above thus amounts to a very approximate SEK 340 million. This amount was calculated on the assumption that each project attracted funds at the average level within each of the funding bands. There is, however, some double counting as some of the foreign partner funds were included in the Swedish Project Leaders' returns. If these are discounted, the total is probably about SEK 300 million. Note that these are current estimates from the Project Leaders which have not been adjusted for inflation. It should also be noted that the above calculation does not include the major contribution by the cooperating Swedish and foreign universities – i.e. the 'core research cost' in terms of staff time, support infrastructure and consumables.

Given that that the total investment of the STINT Foundation into the IGP for the period under review (projects started between 1996 and 2005) was about SEK 430 million, the additional SEK 300 million translates into the substantial leverage ratio of about 70 percent.

In this context, it is worth noting that the IGP administration costs are low. Our best estimate – based on the year 2005 – is that annual expenditure for programme management amounts to little more than 500,000 SEK. This amount represents the pro-rata staff cost of the IGP manager (0.35 FTE) inclusive of overheads, possibly with some additional costs for support staff and application reviews. This corresponds with an annual project allocation of SEK 31.3

million in the same year and thus translates into programme management costs of 1.6 percent of annual programme allocation. In most grant awarding organisations known to us, programme management costs are at 10 percent or more of programme allocation. The IGP is indeed run most efficiently.

It is interesting to note was that those projects which attracted additional funds were also those which produced a higher number of publications, but this might be biased due to the fact that that researchers in the Natural Sciences tend to be the most prolific in terms of publishing.

The interviews supported the findings of the online survey, but also qualified them. At least a third of all Project Leaders interviewed reported that they had received additional funds, in the forms of grants from outside agencies (thus not including funds from their own university). A fair number of these grants had been awarded during the IGP phase or even after. In some of those latter cases, the IGP had played a facilitating role in securing the additional grant. In other cases, both sources had been tapped into in parallel. In yet other cases, the receipt of the 'additional funds' even preceded the IGP award, so that one may well regard the IGP as 'additional', rather than vice versa. More often than in the online survey, European Union sources were named as complementary funding. The European programmes mentioned were primarily the Research Framework Programmes (particularly FP 6 and 7) and, in some instances, COST. However, it is unclear to which extent the sample of projects interviewed can be viewed as representative with regard to additional funding.

In one respect in particular, the interviews helped to better understand and to qualify the finding from the online survey. During the interviews, we encountered very few cases of projects which had access to other funding sources *for the very same cost items* (essentially travel and subsistence, scholarships) which the IGP met. Despite the fact that we had enquired, in the online survey, into sources which *directly* supported the cooperative activities, there was most likely a misunderstanding. A 'classical' IGP project consists of two base components: the research work conducted by the two teams, and the STINT grant which creates a bridge between them. If one takes 'collaborative activities' to mean mobility (exchanges) only, the evidence from the interviews suggests that there is very limited co-funding. If one works with a wider notion of 'collaborative activity', which includes the research cost (salaries, infrastructure and equipment, etc), there is hardly an IGP project which does not receive some sort of 'additional funds' (be it 'only' in the guise of staff time). It is very likely that some respondents in the online survey employed the more limited notion of 'collaborative activity', and others the wider one – or mixes of the two.

Patents and commercial spin-off

Project Leaders reported that 18 patents had been applied for over the period reviewed. The largest numbers derived from partnerships involving institutions in North America and the Middle Income Countries. These patent applications were approximately equally spread across Natural Sciences, Medicine and Technology.

Swedish Project Leaders further reported that 24 of the IGP supported projects had been taken up by industry or business for commercial development. The largest group of these

derived from partnerships involving institutions in North America, West Europe and the Middle Income Countries. The subject areas were predominantly in Medicine and Natural Sciences.

Training of Junior Researchers

The training and development of Junior Researchers is one of the stated objectives of the IGP. In addition, all the Project Leaders highlighted it as a vital objective of their projects. It is a tribute to all involved that there were very considerable successes identified. Given the heightened importance of this objective, we have dedicated a separate section (4.4) to the detailed review of the impact and outcomes relating to the development of Junior Researchers.

International students

Project Leaders were also asked to identify whether there had been any success in recruiting international students as an outcome of the IGP projects. The results are somewhat mixed, although Swedish Project Leaders were able to identify nearly 250 international students who came to Sweden to study. These are detailed in Table 4.3.15. Projects with institutions in East Europe and the Lower Income Countries attracted the highest number of international students on a per-project basis. In absolute terms, the largest numbers of new students came into Sweden from West European countries.

Table 4.3.15: Total numbers of international students recruited to study in Sweden, by countries of origin

Countries	New students (corrected)	Nos projects	Student recruited per project
North America	50	61	0.8
West Europe	68	44	1.5
East Europe	33	15	2.2
East Asia	29	21	1.4
MICs	47	40	1.2
LICs	20	10	2.0
Totals	247	191	1.3
Source: online survey of Swedish Project Leaders, corrected for response rates			

As Table 4.3.16 shows, the absolute numbers of international students were fairly equally distributed across subject areas. In relative terms, i.e. on a per-project basis, the Humanities-Social Sciences were seen to be more successful than other subject areas.

Table 4.3.16: Total numbers of international students recruited to study in Sweden, by subject areas

Subject areas	New students (corrected)	Nos projects	Students recruited per project
Medicine	54	47	1.1
Technology	64	53	1.2
Natural Sciences	63	58	1.1
Humanities-Social Sciences	66	33	2.0
Source: online survey of Swedish Project Leaders, corrected for response rates			

While the numbers of students recruited represent an achievement, it is perhaps surprising that the great success of the international partnerships developed through IGP has not resulted in even greater levels of international student recruitment from the partner countries to Sweden. It is of course possible that the Swedish Project Leaders were not always aware of the entirety of incoming student mobility (beyond the narrow bounds of their own research focus). But it should nevertheless be stressed that other countries (particularly the UK, the US and Australia) have found that there is frequently a direct correlation between successful international institutional partnerships and student recruitment. Given that Sweden now seems keen to attract a greater number of international students, some form of high profile promotion of the partnerships in the countries concerned might result in even greater benefit to Swedish universities.

Cooperation in teaching and learning

The largest difficulty identified related to growing cooperation in 'education'. Two thirds of the Project Leaders reported very limited or no success in these areas. We were not able to establish an overall satisfactory reason for this. While developing cooperation in teaching and learning is one of the objectives of the IGP pursued by STINT, this was not identified as being important by the Project Leaders and other staff surveyed. The actual level of activities in this area has already been explained in more detail in Section 4.2.

One problem was that of gathering consistent data, as there were obvious differences in both the understanding of what the area comprised (i.e. what education or teaching and learning precisely meant) and of Project Leader's interpretation of what might be a high or low level of engagement. But no project was identified for which the development of educational activities was stated as a high priority and educational activities were generally perceived to be of secondary importance by the majority of Project Leaders. In the online survey, 60 percent reported that education was either not at all a priority or that it was a minor component of their project. This result of the online survey was confirmed by the interviews we conducted.

In order to avoid any misunderstanding, it must be pointed out that 'educational' refers to such activities as the teaching of undergraduates (in the pre-Bologna understanding, i.e. inclusive of Master's Students) and, to some extent, to curricula development. It does not refer to the training of young researchers, which is a focal area of the IGP and for which impressive results were observed. Thus, the supervision of Doctoral Students, and activities like research seminars and workshops, were not normally understood as 'educational'. If they had been understood as such, the IGP would be sensationally successful in terms of 'education', as the next section (4.4) will show.

As was already mentioned in the last section, given the low importance attached to 'educational activities', it is at a first glance highly surprising that the online survey identified some 175 'new joint programmes' overall, and an average of 1.4 programmes per responding project. When asking this question through the online survey, the evaluation team had meant to identify joint or double degree programmes, mainly at the Master level, of the sort funded by the Erasmus Mundus Programme, for example. This was clearly not what respondents understood the question to be about. If they had interpreted it in this way it would imply that IGP would be the most successful programme so far that promoted the development of new international curricula. In none of the interviews, a new programme of this sort was identified.

Sustainability

For the completed projects surveyed, 86 percent of the partners reported that they had maintained their joint research and cooperation beyond the period of IGP funding and that they expected the cooperation also to continue in the future. Given that the median age of the Swedish Project Leaders was only about 45, all indications are that activities could carry on for many more years, thus producing further impact over time.

There were very little differences in sustainability according to subject areas, with scores being very high throughout. There were, however, small differences in the country groupings, with North American, East European and East Asian partnerships identified as having the highest continuation rate and partnerships with the Lower Income Countries the least. But it must be stressed that the sample size (i.e. the number of Project Leaders reporting against this criterion) was relatively small, forbidding undue conclusions.

The insights gained from the interviews endorse the above findings, but they also put them into perspective. Those projects which managed to secure follow-up funding, often for cooperation in wider networks of which the IGP partnership formed the historical core, continued to cooperate at the same or even a higher level of intensity as during the IGP funding period. For some projects, such as one with a Chinese university, the IGP provided a vital start. Together with a reputed American Medical School, the two initial partners also secured a multi-million US grant from the US National Institutes of Health.

However, those who did not seek or did not manage to access follow-up funding usually reported continued 'contact' rather than actual joint research or other activity, or anyway described the present level of cooperation as reduced in scale. In some cases, there had not even been further contact. This underlines that IGP-induced cooperation is not a *perpetuum mobile* and that continued cooperation requires the availability of funds, from whatever source.

4.4 Development of young researchers

The STINT foundation has identified the development of young researchers as a major priority for projects supported through the IGP programme. Similarly, Project Leaders highlighted this aspect as a very important motivation of the programme; it was a major priority for them. Our research found quite clearly that the IGP programme has had a major positive impact on the careers and skills development of those Junior Researchers involved. Evidence for these successes came from a variety of sources – from the Swedish and Foreign Project Leaders, from the Junior Researchers themselves and also from the quantified research outcomes.

We originally believed that the addressees of the group of Junior Researchers targeted in the online survey (and the interviews) were composed of Doctoral Students and Postdoctoral Fellows only, since they had been reported to us by the Swedish Project Leaders under these two categories in the course of the pre-survey. However, it turned out that there was much wider coverage, and that those addressed and responding also included a number of (non-

Project Leader) senior staff as well as Master's students. While the largest group of junior staff covered in the research were doctoral level researchers, there was a number of more senior staff included as well (who provided additional professional support to the teams).

Overall demographics

Our best estimate is that a minimum of 700 Junior Researchers were in some way involved across all IGP supported projects started between 1996 and 2005. This result is based on an extrapolation and comparison of responses from each of the surveys. However, given that the surveys required each of the different surveyed groups to estimate numbers from their perspective, some inconsistencies were found when the different data sets were compared. We also consider that the estimate of 700 is the likely minimum for, during our interviews with other project staff, it became apparent that often further Junior Researchers had been involved who were not included in the sample of addressees provided by Project Leaders. The data presented below should therefore be interpreted in the light of these differences.

Table 4.4.1 is a summary of the returns from the online survey of Junior Researchers, corrected for response rates. These numbers provided by the Junior Researchers are very significantly lower than those reported by the Swedish Project Leaders and in this case the proportion as a fraction of the Junior Researchers is a little higher for Doctoral Students (60%) and slightly lower for Postdoctoral Fellows (28%). The small number classified as 'other' tends to be laboratory technologists or specialist equipment support personnel.

Table 4.4.1: Total numbers of staff involved in IGP projects, by level of appointment and subject area, at time of project

Level	Subject Areas				Totals
	Natural Sciences	Medicine	Technology	Humanities - Social Sciences	
Master	7	3	6	2	18
Doctoral	28	27	32	14	101
Postdoctoral Fellows	15	14	10	8	47
Lecturer	7	3	2	3	15
Senior Lecturer	1	3	0	0	4
Professor	0	2	2	0	4
Other	1	0	8	0	9
Totals	59	52	60	27	198

Source: online survey of Junior Researchers, corrected for response rates

As a comparison, Table 4.4.2 provides the results from the survey of Swedish Project Leaders according to levels of appointment. From these data, again it is apparent that Doctoral Students constituted the largest group for both the foreign university as well as the Swedish partner institution; this is a similar finding as in Table 4.4.1. The importance of recruiting Doctoral Students was stressed frequently by senior staff during interviews and consequently this group is discussed in more detail below. Postdoctoral Fellows were also considered to be vital for enhancing the quality and quantity of research undertaken by all the Project Leaders interviewed; these comprised about one third of both groups.

Table 4.4.2: Junior Researchers involved in IGP projects, by level and place of appointment, at time of project

	In Swedish institution		In foreign partner institution	
	Total	%		%
Master's Students	65	20%	76	24%
Doctoral Students	156	48%	136	42%
Postdoctoral Fellows	107	32%	109	34%
Source: online survey of Swedish Project Leader, corrected for survey response rates.				

When considering the distribution across the four subject areas in absolute numbers, the dominance of Junior Researchers involved in Natural Sciences and Medicine becomes apparent. However, when considered on a per-project basis, the only subject area where there were differences between foreign and Swedish involvement was in the Humanities-Social Sciences. For these, there were fewer incoming foreign researchers than Swedes going to foreign institutions. The data for the latter are set out in Table 4.4.3.

In an additional analysis of the 102 respondents for the Junior Researcher survey (see Table 4.4.1), it was found that all the Doctoral Students in the Humanities-Social Sciences areas were Swedish nationals – although this group was the smallest (just 12). Although this sample was small it does reinforce the finding from the Swedish Project Leaders' survey that fewer non-Swedes are involved in this area than in the other disciplines.

Table 4.4.3: Numbers of foreign and Swedish Junior Researchers working in the partner institution, by subject areas

Subject area	Nos projects	Foreign researchers to Swedish partner		Swedish researchers to foreign partner	
		Total nos	Nos per projects	Total nos	Nos per projects
Natural Sciences	58	75	1.3	84	1.5
Medicine	47	68	1.5	75	1.6
Technology	53	69	1.3	60	1.1
Humanities-Social Sciences	33	31	0.9	40	1.2
Totals	191	243	1.3	259	1.4
Source: online survey of Swedish Project Leader, corrected for survey response rates.					

The numbers of Junior Researchers according to partner country groups are provided in Table 4.4.4. From this analysis, it is clear that the largest numbers of Swedish Junior Researchers' visits were to North America and West Europe. In relative terms, i.e. assessed on a per-project basis, the countries of East Asia were also found to be an important destination. In the group of foreign Junior Researchers working in Sweden, the largest single region of origin on a per project basis is East Europe. The relative importance and impact of East Europe in exchanges was already considered in Section 4.2, where we found that partnerships with East Europe resulted on a pro-rata basis in the largest numbers of publications in refereed international journals.

Table 4.4.4: Exchange of young researchers (Doctoral Students and Postdoctoral Fellows) by partner countries and numbers of projects

	Swedish young researchers to foreign partner			Foreign young researchers to Swedish partner		
	Visits Totals	Projects	Visits per project	Visits Totals	Projects	Visits per project
North America	87	61	1.4	65	61	1.1
West Europe	69	44	1.6	54	44	1.2
East Europe	17	15	1.1	32	15	2.1
East Asia	31	21	1.5	30	21	1.4
MICs	43	40	1.1	38	40	1.0
LICs	14	10	1.4	19	10	1.9
Totals	261	191	1.4	238	191	1.2
Source: online survey of Swedish Project Leader, corrected for survey response rates.						

One key result of the IGP investment has been that many Junior Researchers from a wide range of countries have been brought together to work with their Swedish counterparts: the young staff involved in the projects at Swedish institutions originated from 37 countries. Approximately 55 percent of those involved in the projects were Swedish nationals. No other single country had a dominant share. However, taken together, EU and EFTA countries (without Sweden) were a further 20 percent of the total cohort. Table 4.4.5 clearly indicates the tremendous mix of nationalities involved. That is not to say they had come to Sweden for the project, as many of them were employed in the institutions prior to the IGP starting. Please note that the totals for each level of appointment are higher than the added up numbers in the column. This is so because only nationalities with two or more persons are separately listed.

Table 4.4.5: Citizenship of Junior Researchers in IGP projects (countries with two or more citizens)

Reported citizenship	Level of appointment				
	Master	Doctoral	Postdoc	Senr staff	Total
Total	11	63	30	10	114
Swedish	3	37	11	5	56
Chinese	1	3	2	1	7
Russian	1	3	0	1	5
Korean	0	1	2	1	4
Brazilian	1	2	0	0	3
Danish	0	2	1	0	3
French	0	1	2	0	3
Italian	0	2	1	0	3
Spanish	1	1	1	0	3
Australian	0	0	2	0	2
Bangladeshi	1	1	0	0	2
Canadian	0	1	1	0	2
Czech	0	1	1	0	2
British	0	0	2	0	2
Malaysian	0	0	1	1	2
Polish	0	1	0	1	2
Source: online survey of Junior Researchers, not corrected for response rates					

In the course of the interviews we met with, for example, young Portuguese, Germans, British, Mexicans, Taiwanese, Ukrainians, Chinese and Australians all employed in Sweden and working on partnerships that took them to many other country partners. This is a reflection of the considerable degree of internationalisation of Swedish university research. These Junior Researchers of non-Swedish citizenship will no doubt provide a basis for many international research links in the future.

Doctoral Students

The IGP investments have had a very significant impact on the training of Doctoral Students. The Swedish Project Leaders reported that some 360 doctoral degrees were awarded to Doctoral Students involved in the IGP projects started between 1996 and 2005 (see Table 4.4.6). Note that some of these Doctoral Students, although spending some time in Sweden, received their award from the foreign partner university – the actual proportions were not provided by the Project Leaders. About two thirds of all doctoral awards fall into the subject areas of Natural Sciences and Medicine These subject areas also had the highest award rate on a per-project basis.

Table 4.4.6: Numbers of doctorates awarded in IGP projects, by subject areas

Subject areas	Nos doctorates awarded	Nos of projects	Doctorates awarded per project
Technology	87	53	1.6
Humanities-Social Sciences	60	33	1.8
Medicine	101	47	2.1
Natural Sciences	114	58	2.0
Totals	362	191	1.9
Source: online survey of Swedish Project Leaders, corrected for survey response rates.			

In terms of partner countries, the numbers of doctoral awards to researchers involved in projects with North America, West Europe and the Middle Income Countries (MICs) dominate (see Table 4.4.7). However, when assessed on a per-project basis, the rate for partnerships with East Europe proved impressive. This probably also reflects the attraction (and visibility) of Sweden as a high-quality research destination for Junior Researchers from East Europe.

Table 4.4.7: Numbers of doctorates awarded in IGP projects, by country of partnership

Country groups	Nos doctorates awarded	Nos of projects	Doctorates awarded per project
North America	105	61	1.7
West Europe	74	44	1.7
East Europe	48	15	3.2
East Asia	32	21	1.5
MICs	75	40	1.9
LICs	16	10	1.6
Totals	350	191	1.8
Source: online survey of Swedish Project Leaders, corrected for survey response rates.			

Other considerations: Sweden has a deservedly well established international reputation for thoroughness in relation to the training of Doctoral Students. However, this success comes at a cost as research supervisors are required to demonstrate to the senior management of their institution that they avail of sufficient funding to cover the entire cost of the education of a Doctoral Student (typically four years). The total cost, including infrastructure and equipment cost, can amount to as much as SEK 2.5 million in some subject areas. Securing these funds does often lead to delays in appointing Doctoral Students, as was the case in a number of the IGP projects. Delays in the appointment of staff, particularly of Doctoral Students, were cited as an obstacle for the delivery of the projects. In particular, we found some correlation between those projects not achieving their Doctoral Student targets and those that reported problems with the recruitment of Junior Researchers – hence reinforcing that Doctoral Student recruitment was posing problems.

Foreign Doctoral Student enrolment in Sweden: As was mentioned previously, nearly 50 percent of the Junior Researchers were Doctoral Students. The analysis of the responses of Junior Researches in the online questionnaire survey suggested that about 85 percent of these were based in the Swedish institution. Further, given that 58 percent were Swedish, this would seem to indicate that IGP projects had facilitated a net enrolment of foreign Doctoral Students in Swedish universities. The total number involved, based on the numbers of doctoral degrees awarded, was estimated to be about 125.

Age and gender: The age range for two thirds of the Doctoral Students was found to be 28 to 34, with the median age of these being 31 (at the time of the IGP exchange). This was slightly higher than might be expected by international standards (averages), but says probably less about Doctoral Students in IGP projects than in Sweden in general. Approximately one third of the Doctoral Students were women, which contrasts with the Project Leaders, where the proportion of women was only about one fifth. However, these proportions probably reflect the gender-position profile across Swedish universities and are thus less indicative of the IGP than of Swedish higher education in general.

Career progression

The impact of the IGP experience on the career progression of Junior Researchers was investigated through the online surveys and the interviews. The large majority (95%) reported that their involvement had a very positive impact on their career development, with 70 percent saying that this had been a 'major' or 'large' impact. All respondents, irrespective of subject areas and country groups, reported very positively on the impact of the IGP on their careers.

The survey of Junior Researchers also made it possible to better understand how the IGP involvement benefited their research and how it influenced their careers in other respects. Over 70 percent of both the Doctoral Students and Postdoctoral Fellows reported in particular that the IGP project had a major impact in terms of the acquisition of new research skills as well as the numbers of publications that they had authored. The respondents reported that the IGP partnership had introduced them to an area of research activity that they would not have been able to access had they remained at their home university. All the new competencies acquired and experiences gained were reported to have been highly beneficial to their career.

Most of those surveyed and interviewed were still in the university sector, both in Sweden and in other countries. A few (about 10%) were now working in other research laboratories and approximately another 10 percent had moved into private companies. The largest number that moved into research laboratories were found in Medicine and Biosciences, while the private sector attracted its largest proportions from subject area of Technology.

In terms of the relationship between gender and career progression, it was found that men tended to be more mobile than women (probably for reasons of family obligations). Some 33 percent of men, but only 13 percent of women, reported to have held two or more posts since the end of the IGP project. Interestingly, there appeared to be a small bias of women seeking careers with the private sector, although the sample size was relatively small.

Table 4.4.8 provides an illustration of career progression through comparing positions at the time of the IGP project against those positions that those same staff now occupy. These data include only those Junior Researchers who have positions in a university environment. A further limitation was that it was also not possible to relate satisfactorily the career progression data to age and timing of the IGP project. Nevertheless, the data clearly illustrate that those involved in IGP projects had progressed well, particularly the Doctoral Students (and also the 'high flying' Master's Student!). All Junior Researchers reported that their IGP involvement had very positively contributed to their career progression.

Table 4.4.8: Comparison of position at time of project and today

Position at time of project	Current Position				
	Doctoral	Post Doc	Lecturer	Senior Lecturer	Professor
Master's Student	3	4	0	0	1
Doctoral Student	0	20	6	5	6
Post Doctoral Fellow	0	6	7	9	6
Source: online survey of Junior Researchers, corrected for response rates					

Future collaboration: Over 90 percent of all Junior Researchers reported that their IGP involvement helped them grow new research relationships and networks which they believe will lead to future cooperation and partnerships.

Teaching and learning: As was explained before, one objective of the IGP is to grow teaching and learning links. However, few Junior Researchers appeared to have become engaged in this area and 55 percent stated that this was not a relevant activity for their involvement. A few reported that they had been involved in specialist workshops and seminars; these were most numerous in the Natural Sciences.

Duration and frequency of visits

A positive relationship was found to exist between the degree of benefit derived by Junior Researchers and their length and frequency of stay in the partner institution. All the key impact indicators chosen showed a positive correlation in particular with the length of stay. The longer the duration of stay, the higher the measured outputs, for example in terms of numbers of publications, new research techniques learnt, perceived impact on career development and new research networks developed.

The spread of duration of stay as reported by the Junior Researchers is presented in Table 4.4.9. The duration of visits which becomes apparent differs slightly from that reported by the Swedish Project Leaders (see section 4.3), who reported a larger number of stays exceeding 12 months. In the latter survey, respondents did not distinguish between periods of less than one month. It is therefore a valuable piece of additional information from the Junior Researchers' survey that 16 percent of visits lasted for less than a week. A direct and positive correlation was found to exist between duration of visit and research output, which is discussed below.

Table 4.4.9: Duration of stay of Junior Researchers

Duration	Number	Percentage
Up to 1 Week	8	16%
1 week - 1 Month	14	28%
1 Month - 3 Months	5	10%
3 Months – 6 Months	13	26%
6 Months - 12 Months	7	14%
More than 12 Months	3	6%
Total reporting	50	100%
Source: Survey of Junior Researchers, not corrected for response rates		

No correlation was found between research impact and numbers of visits. Half of all Junior Researchers anyway reported to have visited their partner institution only once. 20 percent registered two visits over the project's life time. However, there was also a small but non-negligible proportion of Doctoral Students (16%) who reported that they had visited their partner institution more than four times during the project.

On average, female Junior Researchers spent significantly longer periods than their male counterparts on their research attachment in the foreign institution: over 60 percent of women involved spent three months or more, compared with only 35 percent of men. This must be read against the background that a smaller proportion of women was involved in the IGP projects, though. The proportion of foreign women involved in the projects (46% women) was slightly higher than that of Swedish women (39%).

The correlation between the duration of visits and the impact on project outcomes was assessed through cross checking the main indicators of research success (e.g. numbers of publications, Doctoral Students trained, success ratings from Project Leaders etc.) with the durations of stay of Junior Researchers reported for a project. The aggregate data imply that the highest impact seems to be achieved after about three months. Given that 54 percent of the Junior Researchers were reported to have stayed for less than three months, this finding might suggest that IGP projects would do well to critically review their research and visits plans in the future.

These findings from the online survey were also discussed with a number of the interviewees, particularly those who had only undertaken short visits (one week). Interviewees mostly maintained that short visits can be very beneficial too, and had anyway been in their case. Short visits should be very focused, though, on learning a new technique or providing a workshop in a particular research area, for example. The short visits had also served to introduce the visitors to the foreign team, which facilitated joint research work and communication for the remaining duration of the project.

Summary of impact and outcomes

Across all the different indicators employed to measure the impact of the IGP on the professional development of Junior Researchers, there was an overwhelmingly positive response. Table 4.4.10 summarises their responses to the question: 'What impact had the IGP cooperation for you regarding the following professional outcomes?'

The high levels of impact are contained in the column furthest to the right, which adds up the percentages of respondents who had experienced a 'major' or 'large' impact. Percentage values are above two thirds and often higher throughout, except for the area of teaching ('learnt new skills as a teacher'), where only 14 percent had perceived a 'major' or 'large' impact. This is consistent with the other findings of this evaluation regarding the low interest and impact of the IGP in the area of teaching and learning.

Table 4.4.10: Summary of responses from Junior Researchers relating to impact of IGP

	Major impact		Large impact		Total responding	Total % (Major+Large)
	Number	% age	Number	% age		
Stays abroad have broadened my network of academic/research contacts	64	44%	57	39%	145	83%
Stays abroad have opened the potential for future international academic collaboration	59	41%	55	38%	144	79%
Learnt new research techniques	39	27%	61	42%	145	69%
Learnt new skills as a teacher	7	5%	13	9%	145	14%
Participated in a research area not possible without the cooperation	42	29%	44	31%	144	60%
Authored research publications	47	33%	59	41%	144	74%
Career development	16	37%	18	42%	43	79%
Source: Survey of Junior Researchers						

The findings of the online survey discussed above, particularly with regard to impact, were fully confirmed by the results of the interviews and the open-question responses. Almost every Junior Researcher, and especially those who had been on stays of a longer duration, underlined that they had started to build their international networks, with their foreign Junior Researcher counterparts and in many cases also with their foreign academic supervisors. Those whose visits had taken place in the recent past were of course voicing an expectation. In the case of researchers who had stayed abroad some years ago, these networks had already materialised, and had resulted in joint publications or invitations for guest lectures or stays. In quite a number of cases, the networks had also facilitated appointments to higher academic positions. Beyond that, both the Junior Researchers and also their senior counterparts stressed a wide range of other benefits in the interviews, which are summarised below.

First, as already found through the online questionnaire survey, the Junior Researchers had learned to master new research techniques.

Second, they had gained access to infrastructure and equipment which was not available at their Swedish (or foreign) 'home' university. As one Swedish Project Leader in the Natural Sciences cooperating with a renowned US institution expressed it,

> *the IGP has been superb as it has provided opportunities for young researchers to work with facilities that they would not normally be able to access.*

Third, many young scientists interviewed stressed that their stay with the foreign institution had broadened their research focus, by adding a new perspective from a neighbouring discipline, or by learning to view their discipline from the perspective of a different academic culture.

Fourth, and outside of the academic sphere, many young researchers (as well as their supervisors) stressed cultural benefits, including foreign cultures experienced, foreign language knowledge improved, other creeds encountered and better understood, friends made and - sometimes – husbands or wives found.

Fifth, many Junior Researcher interviewees stated that they had made great academic progress while abroad, in the form of advances on their PhD theses or other major publications, and generally improved their level of academic competencies and endeavours.

Sixth, those whose stays abroad took place some years ago and who had in the meantime progressed on the academic ladder attributed some of their career progress to their foreign research experience. Often this enhancement was in a direct way, for example when the network they had grown facilitated them being appointed to a better position, e.g. as a Postdoctoral Fellow, junior or full professor (depending on earlier position). Obviously, some of these appointments were made outside Sweden, so that some may argue that the Swedish research system had suffered losses. But the relatively young age of the appointees makes it likely that they will re-migrate to Sweden at some stage in their future career – just as many other Swedes have done over the years. And, obviously, there were the cases of appointments by the numerous foreign young scientists to Sweden.

Seventh, and related to this, a number of Junior Researchers in the Natural Sciences, Medicine and Technology stated that, without this being a formal requirement, a stay abroad as a Doctoral Student or Postdoctoral Fellow was *de facto* a condition for further progression in the Swedish research system.

Last, but by no means least, longer stays in a leading foreign research environment can apparently have an enormous motivational effect and kick-start careers of talented young researchers to become high-achievers.

If all, or many, of the above factors come together, this can have an effect that goes beyond the individual and start to 'infect' positively the academic culture at home (in Sweden). At the risk of appearing anecdotal, we will therefore briefly sketch the effects of the IGP on one Swedish team, and their home department in a project involving two prestigious US universities in a Social Science discipline. Next to the Swedish Project Leader, a number of Swedish Doctoral Students and Postdoctoral Fellows had spent research stays of a longer duration in the US as part of this IGP project. Two of them were interviewed and both stressed as an outcome at the *personal level*:

- a considerable boost in confidence in their academic abilities;
- visible progress in the quality of their academic work and the acquisition of new knowledge;
- the decision to stay in academia (at least one of them had earlier harboured doubts that an academic career was his 'calling'), facilitated by the reinforcement of first-order peers;
- an opening-up to new themes and research approaches not covered at their Swedish university;
- the beginning of the creation of a network of other researchers encountered at the US institutions who were mostly today in positions of junior or full professors at reputed North American universities;
- a heightened level of academic ambition; and
- a fast and smooth progression through the academic hierarchy.

At a *systemic level*, the exchanges with the US institution produced returning young scholars willing and able to challenge academic traditions in their Swedish university department and

through this, gradually, changed the institutional culture. Their reference became the global state of the art in their discipline, and not just the Swedish perspective. They started to publish mainly in English (which had not been the tradition in this discipline in Sweden before). In short, they acted as a positive bacillus and for the good of the department and the discipline.

Of course, this is an outstanding example of success achieved through an IGP investment. Most IGP projects produce more modest results. But the example illustrates what the IGP can achieve if a number of favourable conditions are met, such as a very favourable research environment, an energetic Swedish Project Leader, a number of highly talented young researchers, and foreign IGP partners of the very first order. Ironically but understandably, such success can undermine itself: One of the Junior Researchers has in the meantime been appointed a full professor at the department in question. But the former Swedish Project Leader has just taken up a position at Oxford, one postdoctoral fellow at the time of the IGP is now a full professor at a continental European university and others are in promising positions in US centres of academic excellence. This is one price of success. But, as stated earlier, a number of those 'emigrants' are likely to return to Sweden at some later stage, and into positions of heightened responsibility and with added research competencies. Obviously, they will of course also be able to seek new IGP support for partnerships with Sweden in their foreign positions.

We would like to end this section with a quote which highlights the high degree of satisfaction experienced by Junior Researchers. It is atypical only in its emotional phrasing, but not in substance. *It was a once-in-a-lifetime kind of experience for which I am very grateful. '*

4.5 Programme management and project delivery

4.5.1 Programme management

Issues related to the management of the IGP by the STINT Foundation did not figure high in the initial approach of this evaluation. This was intentional and had been agreed with the STINT management. However, interviewees were very keen to comment on the rules and regulations of the IGP, and on the way STINT ran the programme. Additionally, matters of programme management were constantly raised in the open questions of the online survey.

Flexibility

The most often used single word in relation to the programme's rules and to STINT's management style was 'flexibility'. There was, unsurprisingly, the odd researcher who would have preferred even more freedom (*"too much paperwork"*), but the very vast majority of IGP beneficiaries were full of praise for the 'light management' approach of STINT, and their openness to the grantees. They regarded this as a sign that STINT trusts researchers and their capacity to run projects in the most appropriate manner. This quote of one Swedish Project Leader is typical of the attitude of most grantees:

> *It is a very good and successful feature of STINT that they are not trying to micromanage the projects. All important research … needs a bit of freedom, individual initiatives, on-the-spur-of-the-moment decisions. This is the strength of the IGP projects.*

STINT staff were showered with praise and gratitude for their accessibility and understanding, and for finding ways to accommodate the researchers' concerns and predicaments. This Swedish Project Leader expresses the attitude of the vast majority of grantees:

> *I wish to express the strongest appreciation about the STINT management staff who always were most helpful in the handling of the IGP grant and of our questions all along the project. Our project benefited greatly from the flexibility….*

Two prime examples of this flexibility – which are mentioned here *pars pro toto* – refer to the project consortium and the funding period. Often, the continuation of an IGP project is put in jeopardy as a result of a move of the Swedish Project Leader or his/her foreign counterpart to another university, inside their country or elsewhere. In order to safeguard the continuation of the project, STINT often agrees to the substitution of an institutional partner, or to adding a new one (as long as there is/remains one Swedish institution in the partnership). The principle employed here is that of 'the grant following the researchers' or of 'itinerant projects'. STINT demonstrates similar flexibility in extending the duration of a project if a beneficiary has, for understandable reasons, not managed to carry out all planned work in the time-span foreseen (usually four years) and/or to spend the full grant. This happens frequently, so that many IGP projects run over a period of five, six or even seven years (instead of the 'standard' duration of four). Changes in project schedules are of course also usually approved within the originally foreseen time span. Even more substantive reorientation – of the aims of a project – can be granted if researchers are able to demonstrate that the results of the research work undertaken to date necessitate the change.

Uncertainty and programme myths

The down side of the much-praised 'flexibility' of the IGP and its administration has been a relatively low degree of formalisation and, as a result, considerable uncertainty amongst some beneficiaries about a few IGP rules and procedures, some of them quite central. The most striking examples found concerned the requirements for IGP partnerships, re-applications and project duration. The interviews as well as answers to the open questions of the online survey revealed that a number of beneficiaries believed that the IGP supported only multilateral partnerships, while others mentioned a limitation for just bilateral partnerships. A substantial number of those interviewed had not re-applied under the programme because they believed that a second application from the same Project Leader would have been excluded whatever the circumstances. Others believed that re-applications for the very same partnership configuration could be acceptable. Amongst those who understood that a second application was possible, there was a wide variety of assumptions on how close or how distant the focus of the second project, and the consortium of partners, must be from that of the first. Likewise, the fact that the IGP grant duration could be extended if funds had not been fully spent at the end of the original project period was unknown to quite a few interviewees. In sum, beneficiaries harboured astonishingly many 'IGP myths'. This was particularly true of Swedish grantees. This does not mean that the foreign partners had a clearer understanding of the rules (see below); but they did not manage the grant, did not

deal with the STINT Foundation and therefore were hardly ever in a situation where these issues arose.

It also emerged that beneficiaries were unaware of the criteria for the evaluation and final selection of projects. Some expressed the wish for the selection criteria to be published, others demanded to know how their application had been rated / ranked and why it had been selected or rejected. There were interviewees who likewise demanded a higher degree of formalisation of the present free format reporting, particularly for better comparability of project progress and results. Often, interviewees wondered what the STINT Foundation's criteria for project success were.

Foreign Project Leaders, in their overwhelming majority, stated that they had little or no information about the rules and regulations of the IGP programme. Very often, they were not aware of important facts, such as the amount of money available to the project, or their share of it, if any. One Foreign Project Leader interviewed did not even know that his cooperation with Sweden had been funded by STINT. In the majority of cases, and usually those where the partners trusted each other, this was not felt to be a problem. The Foreign Project Leaders were mostly happy not to be burdened with the projects' administration and only in a few cases – in apparently less transparent partnerships - did Foreign Project Leaders express a desire for better information and a stronger role. One complained that he had never been provided with copies of the reports to STINT by the Swedish partner. The criticism of another one is more far-reaching:

> *More responsibility and part of the responsibility of the grant funding should be transferred to the foreign partner. Presently, the foreign partners are just passive members of the collaborative programme with no influence on spending and directing of the research. They are neither responsible for the results, nor for the way the money is spent. A bigger involvement would increase interest in such collaborative research activities.*

Most Foreign Project Leaders found it unusual and noteworthy that the STINT Foundation had never addressed them directly. One of them phrased his astonishment like this: '*we did not receive a single communication from STINT*'.

A paradox

The parallel occurrence of widespread and genuine praise for flexibility on the one hand, and of a lack of information or uncertainty about essential project rules on the other, might appear contradictory at a first glance. But we believe that there might well be a link between the two. Indeed, a few programme myths would be easily eradicated if applicants and beneficiaries consulted the STINT Website and the administrative documents which STINT provides to grantees. However, many of the more detailed programme rules apparently are not to be found there and possibly for a reason. The rules of the IGP are flexibly adapted to the needs of the users as the STINT Secretariat listens to programme beneficiaries and tries to find made-to-measure solutions. This is a big advantage for those who approach the highly accessible STINT staff, but it is a disadvantage for a sizeable minority, who never seek direct contact with STINT administrators, and who act on unchecked assumptions and develop the programme myths referred to above.

4.5.2 Project delivery

Both Swedish and Foreign Project Leaders were asked if they had met with difficulties in the delivery of their collaborative projects (Question 10 in the respective questionnaires). On a series of potential problems, they were given the choice between four answer categories to assess 'difficulties', ranging from "no" via "minor" and moderate to "significant difficulties". The responses to these questions make collaboration in IGP projects look almost problem-free.

Table 4.5.1: Significant and moderate difficulties experienced by Swedish and Foreign Project Leaders (in %)

Difficulty	Swedish Project Leader	Foreign Project Leader
Unable to recruit appropriate staff	27	4
Staff unavailable at time required	23	6
Staff left project	13	2
Funds inadequate	18	6
Funds not available on time	4	5
Equipment or materials not available	5	7
Data not available	5	4
Immigration / visa difficulties	7	5
My institution's management and administration	9	5
Partner institution's management and administration	12	3
Managing communications	3	4
Agreeing on intellectual property rights	2	3
Finding a common approach over ethical questions	0	1
Source: Online survey of Swedish and Foreign Project Leader. Question: Have you experienced any difficulties in delivering the cooperation as you had originally planned?		

In most areas, problems were found to be negligible: funds came through promptly and very few Project Leaders had problems with visa or immigration requirements. There were also practically no ethical conflicts between partners or disagreements over intellectual property rights. Even problems with the university administration – most researchers' favourite enemy – did not occur very frequently. A similar strongly supportive mix of responses was submitted by the Junior Researchers in relation to their foreign visits: funds were mostly felt to be adequate, accommodation was usually fine, and there were no significant health problems and no visa hold-ups. It is rare indeed to meet up with such a satisfied group of researchers.

The only sizeable proportion of problems identified by the Project Leaders was found in the area of staff matters. Over one quarter of Swedish Project Leaders reported problems in recruiting appropriate staff and slightly less than one quarter reported that staff was unavailable at the time required. It is striking that these staff-related problems came up – or were perceived – only at the Swedish end of the partnership. Foreign Project Leaders reported only minor staff related problems. This is consistent with the findings of the interviews, where Swedish Project Leaders as well as other Sweden-based researchers frequently complained about problems of hiring staff, particularly Doctoral Students and Postdoctoral Fellows, and of work overloads which prevented their full involvement in the exchanges.

The differing situations concerning subject areas are provided in Table 4.5.2. From this it is apparent that about one third of Swedish Project Leaders have experienced 'significant' or 'moderate' difficulties in recruiting staff in the Humanities-Social Sciences, Medicine and Technology. Fewer problems were reported in the Natural Sciences (20% reporting difficulties).

Table 4.5.2: Levels of difficulties experienced in staff recruitment, by subject areas

Subject Area	Total projects	Unable to recruit appropriate staff				% significant or moderate
		Significant	Moderate	Minor difficulty	No difficulty	
Natural Sciences	45	3	6	12	24	20%
Medicine	20	1	5	3	11	30%
Technology	34	3	7	8	16	29%
Humanities-Social Sciences	21	2	5	3	11	33%
Total	120	9	23	26	62	27%
Source: *Survey of Swedish Project Leaders*						

Cross-checking these findings against the reported outcomes of projects (for example the number of publications and new research undertaken) the lack of staff at the appropriate time was observed to have had a direct and negative impact. For example, those projects reporting staff problems appear to have resulted in fewer publications in international refereed journals and also in fewer doctorates awarded.

A comparison of the groups of Swedish Project Leaders from finished and ongoing projects indicated that staff-related problems have increased over time. This is most marked in the case of the availability of staff at the time required, where only every fifth Swedish Project Leader from finished projects reported significant or moderate problems, compared to one third from ongoing projects. This could imply that an important factor of the Swedish research environment has become less IGP-conducive over time.

The interviews and also the responses detailed in the open questions' sections of the various questionnaires shed light on additional issues, mainly in the area of the management of the exchanges and collaborations. The majority of responses contained a 'no problems' message, and this was often coupled with the advice not to impose any bureaucratic burdens on the researchers. A comment typical of many in this regard was:

Management with little administration works best in a university atmosphere!.

However, a substantial minority stated that they had made managerial mistakes, or that they were eager to pass on models of successful project management practice. The first recurring piece of advice concerned an early start as it was reported that a number of IGP projects apparently lost substantial time at the beginning. As one regretful Project Leader put it, *"it took a long time to get to speed".* Another one frankly admitted that, if he had to do it all again, he *"would initiate the collaboration with a meeting face to face the day the collaboration started".*

Second, and next in importance to an early start, regular and intense contact between the two Project Leaders (and, more widely, teams) was deemed essential for speedy progress and ultimate success, by many of both interviewees and respondents. Some Project Leaders

stressed that regular personal meetings were indispensable, and all agreed that such meetings were essential at the inception phase. However, others said that they preferred to communicate electronically and by telephone (including regular use of Skype). Regardless of the mode of communication, the overwhelming message was to communicate in very short intervals. One Swedish Project Leader even believed in *"day-to-day communication"* with his foreign counterpart.

Third, and the most often mentioned by interviewees and respondents to open questions, was the need to plan the collaboration properly[4]. The notion of 'proper planning' comprised, amongst other things,

- the creation of a shared understanding of the overarching aims of the project,
- an agreement on targets and priorities of the collaboration,
- the setting up of a schedule for the joint research,
- the detailing of staffing needs and exchanges,
- an agreement on the roles and responsibilities of everybody in the two (or more) teams, as well as
- transparency and openness about financial issues, such as the IGP grant and it distribution over the partners.

Like all good plans this was not suggested to be a blue print or a rigid formula. Rather, 'proper planning' should establish the starting point of the cooperative venture and set out key tasks. The plan should then be operated flexibly and regularly updated to respond to the evolving needs of the joint research. Junior Researchers stressed the importance of joint planning at the level of individual stays, too. Quite a few interviewees went further and recommended the introduction of strict procedures in the area of documentation and reporting, "*correct financial routines"*", and electronic project information and documentation systems.

Perhaps the most striking result of the interviews and free-text responses was that a considerable number of Project Leaders, both on the Swedish and the foreign side, recommended the use of written agreements between the partners. Some of those advocating this form of formalisation had successfully employed some form of agreement. Others had not and felt on hindsight that they would have fared better with one. One Project Leader even stated that *"a standardised written agreement on funding arrangements centrally from STINT would have been useful".*

The enthusiasm for formalised agreements expressed in the interviews and free-text responses stands in slight contrast to the responses to Question 12 in the questionnaire for both the Swedish and Foreign Project Leaders, which enquired if formal agreements between the partners had actually been concluded. As Table 4.5.3 below shows, only 17 percent of all Swedish Project Leaders reported the conclusion of such agreements. The percentage among the Foreign Project Leaders was markedly higher, at 30 percent. The discrepancy between the support for formalised agreements and the actual use of this practice is probably to be explained by the fact that a share of those advocating formal agreements are now doing so because they had paid the price for not having concluded them while running their project (see above). At any rate, it can be assumed that a sizeable number of those centrally involved in IGP collaborations would not react negatively to some form of guidance in the area of

[4] In fact, the 2004 evaluation of the IGP proposed the introduction of a planning phase, and the STINT Foundation has passed on this as a recommendation to IGP grantees.

project management and partner relations as long as the receipt of such guidance was voluntary and not imposed on them.

Table 4.5.3: Percentage of IGP projects with a formal (written) agreement

Category	Finished (%)	Ongoing (%)	All (%)
Swedish Project Leader	17	19	17
Foreign Project Leader	26	40	30
Source: online survey of Swedish and Foreign Project Leaders. Question: Did you have a formal (written) agreement with your partners concerning roles, responsibilities and funding arrangements?			

The subject area with the least agreements was Natural Sciences, where only ten percent of Project Leaders reported agreements in place. In all other subject areas, the average was around 20 percent. In terms of partner countries, most agreements had been concluded with China and East European countries. The fewest agreements were reported from projects with Latin America. An interesting observation was that the number of doctorates finished in projects with formal agreements was proportionally higher than in those without.

4.6 Programme focus

This evaluation sought to identify the achievements and challenges of the IPG as it is, i.e. of a programme deliberately focusing on *international cooperation* for Swedish higher education and research. It was not meant to suggest an altogether different orientation of the IGP (and the STINT Foundation), or any radical reorientation in programme aims and design as a consequence. This notwithstanding, interviewees and respondents to the open questions of the online survey often raised questions which went beyond the brief of the evaluation, commented on the *raison d'être* of the programme, the adequacy of its international cooperation focus, issues of eligible costs, duration of IGP grants, and related matters. We would find it inappropriate to withhold this information, which is presented in this section.

In the online survey, Swedish Project Leaders had been asked to indicate how the STINT Foundation should in their view develop the IGP for the future (Question 21). The overall responses are summarised in Table 4.6.1. We shall come back to these findings in the course of this section.

Table 4.6.1: Future direction of IGP – summary of responses from Swedish Project Leaders

	Very important	Important	Less important	Not necessary	Total responses
	In %	In %	In %	In %	Nos
Simplification of procedures/ lean programme administration'	17%	30%	28%	25%	116
Increase funding to meet Swedish staff costs	26%	42%	24%	9%	117
Increase funding to meet doctoral students' costs	32%	42%	22%	4%	114
Increase funding for consumables, including field research	20%	34%	31%	15%	117
Increase funding for equipment use	9%	24%	43%	24%	112
Increase funding to support partner institution staff	12%	34%	35%	18%	116
Prioritise programmes on specific countries	5%	17%	30%	47%	116
Prioritise programmes on specific subject areas	3%	16%	27%	55%	116
Increase funding for short visits for new project identification and planning	30%	37%	22%	12%	115

Source: online survey of Swedish Project Leaders

The programme formula

The IGP is a programme which concentrates on *international cooperation* in research and higher education. It does not fund research (or education) as core costs, such as the costs of delivering the research. In essence, researcher salaries and costs of infrastructure, equipment and consumables are, with minor exceptions, not covered by the programme. As stated elsewhere in this report, IGP projects therefore always require 'matching funds', in the sense that salaries and other core research costs need to be covered from some other source: from the university's own budget, from research grants awarded by Swedish and/or foreign research councils or foundations. This raises the question of the relative value of IGP funding, compared to the usually far higher core costs. The vast majority of interviewees clearly accepted and strongly endorsed the IGP concentration on the international dimension in the form of funding exchanges and other internationally oriented activities. They acknowledge that it was not the task of the IGP to provide funding for core research costs. While admitting that the IGP contribution to a joint research project usually covered only a small fraction of the overall cost, they stressed how valuable this contribution was, and how its effects by far exceed the share of overall funding deriving from the IGP (*"the small funds go a long way"*).

The bottom line of the vast majority of comments therefore was very clear: do not change a winning formula. A real need was identified for a programme which concentrated funding on exchanges and other activities to grow international research partnerships and the strong belief was that this need was being satisfied by the IGP. Only one interviewee complained that the IGP covered only five percent of the overall cost of the joint international research project, and thus did not really serve a purpose. Most comments, however, were positive, and stressed the complementary nature of IGP funds.

The total sums invested in my project are large with several contributors ……..but the IGP funding, although the smallest component was the only component able to meet international costs.

It must be stressed that this finding from the interviews was somewhat qualified by the responses to Question 21 in the online survey described in Table 4.6.1 above. Here, the need to meet the cost of Swedish staff was seen as 'very important' or important' by 66 percent of respondents. An even higher proportion – 76 percent – saw a particular need to meet the costs of the subgroup of Doctoral Students. We will come back to this issue further below.

A unique programme

The usefulness of and the need for the IGP was also underlined by frequent statements of interviewees that the programme was unique, in the sense that the same activities were not funded by schemes of any other grant provider. Some stressed that this was the case only outside Europe, but most applied the judgment to Europe as well. One interviewee proposed that the IGP become the model for a European Union programme of the same design. To be precise, by claiming that there was no comparable programme respondents meant that there was no other source in Sweden which provided funding for *international exchanges and related activities between whole teams engaged in a joint international research effort and without subject or country partner restrictions*. No doubt, the IGP is not the only programme available for purposes of international research cooperation and exchanges of Swedish universities, but these other schemes differ from the IGP in that they

- target only *individuals* (for example the Marie Curie Scholarships of the European Commission for young researchers, or, indeed, the STINT Foundation's own programmes for individual applicants)
- provide funding only for joint *research* (core funding), but provide no funds for exchanges (such as the various components of the EU Research Framework Programmes), apart from project planning meetings.
- exist only *for single countries or regions*, but are not suitable for cooperation world-wide (such as the Swedish Research Council's 'Swedish Research Links Programme' or – the now to be discontinued - PPP scheme between Sweden and Germany, which provided much lower funding levels, or cooperation schemes of the Nordic Council of Ministers)
- Exist only *for individual scientific* disciplines, and are not open to all subject areas.

Our own research confirmed these findings. We conducted a search for similar grant schemes and found no instrument accessible to Swedish institutions of exactly the same format.

Funding of Swedish young researchers

Interviewees commented on their further needs and on what they felt should in the future be accepted as an 'eligible cost'. One area frequently reported in interviews concerned the salary and infrastructure/support costs for young researchers in a Swedish university. This reinforced the results of the online survey in this respect (see above). As pointed out before, the cost of young researchers is high in Sweden: a Doctoral Student (really an employee) might cost up to SEK 2.5 million over his/her four-year period of research towards the degree.

Salaries cannot be covered by the IGP, which also applies to Doctoral Students. Some inventive partnerships had found a way around this ban, including by 'swapping' Doctoral Students and thus allowing them to have long-term stays (for one, or in a few cases, two years) with the foreign partner institution; the IGP-financed scholarship provided for all their living and travel costs. But solutions of this kind were rather the exception, and additionally sometimes raised questions of equity, since these scholarship holders might not enjoy the same rights and privileges as their employed counterparts, or possibly of insurance cover.

Funding levels and cost items

As was mentioned above, the funding of Doctoral Students was identified by all interviewees as problematic. Some indeed strongly advocated that a future IGP extend funding to cover the costs of Doctoral Students' (and Postdoctoral Fellows') salaries. However, most of those who raised this issue, including those directly concerned, also conceded that funding Doctoral Student salaries was probably beyond the 'mission' of the IGP, and would ultimately produce costs of a dimension that could result in significant cuts to funds for supporting international partnerships. But even those who accepted the focus of the IGP on funding the 'international dimension' pointed out that the high cost of Doctoral Students in Sweden presented a challenge to the success of the IGP. A number of interviewees – Doctoral Students and Postdoctoral Fellows – were so preoccupied with their precarious situation that it was difficult to talk with them about any other subject. One Postdoctoral interviewee, from a project which had encountered problems in finding enough Doctoral Students and Postdoctoral Fellows to go on an exchange, summed up the problem neatly:

"First, you have to have PhDs at all, only then can you send them on an exchange".

Young researchers are vital for the delivery of research partnerships and their development is also prioritised by the IGP. Project Leaders say they need more young researchers and the funding of Doctoral Students is a basic concern across Swedish research. The IGP cannot solve this problem, but it is directly affected by it. Given the importance of this topic it is therefore addressed further on in this report.

Other comments on fundable cost items made during the interviews mostly concerned comparatively minor matters. At least one third of all comments referred to cost items in the area of laboratory and research consumables, for example, and said that a more liberal policy on these together with higher ceilings for spending was desirable. This observation was reinforced by the results of the online survey, where 54 percent of respondents found it to be 'very important' or 'important'.

Interestingly, the second most-important demand made by Swedish Project Leaders in the online survey – to increase funding for short visits for new project identification and funding (67% 'very important or 'important') – played only a minor role in responses in the interviews. One interviewee suggested such a scheme, for the identification of suitable partners for a new IGP, and for developing the initial design of an IGP project. Another pointed to the very successful project identification mission to Mexico initiated by STINT. Through this the research team were able to access a wide new network that had led into new research and networks across Latin America – for which they were able to attract new (non-IGP) research funding.

The majority of interviewees and open-question respondents found that the amount of their IGP grant was adequate in relation to the activities to be financed. A small number advocated awarding more substantial amounts to IGP projects, even if this meant a reduction in the number of cooperative ventures funded.

Subject area and country focus

The IGP is an 'inclusive' programme, in that it is open to applicants from all subject areas and for cooperation with all countries of the world (even though an attempt had been made, in a period of the programme's existence, to prioritise partnerships with a number of countries). There were relatively few comments from interviewees on this practice. Most who responded very much favoured the inclusive approach; they stressed that subject or country considerations could only be second after the over-riding priority of excellence. There were occasional pleas for a stronger focus on the Humanities and Social Sciences, which were considered to be underrepresented in Swedish international cooperation. Interestingly, such comments came not only from the Humanities-Social Sciences group. A few interviewees advocated country priorities, but almost everybody proposed different ones. Some suggested a concentration on the US and other 'leading edge' research countries, as this Project Leader:

> *It is essential for Sweden to cooperate with leading international research teams and most of these are in North America. ……. USA also controls the international journals so cooperation helps to ensure high profile for any research publications.*

Others spoke in favour of growing new partnerships with up-and-coming research nations, such as the BRIC countries. One researcher strongly advocated the identification of a limited number of precisely defined scientific fields, which would be given priority for a given period, and for which applications for sizeable projects should be encouraged and later negotiated in detail with the selected applicants.

Repeat applications

A number of grantees challenged the wisdom of limiting funding for the same partnership to one single instance. Those advocating the possibility of a second IGP contract for the same project teams argued that partnerships between teams which had previously cooperated usually produced better results and, anyway, progressed faster. Analysing the online survey results, we found that those partnerships which were run by partners with previous experience in working together had marginally better outcomes than those where partners had been little known to each other previously. We stress that differences were small, given the high levels of success that all the partner teams reported.

Proposals for a second IGP grant with the same partner can be distinguished into those where the partner constellation remains the same, but the joint research proposed is new, and those others which simply require an extension to continue with their present project (not only in terms of duration, but also *funding*). For the latter case, one Swedish Project Leader proposed the introduction of a 'phase-out' grant, which was to make sure that the collaboration would not come to a sudden halt, but could be continued at a lower level of intensity for some time and until new funding sources would have been accessed. Further comments referred to the four-year funding period, which a fair number of interviewees considered to be too short. Several Project Leaders reported that the IGP funds had run out

before Doctoral Students had completed their research, particularly as appointing a Doctoral Student always took time and their appointment was for a minimum of four years. Perhaps some of these were not aware of the possibility of an extension in time (although *without* additional funds):

> *The STINT grant finished at a very inopportune time just as the project was gaining full momentum (the equipment had only just gone live). Not being able to apply for continuation was a major impediment.*

> *I very strongly support IGP. However my main concern is that you can only apply once. You should be allowed to apply for a second set of funds and compete with all other new ones. The project should stand on its merits. The excellence of both partners must be the over-riding criterion for choice.*

> *Much of the same is highly recommended – with the possibility of extensions as 4 years is relatively short. After 12 – 24 months of 'settling down' it then takes time to grow relationships. PhDs are 4 years+ and thus still actively researching when funds are finished.*

Marketing and visibility

Unexpectedly for the evaluation team, a considerable number of interviewees introduced the issue of the visibility of the IGP, and of the STINT Foundation more widely. The overwhelmingly clear message, brought up almost unanimously, was that the STINT Foundation was carrying out its highly appreciated work almost 'in secrecy'. The belief was that the STINT Foundation was marketing itself and its programmes, the IGP included, in a less than forceful way. By this, STINT was doing neither itself nor the IGP a favour – it had great stories to tell. Stronger information and marketing measures were needed, inclusive of campaigns for the IGP (and STINT's other programmes). One interviewee, who was unconditionally supportive of the IGP, greeted the interviewer with the words: *"if they only marketed the programme properly".*

The Foreign Project Leaders and the Swedish beneficiaries apart from the Project Leader most often reported a low profile of STINT. Both groups are, of course, naturally less likely to be in direct contact with the Foundation, so that this is to a degree understandable. This notwithstanding, interviewees felt that to leave the information responsibility entirely to the Swedish partner was inadequate and robbed the Foundation of a chance to raise its profile in the research communities outside Sweden. Without STINT ever making a direct contact with them, there would even be the danger that the Foreign Project Leader never learned about the origin of the funds supporting their research. In fact, one Foreign Project Leader admitted he had become aware of having benefited from STINT funding only through the interview for this evaluation. This relatively low level of information about and awareness of STINT and the IGP grant was also characteristic of some Junior Researchers. One – perhaps not too probing – interviewee from among the Swedish Doctoral Students believed that STINT was a part of the European Commission. Given that today's Doctoral Students can be tomorrow's senior scientists (and thus potential IGP applicants), a higher level of information and awareness is desirable.

Some Swedish Project Leaders also suspected a link between the recent fall in IGP applications and the low profile marketing efforts, implying that more determined promotion

activity would also help raise application numbers to the earlier levels. We were not able to confirm or reject this far-reaching hypothesis.[5] An ad-hoc web search by 'googling' the words 'STINT Institutional Grants Programme' found that there is clearly a presence of the IGP on the internet, though most hits were on STINT's own website and those of programme beneficiaries.

[5] Many other explanations are conceivable, amongst them the recent introduction of an 'IGP' for Junior Researchers, with which STINT might have created its own competition

5 Analysis and conclusions

This evaluation has revealed that the IGP is an unusually successful programme, so much so that it has proved almost to be an embarrassment for the evaluators. Evaluators are often suspected of trying to please their clients, by declaring the programme under scrutiny a success; none of that had guided us. The result is nonetheless a strong confirmation of the course the STINT Foundation has taken. The fact that the remainder of this document concentrates more on the little room for possible change and improvement than on the programme's achievements does not in the least weaken this overall verdict.

Outcomes and impact

The IGP has brought multiple benefits to Swedish research. Notably, it has

- Helped create high-quality research partnerships. 83 percent of all Swedish Project Leaders felt they had been fully or largely successful in the pursuit of this aim.
- Yielded a rich harvest of scientific publications, which are a classical indicator of relevant research outcome: 1,165 publications in international refereed journals (over six per project) were reported, as well as additional 'other publications', amongst them books, review articles and chapters in books.
- Encouraged new research and new research methods to develop and flourish in Swedish institutions.
- Attracted foreign researchers to work in the Swedish university system.
- Resulted in the attraction of additional direct funds from other sources, at an estimated total amount of at least SEK 300 million, or about SEK 1.5 million per project. Given that the IGP investment was about SEK 430 million over the period 1996-2005, the direct leverage effect achieved was 70 percent.
- Produced further results, though at a more modest level, such as patents applied for and commercial spin-offs.
- Contributed to, and enhanced the careers of, over 700 young researchers. This very big success is dealt with separately below.

It is important to stress that the cooperative projects which have produced these outcomes and impacts would not have come about without the support through the IGP. The vast majority of Swedish and Foreign Project Leaders clearly stated that they would not have entered into cooperation without the support from STINT, or would only have cooperated at considerably lower rates of intensity. Also, the record of the IGP is all the more impressive since the programme covered only a relatively small proportion of the overall project costs. In other words: there is a very considerable leverage effect (beyond that of the above 'additional funds').

Funding issues

The total investment made through the IGP in the period from 1996 to 2005 (project start year) was about SEK 430 million. In addition to the IGP funds, there was extra direct support from the project partners amounting to about SEK 300 million, each side contributing roughly

equal shares. It should be stressed that this comes on top of the very significant indirect contribution to the core research costs, i.e. for staff, infrastructure, equipment and consumables, for example.

An analysis of the sources of additional funds (beyond support from the IGP teams' own institutions) on the Swedish side revealed that the major contributions came from the Swedish government, and the Swedish Research Councils as well as foundations. Given the importance of these additional funds, they might be an item for inclusion in an 'International Dialogue' possibly to be started with other Swedish funding entities to assess how the various bodies involved in supporting Sweden's international research cooperation might be more synergistic. We understand that this does occur informally, although not necessarily systematically. We would see good reasons to start such a dialogue to explore joint funding possibilities in particular with a view to Doctoral Students.

Additional contributions to the IGP from non-Swedish sources also appear to have potential for growth. For example for certain countries (particularly some Middle and Lower Income countries), the possibility of 'negotiating' partner contributions with the foreign governments concerned might be possible. However, this would require earmarking some IGP funds for those countries, which would have wider ramifications in relation to country prioritisation. This issue is discussed further below.

IGP funding per project, although fluctuating annually, has reduced over the period covered by this study. However, the staff interviewed expressed that the funds were adequate to meet their needs for travel and living support. With just one or two small exceptions, they did not experience difficulties with covering living costs. It can thus be concluded that the current grant levels for each IGP recipient are on balance adequate to meet the programme requirements, i.e. essentially to provide for the travel and living costs of researchers. The needs suggested for other support (e.g. for Doctoral Students and contributions to equipment/consumables) are discussed below.

As has been discussed in a number of sections in this study, the recipients of IGP awards have praised the STINT Foundation for the flexibility adopted to support the effective delivery of the projects. In most projects, the profile of spending over the four year period tends to be low for the initial years and higher for the last one or two. This is understandable and STINT should continue to recognise this and to continue to allow funding 'spill over' into additional years (i.e. grant extensions of project duration to use up remaining funds).

Research training and career enhancement of young researchers

The training of young researchers in an international setting and the enhancement of the careers of Junior Researchers is one of the foremost objectives of the IGP. Our research clearly found a major and positive impact of the IGP on the career development and on the development of qualifications and skills of the young researchers involved. In the period from 1996 to 2005 (project start years), the IGP has

- Provided upwards of 700 young researchers with the opportunity of one or various stays abroad;
- Contributed to the completion of some 300 doctorates;
- Resulted in additional publications of the young researchers;

- Provided training in new research techniques; and
- Very visibly facilitated the career progress of young researchers.

Beyond the quantitative evidence provided, the interviews we conducted revealed many other beneficial results of IGP stays abroad. The Junior Researchers often experienced a considerable rise in the quality of their work, a boost in academic self-confidence, a peer-induced reinforcement effect (to make them decide to choose research as their future career), a widening of disciplinary/thematic interests, a heightened openness to interdisciplinary work, and the start of the building of their personal international research networks.

Doctoral Students: Despite of this impeccable record, the IGP is faced with a challenge in what is probably the most important sub-group of Junior Researchers, the Doctoral Students. The challenge we are talking about is not of the IGP's making; it is a system trait of Swedish university research, which the IGP cannot solve. Nonetheless, the problem affects the IGP. It is a fact that Doctoral Students are employees in Sweden, and that the cost of a Doctoral Student employee is high by international comparison. In the interviews we conducted, we were given to understand that the high cost leads to a relative 'shortage' of Doctoral Students in the country, and, as a result, a more limited pool of candidates for an IGP exchange from this group. However, it is not clear beyond any doubt that the high cost is the root cause for problems of availability of Doctoral Students in IGP projects (or whether other reasons play a major role too, such as, for example, family obligations. Only since we lack ultimate evidence, we have refrained from making a recommendation regarding Doctoral Students in the IGP, which we originally intended to do. This recommendation would have been for the STINT Foundation to address the issue by entering into an 'international dialogue' with other Swedish research funding bodies. This dialogue would explore the potential for cooperation with partners from the field of core research funding – such as STINT's various sister foundations and the Swedish Research Councils. One possible formula for joint action to emerge out of this dialogue could be that these partners provided funding for a limited number of PhD Student positions in IGP projects, while STINT continued to restrict its own role to the funding of exchanges.

Country and subject priorities

As stated before, the IGP has a number of characteristic traits, which together make up the programme's formula. Two of these traits, which have earlier been labelled 'inclusive', are that the programme is open for project applications from all subject areas and with all parts of the world. With regard to partner countries, STINT has for some time experimented with 'priority countries'. However, we understand that considerations related to partner countries and subject areas have always been subordinate to a priority on research excellence.

Country prioritisation: By far the largest proportion of the respondents to our questionnaires and our interviewees endorsed the 'inclusiveness approach'. As this study has demonstrated, it has delivered high levels of benefit for Sweden and Swedish researchers. The large majority of Swedish Project Leaders stated that there should be no constraint on countries for partnership. However, there was a small minority of Project Leaders that questioned this and suggested that there should be some form of country prioritisation. Without there being a consensus, countries and regions proposed for prioritisation included the BRIC countries, East Asia, and the Lower and Middle Income countries. They pointed to the fact that a stronger focus on the institutional development of the foreign partner should be an important

consideration for any partnership. This argument is somewhat strengthened by our finding that across all these countries the IGP has also proved to date to have been very successful in terms of research outcomes.

A further argument put forward for growing partnerships with, for example, BRIC or MIC countries was that these would represent a strategic investment for the future of Sweden and Swedish research and would provide longer term returns. However, the counter argument would also seem to hold: partnerships with teams in more established research countries (e.g. in North America and West Europe) are well understood and have a high record of success, particularly in the short and mid-term. A difficulty likely to be encountered with MICs and LICs is that their capacities to cooperate in 'frontiers' research partnerships are limited as they only have a small number of research teams of international repute. It is also less likely that there are in these countries many researchers already known to the Swedish staff, with whom they might wish to grow partnerships.

Further with regard to country priorities, it is worth pointing out that the research impacts in partnerships with East European countries were found to be high, particularly in terms of doctorates awarded and publications. Given that there are a relatively few IGP partnerships with universities from these countries, some additional encouragement for engagement might prove beneficial.

On balance, there are pros and cons with regard to country prioritisation. Ultimately, the issue of country prioritisation is a policy choice which only the STINT Foundation can make. STINT must decide if the IGP should support only the highest quality of international research cooperation (with the likely result that most projects to be approved will be with North America and West Europe) or if it wishes to prioritise any particular countries, and, if so, which. If the latter policy is to be adopted, this would have obvious repercussions on the process of evaluating and ultimately selecting project applications. What is not likely to work is the existence of the parallel priorities of research excellence and country prioritisation.

If the STINT Foundation should decide to opt for some form of country prioritisation, consideration should be given to:

- Providing travel grants for some kind of 'identification' mission or studies to allow Swedish researchers to visit the countries prioritised and to identify possible research partners.
- Adopting country specific programmes with 'shadow' allocations, e.g. Sweden-China partnerships, supporting a limited number of partnerships per annum. and
- Negotiating some form of matching partnership funding with the country concerned, such as, in the case of India the Department for Science and Technology, which has specific funds for foreign partnerships. China has similar possibilities.

Subject prioritisation: As with country prioritisation, very few of the Swedish Project Leaders surveyed and interviewed supported the idea that any subject area might be prioritised. Again, most stated that the quality of the proposal should be the sole criterion.

This evaluation has shown that there were no significant differences between subject areas in terms of impact and outcomes. The only small disparities apparent between subject areas were in levels of publications and staff recruitment. However, it should be pointed out again

that both the Swedish and Foreign Project Leaders of Humanities-Social Sciences projects reported the greatest dependency on IGP funding for establishing a project. Projects in this area would have been the least likely to proceed if they had not received IGP support. One Swedish Project Leader (from a Natural Sciences discipline) suggested that the Humanities-Social Sciences might need some special support, given that projects in this area were the least likely to be able to attract additional non-IGP funds. However, this observation was not fully confirmed by the aggregate data from the online survey, where Technology projects were reported to have ultimately attracted the lowest additional funds per project.

Interestingly, and still with regard to Humanities-Social Sciences, there was evidence that the Junior Staff in the Swedish teams were mainly Swedish nationals, whereas there was a wide mix of other nationals involved in the other subject areas. This is possibly an indication that the Humanities-Social Sciences are able to attract sufficient numbers of young Swedish researchers and do not need to recruit internationally at the same levels as the science related disciplines (or that they are not able to recruit internationally).

There was also strong opposition to the concept of any form of subject prioritisation based on the relative potential of possible future commercial innovation.

Again, the question of whether or not to prioritise particular subject areas requires a policy decision by the STINT Foundation. If a particular area should be prioritised, an obvious candidate, from our research results, would be the Humanities-Social Sciences. Again, such a priority would need to be underpinned by the criteria to be followed in the process of evaluating and selecting project applications. In this context, we would like to point out that the introduction of *country* priorities would have a bearing on subject area priorities, too. If, for example, the East Asian countries were given a priority, where Technology currently dominates, this would probably not be easily reconcilable with a focus on the Humanities-Social Sciences.

By and large, the findings of our research do not suggest that changes in the country and subject area policy are necessary, indeed even desirable, if research excellence remains the major criterion.

Professional staff

The IGP has directly resulted in the recruitment of foreign professional staff to Sweden and Swedish research teams. The evidence is that the migration of professionals to Sweden has been into a number of subject areas where there have been shortages, particularly in some areas of Natural Sciences and Technology. IGP supported partnerships have directly facilitated this inflow: Swedish Project Leaders reported that they were able to identify appropriate researchers and encourage them to visit Sweden.

An area of some concern and one that was found to have had an impact on project outcomes was the availability of staff for project delivery at the required time. A common experience mentioned was that it had proved difficult to recruit an appropriate staff member, particularly a Doctoral Student or Postdoctoral Fellow. This is discussed further below

Duration of visits: There was found to be a positive correlation between the length of time spent in the partner institutions and research output: generally the longer the time spent with

the partner the greater the likelihood of enhanced research success. The correlation with length of stay was seen across all Junior Researcher levels, i.e. for Doctoral Students and Postdoctoral Fellows alike. The best research impact was reported for visits of a duration of three months or more.

One might of course argue that the correlation between duration of stay and research output is trivial, since more research work can normally be done when more time is available. However, we still feel that the fact that returns per project are higher with longer stays (even though, as explained, short stays can also have very positive effects) needs to be taken into account in the planning of projects. This is of course a difficult area over which to regulate, particularly as many factors (personal, financial, other research commitments, availability of equipment) can all contribute to delays or non-availability of staff. However we would suggest that IGP guidelines for project teams do clearly advise that:

- Evidence from previous evaluations indicates that there are greater potential research returns in the case of stays of three months or more;
- Joint project plans and partner agreements should indicate when and where the staff will be needed; some element of risk contingencies should be built into the plan.

Foreign Project Leaders

One finding of the study was that while the majority of Foreign Project Leaders believed they were involved in the project to grow a high quality research partnership, they also perceived themselves to be supporting the institutional development of the Swedish partner institution. This contrasted with the Swedish Project Leaders' perception that all activities were mutually beneficial and complementary. On reflection, this finding might not be quite so surprising given that the initiation, direction and funding of the project was mainly derived from Sweden (although there was direct funding from the foreign partner of close to SEK 1 million per project).

A number of Foreign Project Leaders also reported that they had not felt sufficiently engaged with the Swedish team in the planning and delivery of the project. Many were also unaware of the exact funding available. We see a number of approaches which can help bridge the partner teams and ensure a shared commitment. Amongst them are:

- The joint submission of the IGP application with a required sign-off of the document from both partners;
- Some form of written agreement (Memorandum of Understanding, exchange of letters, or similar measures) between the two teams;
- An annual planning meeting involving both teams in full;
- A routine joint (annual) review and joint submission of monitoring and evaluation reports to STINT;

The annual review meeting involving all members of both teams (and not only the two Project Leaders) might seem an expensive approach, but it could be built into the regular research visits.

Closer and greater engagement between partners should also take place at both the project planning and routine reporting stages. There should be joint sign-off for the application to

STINT and then a written agreement between the two groups, setting out roles, responsibilities and financing. Such close engagement will provide benefits and help ensure project success. Understanding each other's perspective is vital, as one foreign Project Leader said:

> *Try to obtain a more realistic idea of the foreign partner's own priorities rather than assuming they are similar to Sweden's academic environment. Its goals contrast sharply, which should be assessed at the start of a project. For example, 'publish or perish' ideals important in Sweden (or the US) are almost out of place in my country …*

Programme administration and project delivery

All our research has shown that the STINT Foundation's style of the management of the IGP is characterised by flexibility, responsiveness towards the concerns of the programme beneficiaries, and a high degree of accessibility (of its staff). This is one of the trademarks of STINT and highly appreciated by researchers. Rarely are administrations held in such high regard, and STINT is well advised to adhere to its management style. We are, however, convinced that it is possible to reconcile STINT's rightly praised 'light management' style with a modest degree of formalisation and increased transparency, this approach might cover:

Guidelines: many Project Leaders appear not to be aware of some the basic (non-negotiable) rules by which the programme is run and, as a result, all sorts of 'myths' about the IGP are in circulation. A clear set of IGP guidelines particularly to cover financing, partner agreements, reporting and evaluations, and also the conditions that determine duration and possible extensions, would be welcomed by the project teams.

Evaluation: STINT should provide clearer information on the criteria and considerations guiding the evaluation of projects and their eventual selection or rejection. A 'score sheet, with the valuation criteria and their weightings, should be provided at the application stage, followed by the communication to all of the results of the evaluation exercise, i.e. the provision of information to applicants on the overall score they received (minimum) and on their scores for individual evaluation criteria (desirable), perhaps with comments on areas for improvement in future applications.

Introductory Workshops: prior to the submission of applications there could be 'introductory' workshops for Swedish researchers at two or three locations in Sweden. These would profile the IGP and clearly explain the guidelines, application and evaluation processes and how best to work with project partners. These workshops would also help to promote the IGP and make it still better known in the Swedish research community.

Written project agreement: few partners have any form of written agreement setting out such areas as demarcated work plans, staff deployment needs, timing, funding arrangements and ensuring that there is a shared commitment to and understanding of the terms of the agreement with STINT for the IGP by both (or all) partners.

Reporting procedures: some formalisation of reporting procedures beyond the present level would be very helpful. There is now a form to be used in the context of the final report, with fifteen 'closed' questions, but the bulk of reporting is still free format, and the exact items covered and the degree of detail delivered varies considerably from case to case. For

example, for the final report and the interim reports ('annual monitoring reports' proposed), a simple series of closed questions to cover most of the aspects of delivery should be developed – with perhaps an additional area for comments or requests to seek variations to the original agreements with STINT (e.g. for an extension).

Sharing experience: There is an impressive and wide ranging mix of talented staff with great experience in the delivery of successful IPG projects. One means to ensure that this experience is shared across all IGP projects would be for STINT to organise an annual workshop of current IGP projects. This workshop would, first and foremost, target the Swedish teams, but it could also involve some foreign project partners.

Intellectual property rights and ethical considerations

Considerations relating to intellectual property and ethical issues have not been systematically built into the IGP, to our knowledge. While there have been no serious difficulties experienced to date, this is possibly only good fortune. This could be a problem waiting to happen.

Given that a significant proportion of the projects are in Medicine related disciplines and that some involve, for example, animal experiments or working with patients, it is essential that the Swedish teams ensure that their foreign partners are respecting the same ethical standards as they are required to meet in Sweden. Conformation of this should be covered specifically in both the project application form and also the written agreement between the partners - and endorsed by a senior representative of both institutions.

Similarly, with regard to Intellectual Property Rights, we found no evidence of agreements over the sharing of patents or other forms of possible commercial exploitation of research results. Again, arrangements for Intellectual Property Rights should be signed off both on the application forms and the final agreement between partners, to reflect the shared interests of both parties and in accordance with each partner's institutional or individual agreements that cover IPR.

Sustainability

This study found that the IGP does indeed create lasting relationships, one of the key objectives of the programme. The fact that these might not remain 'institutional', but rather between the members of two former IGP-involved research teams is beyond the programme's reach and largely a result of the considerable degree of inter-institutional mobility of researchers. Beyond that, the IGP results in linkages with the potential of sustainability. However, our interviews also revealed that the end of IGP funding often marked a moment from which onwards the extent of collaborative activity might reduce markedly. One area of consideration could include the creation of better 'transition conditions', possibly to include a smaller additional and reducing grant to facilitate transition and to reinforce the potential of sustainability.

In addition it was also found that the IGP projects also resulted in the growth of successful formal and informal research networks. These often require nurturing, as our research revealed. We suggest that modest funding support for these might also be included in the 'transition grant'.

The projects selected for 'transition' funding would need to be able to demonstrate a high level of achievement (for which criteria must be established) and would need to submit a strategy how to become fully sustainable at the end of the transition-funding period. This deserves further consideration by STINT as we are aware that such an allocation could reduce funds available for new IGP awards.

Repeat applications

The question if a re-application from the same project partners should be allowed was found to be contentious, whether for the continuation of the existing research or for exploring new directions. There is good evidence that those partners who had developed a close working relationship with mutual advantage had a high research impact. Since the purpose of the IGP is to benefit Swedish research output, it is important to nurture such partnerships. It is therefore worth considering allowing re-applications. If the STINT Foundation does ultimately decide to allow re-applications, these should be required to compete with new applications on an equal basis. There should not be any 'fast track'. However, the provision of some form of 'transition' funding should go some way towards meeting this requirement.

Visibility

This evaluation has yielded strong indications, particularly from the Swedish teams, that the IGP Programme is not as well known as it deserves to be. This is unfortunate, because the STINT Foundation does not get all the credit it could get for its valuable work from as wide an audience as possible. This could even translate into an IGP problem, if the trend of significantly falling IGP application numbers continues.

There was a strong belief amongst interviewees that STINT should more actively raise its own visibility, and particularly that of the IGP, and to engage in appropriate measures of information provision and marketing. We would support this although we are aware that such measures must be limited in scope and therefore highly targeted, given the Foundation's scarce human resources. The focus of any promotion should be primarily on Sweden.

Teaching and learning

One area where the record of the IGP was less than hoped for was in teaching and learning ('education'). In order to avoid any misunderstanding: by 'educational activities' in the area of teaching and learning we refer to 'undergraduate' (sub-PhD-level) teaching and exchanges, and the creation of curricula for 'undergraduate' students. When we talk about an 'educational deficit' of the IGP, we are thus expressly excluding the training of Doctoral students, an area in which the IGP is highly successful. In sub-PhD education, however, the IGP has not left a mark. IGP beneficiaries made it clear that they did not regard this as a priority and they have accordingly not developed sizeable activities in the educational domain. It is clear that this component of the IGP is regarded as 'optional' by beneficiaries and this attitude is unlikely to change.

There is however no doubt that successful international partnership in the area of teaching and learning can be set up, also with Swedish participation. The EU Erasmus Mundus Programme or the curriculum development segments of the EU Erasmus Programme (now

part of the Lifelong Learning Programme) demonstrate that there is a demand for international curriculum development. But it is relatively common that university staff who are very active in research are not necessarily the same as those very dedicated to teaching and learning collaboration. In other words, the target groups of potential applicants are probably different.

The STINT Foundation should therefore consider again the importance it attaches to international collaboration in teaching and learning. Should it come to the conclusion that this is an important area for intervention, it would probably need set up either a separate IGP in this area, or earmark a part of the funds (or set a quota) for projects with a definite teaching and learning focus.

International students

The Swedish Project Leaders reported that their projects had also enhanced the inflow of international students into their universities. The existence of many IGP supported partnerships with a wide variety of countries has great potential for the promotion of Sweden as a high class destination for international students. The growing need to recruit more international students has been reported by a number of Swedish academics and institutions. Indeed, several Swedish Project Leaders commented that those international students they currently attract are from a relatively narrow group of countries and that this restricts their potential to select the best.

Recent approaches, from the US, Australia and the UK, for example, have emphasised the need to grow international university partnerships as a means of extending their outreach and, through this, to attract more high quality students. The promotion of the successes of their partnerships in the countries concerned can serve to increase awareness of the quality and goodwill of the destination country.

6 Recommendations

Recommendation 1
The STINT Foundation should continue to support the IGP, which is a highly successful programme. Therefore, we are proposing only minor modifications.

Recommendation 2
The STINT Foundation will need to decide on the importance it attaches to the 'education' component of the IGP. All indications are that, under the current focus on research excellence, the teaching and learning element of the IGP will always remain secondary. Should growing educational collaboration remain an objective of the IGP, we recommend that a quota of projects be set aside for an 'education IGP', applications for which would need to be assessed separately.

Recommendation 3
The STINT Foundation needs to take a policy decision with regard to possible country and subject area priorities for the IGP. The present policy of inclusiveness (non-prioritisation) is compatible with the overriding concern with excellence in research. If STINT should decide to introduce country and/or subject area priorities, the present key criterion of research excellence cannot be upheld, and STINT is advised to introduce different evaluation criteria.

Recommendation 4
We recommend that the STINT Foundation adopts a more proactive approach with regard to the provision of information about the IGP and its promotion and marketing. Such measures should target mainly, but not only, the Swedish research community. They could include:

- regular email alerts to heads of departments of Swedish universities;
- information and promotion workshops in two or three Swedish university locations prior to the deadline for the submission of IGP applications;
- the possible creation of an IGP alumni association, which would hold a highly publicised annual event, and whose members could also take roles in the above information and promotion seminars; and
- an electronic IGP Newsletter, to appear twice or three times per year.

Recommendation 5
We advise the STINT Foundation to review its rules for re-applications and applications for the extension of funding for running IGP projects. We would suggest that STINT considers minimally the introduction of a 'transition' grant', for a limited number of projects to be selected on the grounds of need and prior project success.

Recommendation 6
We recommend that the STINT Foundation adheres to its rightly praised 'light management' style, but we also recommend to complement this approach with the introduction of a few

measures aimed at creating a modest degree of formalisation and increased transparency. Some possible approaches for consideration include

- The setting and publication of clear guidelines and their efficient communication to project applicants and beneficiaries, via the STINT website and in written communication, concerning at least
    - the conditions for an extension of project duration;
    - the conditions for new applications from the same Project Leader;
    - the conditions for the substitution of partners;
    - the basic requirement for the project consortium (bi-laterality, multi-laterality, maximum number of partners, in case of limit).
- The publication of the criteria for the evaluation of project applications, ideally in the form of a score card and the communication of the result of the evaluation;
- The creation of a standard format for final and interim reports (ideally on an annual basis), with closed questions mainly, and an additional provision for free text 'remarks'.
- The development and provision to beneficiaries of guidance on project delivery, in the form of a 'good practice guide'.
- The development and provision of a model partner agreement, covering aspects such as respective roles, responsibilities and funding arrangements.
- A regular (annual) meeting of Swedish Project Leaders for the exchange of experience and good practice, possibly attended by some Foreign Project Leaders.

Recommendation 7
We recommend that STINT establishes a minimum degree of contact with the Foreign Project Leaders. They should be notified routinely at the project award stage, and they could additionally receive the IGP Newsletter.

Recommendation 8
It is recommended that STINT addresses Intellectual Property Rights (IPR) and other ethical issues. Arrangements in this field could be covered in the partner agreement and would need to be signed off by both the Swedish and the Foreign Project Leader.

We shall be glad to advise STINT on the concrete measures to be taken to implement these recommendations.