EVALUATION OF THE STINT INSTITUTIONAL GRANTS PROGRAMME

FINAL REPORT

inno Scandinavia

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Summary

Introduction

1. This is the summary of an evaluation of the STINT Institutional Grants Programme (IGP). The evaluation was undertaken by SQW Limited in collaboration with inno Scandinavia.

2. The objectives of the IGP are to encourage the strengthening of Swedish research and higher education by establishing new forms of international cooperation. IGP is a unique programme. It provides funding on an institutional basis over a relatively long time period. A wide range of activities are eligible for funding, but not the costs of research itself, and an explicit intention is that staff and students, as well as principal investigators, are engaged in projects. Since 2002, STINT has identified priority countries for cooperation, principally the dynamic Asian economies, but quality of project is the principal criterion for funding.

3. The programme began in 1996 and some 170 projects have received funding with a value of SEK 260 millions.

4. The key fieldwork tasks of the evaluation were interviews with 40 IGP grant holders and an email survey of all other projects, which generated 64 responses. Consultations were also held with a range of other agencies in Sweden.

Key findings

5. IGP is widely perceived as supporting research cooperations and the vast majority of projects are concerned with research. There is, however, nothing in the programme rules to exclude other forms of international cooperation.

6. Overall, we judge the programme to have been successful. It has generated high volumes of cooperative activities which could not have been funded from other sources and Swedish participants have derived real benefits. These include:

- access to leading researchers
- access to new networks in the partner country, and beyond
- increases in the resources available to Swedish research through, for example, partner supervision of Swedish post graduate students
- in a few cases, leveraging funds from the partner country
- access to special environments for experimental purpose

7. Teaching and learning enhancements were seldom the primary aim of projects but benefits have nevertheless arisen, including:

   - student exposure to foreign lecturers and researchers
   - joint development of new courses
   - adoption of learning techniques and materials developed by the foreign partner.

8. The nature of IGP funding has been critical, in particular:

   - the long term nature of funding means that participants can plan and structure collaboration
   - the flexibility of eligible activities, and the inclusion of junior researchers and students as well as principal investigators, means that collaboration can be spread within the research group
   - although applicants need to submit plans, these are not fixed; STINT can, and does, respond to changes in expenditure plans to accommodate new opportunities if and when they arise.

9. Grant holders were generally appreciative of the way in which the IGP is structured and managed by STINT. There is, however, limited awareness of the country priorities. Many of those who were aware questioned the actual list, and some the need for any list of priority countries.

10. Almost all grant holders envisage a substantial decline in the IGP activities (regular visits, workshops, summer schools etc) once the project is completed. This reflects an absence of alternative funding sources. Many expect that collaboration will continue, but this may relate to a narrower research project and will involve fewer individuals.

Recommendations

11. The basic structure of the IGP is well designed and 'fit for purpose'. Our recommendations are designed to enhance the effectiveness of IGP spend and encompass:

   - Identification of research projects which are likely to have the greatest impact
   - Extension of the programme to include projects with an education, as opposed to research, focus. This does not require any change in 'rules' but will require STINT to actively encourage such projects and will also have implications for the process by which applications are assessed
   - Some modifications in the way priority countries are handled
   - The introduction of support for project planning prior to embarking on a full project.

More effective research projects

12. There are a small number of projects which claim to have realised a step change in capabilities as a result of cooperation. We recommend that STINT should encourage more applications with such ambitious aims. More generally, STINT should seek to distinguish between those projects which are likely to develop new capabilities in Sweden and those which, although potentially valuable, are more focused on extending existing expertise and widening networks where the impacts may be marginal to the research groups involved

13. There are substantially fewer projects in the humanities and social sciences than the size of the research community would suggest. STINT has encouraged these projects and their success rate in securing IGP grants, relative to applications, is high. We have only reviewed a small number of such projects, some of which have been successful on any criteria, but there is some evidence to suggest that the IGP may be substituting for research funding in some cases. We recommend that applications in these areas should be scrutinised carefully from the perspective of whether they will genuinely contribute to internationalisation.

Extending the IGP to teaching and learning projects

14. Analogous benefits to those arising from international research collaboration can also be derived from collaboration on teaching and learning[1]. Such projects are eligible for IGP support, but the perception of IGP as a research programme inhibits applications. We recommend that STINT actively encourages such projects and, as is discussed below, modifies the system for evaluating proposals.

Project planning

15. We recommend that the initial phase of a project could be used to plan the cooperation. This would include selection of suitable partners. Applicants, if they elected to, would submit proposals for a 'full' project including a planning phase. They would be given in principle approval for the full funding subject to a satisfactory outcome of the planning phase.

Country priorities

16. We believe there is a rationale for a priority list but would recommend:

- as at present, the priority list should not override considerations quality of outputs and impacts
- STINT explained the reasons why countries were included on the list, and identified the broad areas of science and technology where the priority country is considered to have existing or emerging strengths

[1] Illustrations of the kinds of projects we have in mind are provided in Annex C to the main report.

Assessing applications

17. The main implication of our recommendations for the assessment of applications is that research quality and potential cannot remain the only or principal criterion. We believe there are two options open to STINT for assessing proposals:

- the overall applications process could be modified by the identification of peer reviewers who would make an initial assessment of proposals as individuals. Some would have research expertise but experience of innovation in teaching and learning must also be available. The applications would then be referred to a single panel which would make recommendations to the STINT board.

- the extension to teaching and learning could be explicitly introduced on a pilot basis, with a notional allocation of funding (although this sum need not be communicated to the academic community). STINT could establish a separate panel to assess proposals with a significant teaching and learning component on an equivalent basis to the current subject panels. The panels would provide advice to the STINT board.

18. Both approaches enable STINT to control the balance between teaching and research projects in the light of the volume and quality of applications. Our preference is, however, for the first which avoids the need to make a prior allocation between research and teaching.

1 Introduction

1.1 The STINT Institutional Grants Programme (IGP) provides funding for long term cooperation between Swedish and foreign institutions for projects of up to SEK 4m which normally last for a period of up to four years. The scope of the cooperation is intended to include both research and education and can involve any subject area including the natural sciences, technical, medical and humanities and social science.

1.2 The objectives of the programme are to encourage the strengthening of Swedish research and higher education by establishing new forms of international cooperation. The STINT Foundation does not support ongoing cooperation that has long been established. The programme began in 1996 and some 170 projects have received funding so far with a value of SEK 260 millions.

1.3 The objectives of this evaluation were to provide an assessment of the extent to which the IGP has contributed to the mission of the Foundation as expressed in its statutes 'the internationalisation of Swedish higher education and research'. In particular, the benefits and constraints of participating in the programme and extent to which the programme has contributed to real beneficial change rather than acting as just another source of funding.

1.4 The work was carried during 2003/2004 by SQW Limited in collaboration with inno Scandinavia.

The research approach

1.5 The initial research involved discussions with Principal Investigators (PIs) from a sample of the projects undertaken during the earlier part of the programme over the period from 1996 – 1999 using the aide memoire attached as Annex A. This sample comprised 13 projects based at five Swedish Higher Education Institutions.

1.6 The initial part of the evaluation was intended to:

- explore general issues of internationalisation
- explore the impacts which the programme has had on participants
- discuss the potential indicators of these impacts
- identify information on impacts which might be made available to the study

1.7 This part of the research was also intended to provide a more thorough understanding of the IGP programme. The sample was not representative since we wished to include only completed projects in order to explore outcomes and impacts as thoroughly as possible. However, it did include a range of institutions, partner countries and subjects – social sciences as well as natural sciences and medicine. The results were presented to STINT as an interim report.

1.8 Following the initial assessment a more wide ranging programme of interviews was undertaken in the second part of the study. In all interviews were held with an additional 27 Swedish Principle Investigators plus a range of students and other researchers involved in particular projects (see Table 1.1). We also held interviews with a range of other relevant Swedish agencies; Ministry of Education, Sida, Vetenskapsrådets and the KK-stiftelsen Foundation. Finally, a selection of reviewers of IGP projects were also interviewed.

Table 1.1: Location and discipline area of PI interviews

Organisation	Humanities/ Social S.	Medical	Natural Science	Technical
Chalmers Technical University				2
Karolinska Institute		6		0
Lund University	1		1	1
Royal Institute of Technology	1		3	2
Stockholm University	3		6	2
Swedish Agricultural University			2	
Uppsala University	3	1	5	1
	3	**1**	**17**	**1**

1.9 To provide more quantitative information about programme an e-mail survey of 146 projects was carried out (attached as Annex B). After one month all non-respondents were sent a reminder letter drafted by STINT. A total of 64 completed questionnaires were eventually returned.

1.10 A draft report was prepared in the autumn and presented to the STINT Board who provided some very useful feedback which has been taken into consideration in the preparation of this final report.

1.11 Following this introduction, chapter 2 presents background information on the IGP and this is followed by a discussion of the findings from the evaluation in chapters 3 and 4. Conclusions are presented in chapter 5 and recommendations in chapter 6.

2 Background and context

The importance of internationalisation

2.1 The scale of scientific[2] progress is such that no single country can realistically aspire to host world leadership in all disciplines, and this is especially true of relatively small countries such as Sweden. Most, but not all, scientific advances are openly published but countries cannot rely on reading about new developments if they are to exploit their potential effectively. Publication takes time and, more importantly, active involvement in research is normally required in order to judge the potential importance of published advances and to incorporate them into national research programmes and projects. 'Gatekeepers' are essential, but the role demands active involvement rather than passive evaluation of information. Active involvement in research is also essential to train researchers. For these reasons, international research collaborations are essential in order to access complementary expertise and to keep abreast of leading edge developments in a given field.

2.2 These factors mean that international collaboration can have direct impacts on research capacities. But collaboration with a more advanced group also confers prestige by association and raises the profile of the 'junior' partner.[3]

2.3 These arguments apply most obviously to research activities, but they are also relevant to teaching and learning and, more generally, the way in which higher education (HE) is structured, managed and organised. In part, because innovations may be introduced in any of these areas, but also because, in many countries (including Sweden), research and teaching in HE are closely interrelated and research collaborations can be an effective means of accessing pedagogical innovations.

2.4 There are also factors specific to Sweden (and some other countries) which underline the importance of international collaboration. These include:

- mobility among scientists in Sweden is low and becoming more rigid. In part, this reflects the high levels of female participation in the labour market (and therefore the need for two people to find new jobs when one partner moves) but, in addition, we understand the rules governing the award of professorships do not encourage mobility

[2] Unless otherwise stated, *scientific* includes humanities and social sciences as well as natural sciences, engineering and medicine

[3] For example, several of those we consulted stated that co-authorship with a leading researcher enhanced the chances of publication in top journals.

- It is difficult to recruit key post-docs from countries such as the USA to work in Sweden because of the high costs of living in Sweden, the relatively low salaries and because of concerns among such researchers that it will be difficult to return to the US at the same level. This, and the previous point, indicate there be may a need to bring in academic staff from outside the country

- Certain subjects literally have no geographic boundaries e.g. biology and oceanography, while others are global by nature, such as weather systems, ecologies etc. It is not sensible to seek to understand these phenomena from a narrow national perspective.

IGP aims and priorities

2.5 As is discussed further below, the IGP is a very flexible programme and this is one of the reasons why it has been welcomed by the academic community. It does, however, have some high level priorities:

- the objective of the programme is the renewal of Swedish research and higher education by establishing *new* patterns of co-operation. IGP will not support ongoing co-operation that has long been established

- certain priority countries and regions have been identified. The most recent call for proposals "welcomes applications for co-operation with particular countries (Brazil, Japan, Mexico, South Africa, South Korea, Taiwan and Thailand). On the same note, it is important to have proposals for co-operation with universities outside the English language area.[4]

- the interests of the Swedish partner must be at the forefront. The STINT Foundation will not support projects that will mainly contribute to the development of higher education and research at the proposed foreign partner.

2.6 It is important to note that the IGP has evolved since it was first introduced. In particular, priority countries were not identified at the outset and increasing importance has been attached to these priorities in recent years. Awareness of the priority countries has also grown amongst the academic community over time. The development of IGP over time is illustrated in Table 2.1

[4] STINT website. The call also states that "It should be stressed, that all applications will be judged on quality and to what extent they propose co-operation that will lead to the renewal of Swedish higher education and research"

Table 2.1: IGP calls for proposals

	1996	1997	1998	1999	2000	2001	2002	2003
Priority countries	In particular Latin America/ Pacific Asia	In particular Latin America/ Pacific Asia Will support humanities and social sciences from within EU	Will support humanities and social sciences from within EU	Will support humanities and social sciences from within EU			Outside English language area and; Brazil, Japan, Mexico, South Africa, South Korea, Taiwan and Thailand	Outside English language area and; Brazil, Japan, Mexico, South Africa, South Korea, Taiwan and Thailand
Indication of funding level	1 million SEK/year (4 years) – 10 awards Not reduced if foreign partner contributes	1 million SEK/year (4 years) Not reduced if foreign partner contributes	"annual sum" for 4 years Not reduced if foreign partner contributes	"annual sum" for 4 years Not reduced if foreign partner contributes	"annual sum" for 4 years Not reduced if foreign partner contributes	"annual sum" for 4 years Not reduced if foreign partner contributes	Funding for four years – can vary from year to year	Funding for four years – can vary from year to year
Eligible costs	Short and long term visits of Swedish researchers and staff to country and vice versa	Short and long term visits of Swedish researchers and staff to country and vice versa	Short and long term visits of Swedish researchers and staff to country and vice versa	Short and long term visits of Swedish researchers and staff to country and vice versa	Short and long term visits of Swedish researchers and staff to country and vice versa	Short and long term visits of Swedish researchers and staff to country and vice versa	Short and long term visits of Swedish researchers and staff to country	Short and long term visits of Swedish researchers and staff to country
Nature of collaboration	"focused area of mutual interest"	"focused area of mutual interest"	"focused well-defined area of mutual interest"	"focused well-defined area of mutual interest"	"focused well-defined area of mutual interest"	"focused well-defined area of mutual interest"	"scope should include research as well as higher education"	"scope should include research as well as higher education"

IGP: Allocation of funds

Project size

2.7 Table 2.2 shows the average size of IGP projects with respect to first year funding[5]. This indicates a steady decline, with the exception of 2000, in the average size of projects. This reflects STINT policy. The programme was (and remains) unique when it was introduced and there was little evidence on which to judge the most appropriate size of projects. STINT quickly came to the view that smaller projects might be more appropriate and the average size has declined quite significantly.

Table 2.2: IGP projects funded

Start year	Number of projects	Average size of year 1 funding (SEK 000s)
1996	18	944
1997	18	622
1998	16	542
1999	17	496
2000	21	566
2001	27	414
2002	27	460
2003	26	351
Total	170	529

Partner region

2.8 Table 2.3 shows project funding by region of the partner institution. There has been a shift away from English speaking countries, especially during 2003. However, North America (of which the USA accounts for 50 projects), has been the dominant region over the lifetime of IGP.

[5] First year funding is used in order to enable comparisons between early and late projects.

Table 2.3: Projects by region									
Year	1996	1997	1998	1999	2000	2001	2002	2003	Total
South and Central America	4	3	1	2	1	6	3	3	23
Australia/New Zealand	0	1	0	3	2	2	1	2	11
N America	6	7	11	4	8	9	9	4	58
W Europe	0	2	1	1	2	4	9	6	25
FSU/CEE[6]	0	0	1	3	2	3	3	5	17
Japan	1	1	2	1	1	0	2	1	9
China	1	2	0	2	1	1	0	2	9
Other Asia	5	1	0	0	2	2	0	3	13
Other	1	1	0	1	2	0	0	0	5
Total	18	18	16	17	21	27	27	26	170
English speaking	7	8	11	9	11	13	14	6	80
Non English speaking	11	10	5	8	10	14	13	20	90

2.9 Table 2.4 shows applications and awards to the priority countries (Brazil, Japan, Mexico, South Africa, South Korea, Taiwan and Thailand). Apart from 1996, when there were relatively few awards in total, the priority countries reached their highest level in 2003 accounting for almost a quarter of all awards. The growth appears to have taken off in 2001 when their share of applications actually fell significantly. This probably reflects two factors:

- a more explicit articulation of priorities by STINT so that, all things being equal, applications with partners in these countries were considered more favourably
- possibly, higher quality proposals in these areas as researchers recognised the IGP priorities.

Table 2.4: Applications and awards to priority countries		
	% of applications[7]	% of awards
1996		33%
1997		17%
1998		19%
1999		18%
2000	14%	14%
2001	10%	22%
2002	15%	15%
2003	27%	23%

[6] Former Soviet Union/Central and Eastern Europe

[7] Applications data is only available for 2000-2003

2.10 Interestingly, the share of applications rose significantly during 2002 but the share of awards fell and there was a further very large rise in applications during 2003 which was accompanied by more awards. The applications data does suggest that the academic community is now aware of priorities and that, at least during 2003, they were able to submit large numbers of high quality applications.

Subject areas

2.11 STINT classifies projects into broad subject areas and for the period up to 2003 the allocation was as follows:

- humanities and social sciences – 19%
- natural sciences – 25%
- medicine – 28%
- technical – 28%.

2.12 It is very difficult to judge whether these figures reflect in some sense an under representation of humanities and the social sciences. IGP is clearly dominated by other subject areas but this might reflect one or more of the following factors, on which we have limited information:

2.13 First, the relative size of the different research communities. However, we have undertaken a limited analysis of research grants, from all sources, received by higher education institutes. For the period 1999 to 2003, the shares of the broad disciplines were as follows:

- humanities and social sciences – 30%
- natural sciences – 23%
- medicine – 24%
- technical – 24%.

2.14 This indicates that humanities and social sciences are participating in IGP much less than would be expected on the basis of the relative size of the research community.

2.15 Second, there may be differences in international standing between the disciplines within Sweden. If the natural sciences, medicine and technical are closer to global leadership than humanities and social sciences then they will have more opportunities for international collaboration, and their proposals will also be rated more highly by the IGP peer review process. It is difficult to judge, but it has been suggested to us that some areas of humanities and social sciences are inherently less internationalised than other disciplines. There may, for

example, be a focus on Swedish history or Swedish social issues with academics seeking to address an audience of practitioners. In such cases, researchers are less likely to publish in English and have fewer international contacts more generally.

2.16 Third, differences in the costs of undertaking research between subject areas, so that science, engineering and medicine may need more external funding. However, while IGP will pay bench costs it does not cover actual research costs, so this factor is unlikely to be of major significance

2.17 Finally, there are differences in the nature of research collaboration between subject areas. As is discussed further below, there are differences between the motivations for seeking international collaboration but the way researchers collaborate may also differ. The IGP projects we have reviewed differ in too many ways to permit direct comparisons, but we would speculate that close collaboration in science, engineering and medicine typically involves some components of joint research in the laboratory. In contrast, collaboration in humanities and the social sciences relies more on the exchange of data, and analyses, which can be done electronically. Collaborators in any subject need face-to-face contact, but perhaps less often in the social sciences and humanities.

2.18 We have undertaken an analysis of applications and success by subject area and this is presented in Table 2.5. This indicates that the success rate for applications in humanities and the social sciences is high. The relatively low number of humanities and social sciences projects does not, therefore, reflect difficulties at the proposal evaluation stage but rather the number of proposals submitted.

Table 2.5: Applications and funded projects (2000-2003)

	% of applications	% of funded projects	Ratio of funded projects to applications
Medicine	19%	26%	1.4
Humanities and Social Sciences	15%	17%	1.2
Technical	32%	30%	0.9
Natural	32%	28%	0.9

2.19 There are some clear patterns in geographic region and subject of collaboration. Table 2.6 shows the % of projects undertaken with a given region in each broad subject area. Thus, for example, 10% of all medicine projects are with an Australian or New Zealander partner[8]. The key points are:

[8] The data refers to lead partner. Some projects have more than one partner and in a few cases this involved mutli regional collaborations

- a concentration of natural sciences projects with North America. This regions accounts for 34% of all projects but 46% of natural science projects

- a relatively high proportion of medicine projects with Japanese partners, although the total numbers are low. There are also a relatively high proportion of medicine projects with North American partners

- a focus on Western Europe for humanities and the social sciences

Table 2.6: Subjects and regions (1996-2003)

	% of IGP projects					Total Number of projects
Area	Humanities & Social Sciences	Medicine	Natural	Technical	All project	
Australia/N Zealand	0%	10%	8%	6%	6%	11
China	12%	7%	2%	2%	5%	9
Japan	3%	10%	4%	4%	5%	9
Other Asia	12%	7%	2%	11%	8%	13
N America	21%	38%	46%	28%	34%	58
S America	6%	7%	19%	19%	14%	23
W Europe	27%	14%	8%	13%	15%	25
CEE/FSU	15%	7%	6%	13%	10%	17
Other	3%	0%	4%	4%	3%	5
All	100%	100%	100%	100%	100%	170

2.20 This clustering reflects the aims of the projects which are discussed in more detail below. However, in general terms:

- the concentration of natural sciences with North American partners is because many are driven by a wish to access leading researchers, as opposed to equipment or facilities, and the USA is pre-eminent in this respect in most subject areas. A good example might be the collaboration between the Karolinska Institute and the Kreske Institute at the University of Michigan in the field of auditory systems where Prof. Miller was pre-eminent in this field

- a significant proportion of technical projects are concerned with agriculture and environmental issues and countries in Asia and South America provide excellent experimental and testing opportunities. A good example might be the collaboration between the Swedish University of Agricultural Science and the University of Chulalongkorn in Thailand where the Thai pig rearing facilities had very large numbers of animals, perhaps 10,000 in a unit, enabling a broader range of experiments and studies to be undertaken

- some of the humanities and social sciences projects have as an important aim the development of knowledge on specific regions and the collection of data, rather then the need to collaborate with leading experts per se. As such, other countries and regions provide attractive opportunities. A good example might be the collaboration undertaken between Uppsala University and Northern Jiatong University in China where the objective was to gain understanding and predictions of the rapidly growing Chinese economy.

- the clustering of humanities and social science collaborations around Western Europe shown in Table 2.6 is, however, slightly puzzling. It may reflect specific interests of Swedish researchers, but we would note that four of the projects are with the UK (in unrelated areas) and we suspect there might be a language factor at work.

Swedish universities

2.21 Table 2.7 shows the number of projects by Swedish institution. The major research universities dominate participation in IGP reflecting the research focus of the most IGP projects. Within this group the differences are largely explained by size and subject spread, although it is perhaps surprising that Chalmers has not undertaken more projects. Five institutions (Uppsala, Stockholm, Lund, Karolinska and KTH) are involved in nearly 70% of all IGPs.

2.22 The converse of this is very limited participation by the smaller teaching led institutions. The 10 institutions with the lowest participation rates accounted for only 10% of IGPs. In relation to the number of applications, however, this group has been relatively successful. Over the period 2000 to 2003 almost 35% of their applications were funded, compared with 30% of all applications.

Table 2.7: Participation by Swedish universities

University	Number of projects
Uppsala University	36
Mid-Sweden University College/Uppsala (joint)	1
Stockholm University	20
Lund university	19
Lund/Stockholm (joint)	1
Lund/Sw Agricultural University (joint)	1
Karolinska Institute	18
Royal Institute of Technology	17
Swedish Agricultural University	11
Umeå University	11
Umeå/Gothenburg (joint)	1
Chalmers Technical University	9

Table 2.7: Participation by Swedish universities	
University	Number of projects
Chalmers/Stockholm (joint)	1
Gothenburg University	7
Linköping University	4
Luleå Technical University	3
Stockholm School of Economics	2
Örebro University	2
Kalmar University College	1
Jönköping University college	1
Kristianstad University College	1
Karlstad University	1
Others	2
Total	170

2.23 It is interesting to note that, whilst Table 2.6 records the number of projects in which particular Swedish universities have participated, for some projects, the number of foreign partner institutions may be considerably larger and may involve more than one foreign country. For example, a collaboration between the Karolinska Institute and Harvard University in the USA concerning epidemiology also involved the National Institute of Public Health in Finland and the Wageningen University in Netherlands in a study where there was complementary expertise and data. In another project, Stockholm University collaborated with State University of New York, the University of Chicago and the Woods Hole Oceanographic Institute on a very successful marine biology project where the collaborators had complementary expertise and were able to utilise a major research facility provided by the US partners. A third example involved collaboration on specific areas of mathematics where the Swedish KTH collaborated with Yale University, Princeton and California Institute of Technology in the US and Toronto University in Canada.

3 Findings: Survey of participants

Introduction

3.1 The survey questionnaire was e-mailed to 146 grant holders. Non-respondents were sent a letter from STINT requesting their participation in the survey. The majority of those who still did not respond were telephoned by SQW. Sixty-four questionnaires (43%) were returned.

Responses

3.2 Table 3.1 provides a breakdown of responses by start year compared to the start dates of the total sample surveyed. As would be expected, responses are biased towards the most recent projects, many of which will still be receiving funds from STINT.

Table 3.1: Distribution of start dates

	1996	1997	1998	1999	2000	2001	2002	2003
Responses	4	2	2	6	8	9	18	15
Total sample	13	10	12	15	21	26	26	26

3.3 Fifteen institutions were covered by the survey (Table 3.2) out of a total of 18 that received IGP awards. There are some disappointing responses from a number of the larger universities which may have biased some of the overall results.

Table 3.2: Distribution of responses by institute

Institution	Total Sample	Responses
Chalmers University of Technology	10	7
Goteborg University	7	6
Jonkoping University	1	1
Kalmar University	1	1
Karlstad University	1	0
Karolinska Institute	14	6
Kristianstad University	1	1
KTH	14	6
Linkoping University	4	3
Lulea University of Technology	3	1
Lund University	20	8
Mid Sweden College	1	0
Orebro University	2	1
SLU	9	7

Table 3.2: Distribution of responses by institute		
Institution	Total Sample	Responses
Stockholm School of Economics	2	0
Stockholm University	14	4
Umea University	12	2
Uppsala University	30	10
Total	146	64

3.4 Table 3.3 shows the distribution of disciplines across the sample according to the STINT classification. Note that the difference in total numbers between this table and Table 3.2 is due to the fact that some researchers had more than one project. Medical and social sciences are underrepresented in the sample.

Table 3.3: STINT disciplines in the sample		
Discipline	Total	Responses
Natural Sciences	45	20
Humanities and Social Sciences	27	9
Technical/ Engineering	43	22
Medical	34	13
Total	149	64

3.5 Table 3.4 lists lead partner countries for the total sample and our responses and shows a reasonable correspondence between responses and the population.

Table 3.4: Partner countries		
Country	**Total**	**Responses**
Argentina	2	2
Australia	10	2
Brazil	7	3
Canada	8	3
China	7	3
Chile	2	0
Colombia	1	1
Czech Republic	2	1
Estonia	1	0
France	1	1
Germany	3	2
Iceland	2	0
India	3	1
Indonesia	2	0

Table 3.4: Partner countries		
Country	**Total**	**Responses**
Israel	1	0
Italy	2	0
Japan	8	4
Korea	3	1
Latvia	2	0
Malaysia	1	0
Mexico	7	4
Netherlands	2	1
New Zealand	1	0
Russia	9	7
South Africa	3	1
Spain	3	1
Switzerland	4	1
Taiwan	2	0
UK	8	6
Ukraine	1	1
USA	41	18
Total	149	64

3.6 The grants ranged in size from 95,000 to 4,000,000 SEK with the average size being 1,619,609 SEK. Forty nine projects were ongoing and 11 projects were completed.

Benefits of internationalisation

3.7 Respondents were asked what they felt were the main benefits of internationalisation with respect to ***research***. They were asked to grade each factor on a scale of 1 to 5 where 1 is of no importance and 5 is maximum importance[9]. The results are presented in Table 3.5. Access to complementary expertise was the most commonly cited (most important) priority with 39 responses (61%). Next was access to leading expertise and specialised resources with 23 responses each (36%) followed by the development of a critical mass with 17 responses (27%). These responses would seem to indicate that the collaborations produced real benefits in terms of research. Though very few respondents gave a 5 to new ways of organising research, 18 (28%) scored this as a 4 showing that there were benefits which were possibly unexpected.

[9] The same indicators are used in all following tables which give numbers from 1 to 5, zero represents no response to a particular question.

Table 3.5: Research benefits of internationalisation						
Research benefits	**1**	**2**	**3**	**4**	**5**	**Total**
Access to leading expertise	6	5	13	17	23	64
Access to complementary expertise	1	3	10	11	39	64
Access to specialised resources	10	8	11	12	23	64
Opportunity to develop critical mass	5	12	10	20	17	64
Opportunity to learn new ways of organising research	13	16	12	18	5	64

1 is of no importance and 5 is maximum importance

3.8 Respondents were asked what they felt were the main benefits of internationalisation with respect to ***teaching*** (Table 3.6). Here the responses were much more evenly spread but many seem to have benefited from the projects in terms of curriculum development, student recruitment and to a lesser extent teaching delivery. It may well be that these were "spin off" benefits from the research activities. Again there seem to have been few benefits in organisational terms (teaching assessment and knowledge of HE structures).

Table 3.6: Teaching benefits of internationalisation							
Teaching benefits	**0**	**1**	**2**	**3**	**4**	**5**	**Total**
Curriculum development	2	7	13	10	21	11	64
Teaching delivery	2	5	14	21	11	11	64
Teaching assessment	2	16	20	16	7	3	64
Student recruitment	3	8	6	13	24	10	64
Knowledge of HE structures	10	15	19	15	4	1	64

1 is of no importance and 5 is maximum importance

3.9 Many more respondents rated research benefits as a four or five than teaching benefits and it is clear that respondents consider that internationalisation will bring greater benefits to research than to teaching. However, as is discussed elsewhere in this report, the primary focus of most IGP projects is on research so respondents are not a representative sample of the Swedish higher education sector.

3.10 An analysis of perceived research benefits by discipline reveals some interesting differences between the disciplines. Table 3.7 shows the percentage of respondents who rated various research benefits as a 4 or 5. Access to leading expertise was only cited by 22% of Principal Investigators in the humanities/social sciences compared to 77-80% in the medical and natural sciences and 55% in the technical projects. We would note that only nine responses were received from humanities and social sciences, but the fact that seven of these rated access to leading expertise as a '3' or lower indicates a radically different view of internationalisation to that held by other grant holders. The primary research benefit in the humanities and social

sciences appears to be access to complementary expertise with nearly 80% of respondents citing this.

Table 3.7: Research benefits by discipline (% of total numbers of 4s and 5s)

Research benefits	Humanities/ Social S.	Medical	Natural Science	Technical
Access to Leading Expertise	22	77	80	55
Access to complementary expertise	78	77	80	77
Access to specialised resources	33	69	65	45
Opportunity to develop critical mass	44	92	45	55
Opportunity to learn about new ways of organising research	44	46	35	27

1 is of no importance and 5 is maximum importance

3.11 A similar analysis of the teaching benefits of participation is presented in Table 3.8. Again the medical subjects seem to have gained the widest range of benefits although the natural sciences and technical projects registered high levels of benefits (around 50-60% rating these as a 5 or 4) in terms of curriculum development and student recruitment.

Table 3.8: : Teaching benefits by discipline (% of total numbers of 4s and 5s)

Teaching benefits	Humanities/ Social S.	Medical	Natural Science	Technical
Curriculum development	33	46	65	45
Teaching delivery	44	54	30	23
Teaching assessment	0	31	20	9
Student recruitment	22	62	55	59
Knowledge of HE structures	11	8	15	0

1 is of no importance and 5 is maximum importance

Knowledge of priority countries

3.12 The survey asked about respondents' knowledge of STINT country priorities. Table 3.9 shows just over 40% were unaware of any priorities. It can be seen that the general level of awareness is low. This can be partly explained by the fact that these specific priorities were only publicised from 2002 onwards so managers of earlier projects would not have been aware of them. However, 14 of the 27 who were unaware of priorities began their projects in 2002 or 2003 so the general picture is one of relatively low awareness.

Table 3.9: Knowledge of country priorities

Priority country	Positive responses
Not aware of any STINT priority	27
Mexico	19
Japan,	18
Brazil	16
South Africa	14
Taiwan	12
South Korea	11
Thailand	8

Previous contact with partners

3.13 The survey asked researchers about prior contact with their partners and the results are presented in Table 3.10. The level of prior contact is high with 60% either having undertaken significant activity or some collaboration.

Table 3.10: Prior contact between partners[10]

Level of contact	Responses
We had already undertaken significant research or other projects	20
We had undertaken some collaboration	17
We had visited them (short visit)	15
They had visited us (short visit)	11
Had read papers / conferences / met in passing	7
We knew of them by reputation	5
We didn't know them at all	1

[10] Some respondents specified more than one from of prior contact.

3.14 Table 3.11 indicates some interesting differences between disciplines in relation to prior contacts. Almost all the medical grant holders had worked with the partner previously, and eight of the thirteen had previously collaborated on research. For the other subjects, approximately half had some history of collaboration. Only one of the social sciences projects had previously undertaken significant research and, again, this suggests that this discipline differs from the others.

Table 3.11: Prior contact by discipline

	We had undertaken some collaboration	We had already undertaken significant research or other projects	All responses
Humanities/ Social Science	3	1	9
Medical	3	8	13
Natural Science	5	4	20
Technical	6	7	22

The IGP: Reasons for participation and outputs

3.15 The survey asked respondents to state their main motivations for participating in the project and then to judge to what extent these had been achieved. The results are shown in Table 3.12. The data refers to respondents who rated either motivation or achievement as of maximum (4 or a 5) importance. The most commonly cited motivations for participation were access to high level expertise, development of new lines of research, access to long term funding and development of wider networks. Over 60% in gave a 4 or 5 rating in each case.

Table 3.12: Motivations and level of achievement (number of respondents who rated various factors as a 4 or 5 in level of importance)

Factor	Motivation	Achieved
Access to high level expertise	52	50
Development of new lines of research	44	50
Access to long term funding	41	36
Development of wider networks	40	45
Access to experimental opportunities/ specialist equipment	35	37
Access to flexible funding	34	34
Enhanced reputation of researchers involved	27	40
Opportunity to develop/change teaching programmes	20	24
Leverage of funding from other sources	18	20
Opportunity to learn about organisational structures	12	0

1 is of no importance and 5 is maximum importance

3.16 In each case these motivations were generally seen as being achieved. For almost all motivations, the number rating achievement as a 4 or 5 was greater than the number rating their motivation as a 4 or 5. The exception is "access to long-term funding", but the differences are relatively small. It could also be argued that access to long term funding is not a direct aim of IGP and that these expectations may have been unrealistic.

3.17 In three cases, achievements exceeded expectations for a small, but significant, number of respondents. These are:

- the development of new lines of research. This would appear to indicate that some participants achieved more in terms of successful research than they had anticipated. This hypothesis is supported by the fact that many more researchers felt that their reputation had been enhanced even though this was not a major motivation for participation
- development/change of teaching programmes (although this was one of the least important in terms of motivations)
- the development of new lines of research. The number of respondents who achieved new lines of research exceeded those who saw this as a main motivation for participation. This would appear to indicate that some participants achieved more in terms of successful research than they had anticipated.

3.18 It is interesting to note that many more grant holders felt that researchers' reputations had been enhanced, through the project, than had cited this as a primary motive for undertaking the project.

3.19 Table 3.13 provides an analysis of achieved objectives by the extent of previous collaboration. This is based on the same categories presented in Table 3.10:

- limited previous collaboration is those projects where the partners had: visited; read papers / conferences / met in passing; knew of each other by reputation; has no prior contacts
- significant previous collaboration is projects where: partners had already undertaken significant research or other projects; some collaboration had taken place.

3.20 The figures given are the percentage of respondents in each group who rated their achievements as a 4 or 5. The table indicates that where there have been previous close collaborations projects have been significantly more successful in terms of:

- enhancing reputations
- access to experimental opportunities.

- development of teaching programmes
- and, the development of new lines of research.

3.21 These are all important benefits to Swedish higher education. Previous collaborations are, however, less likely to have developed wider networks, but this may reflect a pre existing involvement in such networks where there has been previous collaboration.

Table 3.13: Achievement of objectives by extent of previous collaborations - % rating achievement as 4 or 5

Objective	Limited previous collaboration	Significant previous collaboration
Access high level expertise	76%	80%
Enhanced reputation of researchers involved	55%	69%
Development of wider networks	76%	66%
Experimental opportunities/ specialist equipment	52%	63%
Substantial funding	59%	51%
Flexible funding	55%	51%
Long term funding	66%	49%
Develop/change teaching programmes	28%	46%
Development of new lines of research	31%	43%
Funding from other sources	21%	40%

1 is of no importance and 5 is maximum importance

3.22 Table 3.14 provides a breakdown of achievement of objectives by discipline. The previous caveats about number of respondents also apply here but there do appear to be some significant differences between the disciplines, and especially between humanities and the social sciences and others:

- access to high level expertise was a significantly less important outcome for humanities and the social sciences. As was mentioned above, this is perceived as a less important benefit of internationalisation than in other disciplines
- probably related to the above, social scientists did not believe that the project had enhanced their reputations to the same extent as other disciplines
- as might be expected, access to experimental opportunities was less important for humanities and the social sciences
- teaching related outcomes were relatively more important.

Table 3.14: Achievement of objectives by discipline - % of respondents who rated achievement as 4 or 5

	Humanities/ Social Science	Medical	Natural Science	Technical
Access to high level expertise	56%	92%	80%	77%
Development of new lines of research	78%	85%	80%	73%
Development of wider networks	78%	77%	65%	68%
Access to long term funding	33%	54%	60%	64%
Enhanced reputation of researchers involved	44%	69%	70%	59%
Access to flexible funding	33%	38%	65%	59%
Access to substantial funding	11%	46%	75%	59%
Leverage of funding from other sources	0%	31%	25%	50%
Access to experimental opportunities/ specialist equipment	44%	85%	60%	45%
Opportunity to develop/change teaching programmes	56%	46%	30%	32%

1 is of no importance and 5 is maximum importance

Activities

3.23 The responses to the question asking what specific activities were carried out during the projects are provided in Table 3.15. Not surprisingly given the nature of the IGP programme the most commonly cited activities were travel (in both directions) and activities related to collaborative research, including joint publications. The majority of this activity centred around exchange of staff. Student travel and activities related to teaching were featured much less, reinforcing the impression that the majority of projects were research focussed.

Table 3.15: Specific activities

Activity	**Number of responses**
Staff visits (Sweden to overseas)	61
Staff visits (Overseas to Sweden)	59
Production of joint publications	56
Development of joint research projects	55
Exchanges of graduate students	53
Joint meetings/seminars/workshops	53
Student visits (Sweden to overseas)	48
Student visits (Overseas to Sweden)	47
PhD supervision (please specify below)	45
Travel to conferences etc	39
Teaching development	36

Table 3.15: Specific activities	
Activity	**Number of responses**
Specialist laboratory work	34
Exchanges of graduate staff	33
Specialist field work	25

Impact of IGP funding

3.24 The questionnaire probed the amount of collaboration which would have taken place in the absence of the IGP grant. Respondents were asked to specify what percentage of IGP activities they would have undertaken in the absence of the grant. Responses are shown in Table 3.16. This shows that 51 respondents (80%) estimated that less than 20% of the actual activity would have taken place without the IGP funding, indicating high additionality.

Table 3.16: Collaboration without IGP grants which would have taken place in absence of IGP	
% of project collaboration	**Number responding**
0	14
1-10	26
11-20	11
21-30	6
31-40	3
41-50	2
51-60	0
61-70	0
71-80	1
81-90	1
91-100	0

3.25 Respondents were also asked about the extent to which collaboration had continued after the IGP project and the results are shown in Table 3.17. Only 11 projects had in fact been completed at the time of the survey. Responses suggest a substantial decline in the levels of activity, but this is perhaps not surprising. The IGP projects, often, involved visits to and from partners and the involvement of a wide range of staff and students. Any post-project activities are likely to revolve around specific research projects funded by another agency. While these agencies may meet the costs of principal investigators' travel they are unlikely to support visits on the scale, or breadth, of the IGP project.

Table 3.17: Continuing collaboration after project	
% of project collaboration	**Number of respondents**
0	1
10	1
15	1
20	2
25	2
50	2
75	1
100	1

Benefits from IGP participation

3.26 Table 3.18 presents the results of an analysis of the responses to the question - "what do you consider to be the most important benefits you have gained from the IGP?" The data refers to those respondents who rated a benefit as either 4 or 5. The most common responses relate to positive outputs relating to research; ***major source of new scientific knowledge*** elicited 45 responses (70%), ***new range of scientific methods and techniques*** with 39 responses (61%), and ***led to a continuing stream of visitors***, 38 responses (59%).

3.27 Continued collaboration features highly in the responses which may seem surprising considering only 11 of the projects have been completed in our sample. This indicates an expectation in ongoing projects that collaboration will continue following the cessation of IGP funding. The success of the research undertaken is also apparent with high numbers reporting a major source of new scientific knowledge.

Table 3.18: : Benefits from IGP participation – number of respondents rating as either 4 or 5	
Provided a major source of new scientific knowledge	45
Provided a major new range of scientific methods and techniques	39
Led to a continuing stream of people from the partner visiting us	38
Broadened the range /type of people visiting the partner / collaborator	37
Brought a wider understanding of the international nature of science and research into our department	36
Led to a continuing stream of Swedish staff visiting the partner/ collaborator	34
Brought our department up to world class standards	27
Transformed our (department's) standing and reputation	25
Substantially increased our rate of publication in high impact journals	24
Led to other collaborations in other countries	23
Transformed our approach to teaching	16

Table 3.18: : Benefits from IGP participation – number of respondents rating as either 4 or 5	
Encouraged others in other departments in the University to apply to IGP	15
Transformed our approach to managing projects and our thinking about how the department is run	9

1 is of no importance and 5 is maximum importance

3.28 The major changes in work practice appear to be mainly in terms of research (Table 3.19) with few reporting significant impacts with respect to teaching and learning or general management.

Table 3.19: Changes in work practice – number of respondents rating on a scale of 1 – 5			
	0/1	2/3	4/5
Research	11	15	38
Teaching and learning	15	29	20
General management	29	22	13

1 is of no importance and 5 is maximum importance

3.29 The major impacts in terms of new and improved relationships seem to have occurred by establishing new relations with academics in the partner university and often with other universities in the partner country (Table 3.20).

Table 3.20: New and/or improved relationships - number of respondents rating on a scale of 1 – 5			
	0/1	2/3	4/5
Yourself and other foreign researchers (apart from those involved)	6	15	43
Other parts of your department/unit and foreign partners	11	20	33
Other parts of your university and foreign partners	30	21	13
Other universities in Sweden and foreign partners	30	19	15

1 is of no importance and 5 is maximum importance

Views on the IGP

3.30 Additional comments provided by respondents were overwhelmingly positive, with many emphasising how helpful the STINT staff had been. The majority of respondents could find no problems with the scheme as it currently stands. However some drawbacks were highlighted.

- three respondents had encountered problems finding suitable accommodation in the partner country.
- two respondents had experienced problems with their project due to the partner institution not committing sufficient resources to support their role in the project.

3.31 Other drawbacks highlighted were:

- insufficient funding was available at the partner institution to continue collaboration after the IGP funding had ran out
- IGP funding was not sufficient to cover the full Swedish costs of the collaboration
- changes in staff at the partner institution hampered progress
- it can be difficult to find the right collaborators in partner countries
- one respondent was adamant that quality of science proposed should be the only criterion used and that country priorities could lead to inferior science.

Suggested changes

3.32 There was disquiet expressed concerning the priority countries with 12 respondents (19%) stating that they would prefer no priorities or a broadening of priority countries (India and China were mentioned by several respondents).

3.33 Eleven respondents (17%) would like to see more extended funding. This was for three reasons:

- to extend the funding to a minimum of five years to cover the whole PhD cycle (two stated that they would be happy with a reduced level over five years)
- extended (possibly reduced) funding should be available for the most successful projects on a competitive basis
- funding should be made available to cover a period of transition from IGP funding to alternative sources.

3.34 Though the inherent flexibility of funding was often praised seven respondents highlighted problems with managing the project. As funding was not available to cover Swedish salaries it was difficult to fund a manager or co-ordinator which was felt a necessity in the larger more complex projects. Another six respondents would like to see some allowance for consumables or computers for the partner institution.

3.35 Other suggestions for changes to the programme were:

- smaller awards to set up new networks (2 respondents)
- more emphasis should be placed on training of young researchers
- priority disciplines should be provided

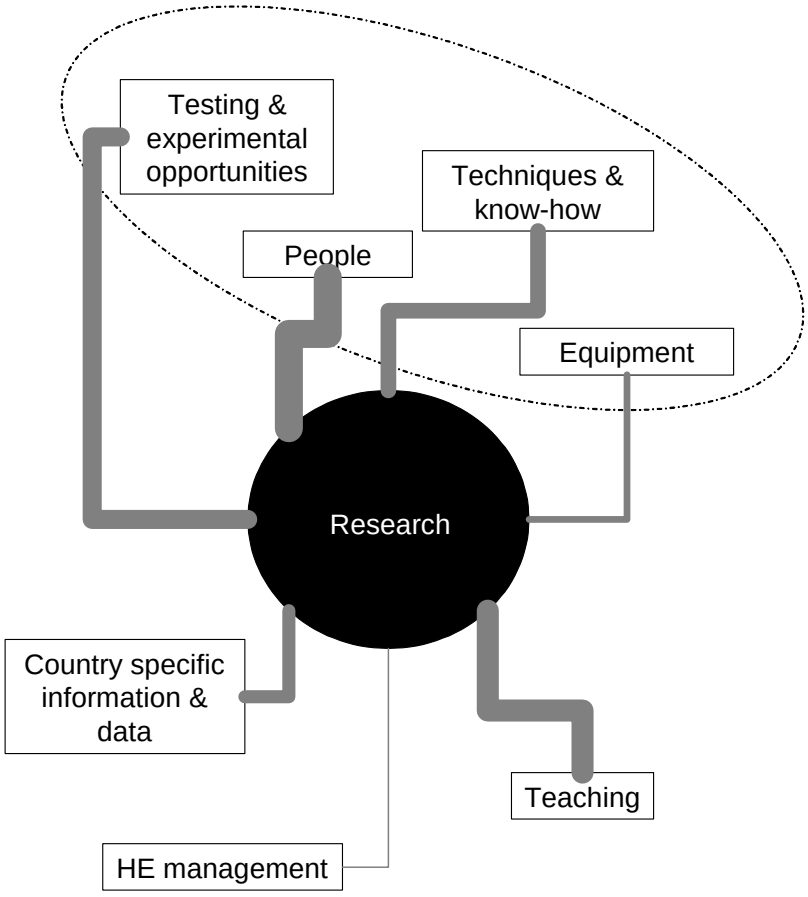
- more interaction with other IGP projects should be arranged to encourage the exchange of good practice.

4 Findings: The interview programme

Characterising IGP projects

4.1 Figure 4.1 is a graphical representation of the IGP projects. The key feature is that almost all the projects we have reviewed have research at their centre. Many have additional aims, but research is almost invariably the core activity, and the reason why the partners have come together in the first place.

Figure 4.1: IGP projects



4.2 The surrounding boxes in Figure 4.1represent the more specific purposes of the projects and their width of the connecting lines represents, very broadly, their relative importance to the projects we have reviewed. Connections to people are shown as the most important; it is the opportunity to work with other, often leading edge, researchers that is most attractive to IGP applicants in order to access their knowledge and their networks. The other key motivations are access to:

- experimental and testing opportunities. This does not refer to equipment. It includes scientific and technical phenomena that can only be observed in specific locations, e.g. tropical diseases and also opportunities which arise because of the partner's social and economic environment. For example, one project was concerned with pig breeding in Thailand which provided experimental opportunities not available in Sweden but nonetheless relevant to Swedish producers, another project involved research into levels of arsenic in groundwater in Mexico and its effects on health.

- techniques and know-how. There are a number of projects where the foreign partner was ahead of the Swedish participant so far as analytical techniques were concerned, but was interested in collaboration because of the rich data sets the Swedish participant could provide. Training post-docs and junior researchers was a specific aim in many cases. Examples include a series of projects involving Karolinska Institute and Harvard University concerned with epidemiology where the epidemiological methods employed by Harvard were significantly in advance of those in Sweden, but where Sweden could provide unique data series of interest to the Harvard researchers

- equipment, although in practice this was only of significance in a minority of cases, but access did enable the Swedish researchers to achieve outputs which would not otherwise have been possible in some of these cases. This may be because Swedish universities are relatively well equipped, but institutions which were seriously lacking in equipment would probably not be considered as serious researchers by foreign partners and are therefore unlikely to become involved in IGP. Specific examples of projects where specialised resources and equipment were available to Swedish researchers that were not available from Swedish resources include the use of specialist American ships and equipment for scientific cruises to undertake marine biology studies and the development of an array of astronomical sensors over a wide area of Argentina for studies of the Southern skies.

4.3 The three lower boxes are less directly connected with the core research activity, although still arising from it:

- teaching. We believe that there are only a few projects solely concerned with teaching activities, but it has been an important aim of some research centred projects. In some cases there has been an explicit intention to transfer teaching and learning approaches (and often also materials) from the foreign partner; more often it has entailed lecturing and student supervision by the foreign partner (both in Sweden and abroad) and student exchanges. Examples include the projects involving Stockholm University and Princeton University (USA). Advanced courses were delivered in Sweden as well as the development of new teaching methods in cellular biology that involved teaching from the perspective of what we know and what we do not know and an extensive use of experimentation as part of the teaching process. It should also be noted that some projects are mainly concerned with delivering training to the partner country, as opposed to transferring innovative approaches into Sweden. Examples of these latter projects include the extensive training provided to the Thai partners by the Swedish Agricultural University in the project concerned with enhancing pig breeding.

- country specific information and data. This is distinct from the opportunities to undertake country or region specific experiments and relates almost exclusively to humanities and social science projects, especially the latter subject area. Put simply, the IGP enables Swedish researchers to develop their knowledge of another country or region in which they are interested. A good example is the project involving Stockholm University Centre for Pacific Asian studies and Seoul National University (Korea). This involved the development of knowledge among Swedish researchers of areas of Korean society such as adopted children and security and stability in South East Asia.

- HE management. This is mentioned for completeness, but we have only reviewed one project where an explicit aim was to develop management and organisational structures within the Swedish institution. In this particular case, (Karolinska Institute and the University of Michigan) the aim was to draw lessons from the American partner for the structure of a new research institute and to use the American institute as a role model for the development of the Swedish institute. Many participants will have enhanced their knowledge of research project management, and the exposure to different organisational forms and cultures may also have been more generally useful, but it is somewhat surprising that more participants have not taken to opportunity to explicitly use the IGP as a vehicle for management and organisational change.

The benefits to Swedish participants

4.4 IGP has been enthusiastically received by almost all the participants we interviewed. We believe that this reflects their judgement that they have derived real benefits from participation, rather than simply a positive response from successful applicants to a competitive grant scheme. During the interviews, in particular, we were able to explore in some depth the nature of these benefits and they are summarised in this section.

Research

4.5 Given the characterisation of projects in the previous section, it is no surprise that discussions focussed on contributions to research. These are considered to be substantial, and arose in a number of ways.

4.6 First, access to leading researchers is probably the most obvious and one of the key benefits to IGP participation. As is discussed further below, very few projects represent new collaborations in the sense that the partners had no prior contact but the IGP enabled a much closer and intense relationship to develop. This had direct benefits, in that participants are claiming higher quality research outputs and, importantly, meeting research objectives more quickly than would be possible in the absence of collaboration. But, in some cases, collaboration with *leading edge* researchers has enabled the Swedish partner to access new networks in the partner country, and beyond. In part, this is because contact with leading researchers 'opens doors' and several we consulted emphasised the importance of contacts with authoritative and prestigious researchers in this context. In addition, the collaborative research which has been undertaken will be of direct interest to other partners.

4.7 Interestingly, IGP appears to have had greater impacts on extending the Swedish partner's access to wider networks than in creating new relationships between the foreign partner and other Swedish universities. We suspect that this is because, given its size, there are relatively few disciplines in which Sweden has more than one research group of international standing. The foreign partner is therefore unlikely to be interested in collaborating with other Swedish organisations.

4.8 Second, there has been an effective increase in the resources available to Swedish research in many cases. This is most tangible in relation to those projects where Swedish post graduate students are being supervised by staff from the foreign partner. Several of those interviewed stated that they did not have the capacity to supervise more PhD students and the inputs from the foreign partner were highly beneficial in such cases. In part related to this, the opportunity for post-docs and post graduate students to spend some time at a foreign institution was considered to have helped to attract students into a specific discipline. Several of those we interviewed recognised that there was danger that young Swedish researchers might stay permanently in the partner country, but as yet this appears to be a concern rather

than an actual occurrence. The benefit to students from exposure to foreign lecturers and researchers was also widely recognised.

4.9 These factors are widely thought to have enhanced research outputs, but in a small number of cases IGP participants felt they had been important factors in helping them to develop a critical mass in a developing discipline and to establish a Swedish presence in that area.

4.10 Third, there are also a few instances where the IGP grant has been instrumental in leveraging funds from the partner country which have benefited the Swedish participant. One project, involving collaboration between Lund University and partners in Japan and Taiwan stands out. We were told that collaboration with the Swedish partner had enabled the foreign partners to secure substantial funding (of some 2M.Euro) from their governments to establish a Terahertz measurement centre providing equipment which does not exist in Sweden. The Swedish partner has good access to this equipment with an annual grant of some 200 SEK being provided by SIDA for travel to enable Swedish researchers to continue to travel following the STINT award.

4.11 Finally, as mentioned above, there are instances where, for social economic or geographic reasons, research can only be undertaken outside Sweden or a foreign country provides additional opportunities. As would be expected, IGP has been successfully utilised for these purposes.

Teaching

4.12 Teaching and learning enhancements were seldom the primary aim of projects, although they were often at the forefront of thinking, and benefits have nevertheless arisen. The most common are those activities discussed in relation to research with students, including undergraduates, being exposed to foreign lecturers and also visiting the foreign partner. Two other sorts of activity are worth mentioning:

- some partners have developed new 'courses' jointly. There are several instances of new advanced courses, for example in research approached and techniques, some catering not just for staff and post graduates but also technicians and undergraduates. Summer schools, encompassing more institutions than in the IGP, have also emerged and in some cases Swedish students were able to attend those held at the partner institution at substantially reduced cost.

- In one case at least, the Swedish partner has adopted learning techniques and materials developed by the foreign partner. This was an explicit aim of the project and involved the training of Swedish staff in the approaches which had been developed and refined by Harvard over a period of many years.

General benefits

4.13 We think it would be a mistake to consider IGP simply in terms of the tangible contributions to teaching and research and most of those we have consulted would cite other benefits too:

- although difficult to define, many we consulted felt that exposure to different research cultures and organisations was highly beneficial for younger researchers, especially those who will become research leaders. In particular, the opportunity to see how other leading researchers manage their laboratories and research projects, specific research techniques and methodologies and how they approach a particular new area of research were cited as important general benefits

- related to the last point, visits to the foreign partner are likely to provide valuable insights into alternative organisational models and structures. However, as already mentioned, we are aware of only one project which had this as an explicit aim

- for many younger researchers, the opportunity to work in practice using the English language was also seen as being very important given the role of English in international science and technology

- the practical demonstration of the benefits of international collaboration to Swedish researchers has also led to a broadening of collaboration within institutions with other departments following the example of the original department to seek to utilise STINT or other funding to establish new collaboration arrangements

- in many cases, the IGP projects have expanded the international networks in which Swedish researchers were involved through the contacts made as a result of collaboration with leading foreign researchers. These networks have extended well beyond the original partner country to involve leading researchers in other countries and, in several cases, these networks have continued to flourish and develop after the STINT funding had ceased

- finally, the IGP experience enables researchers to develop and evaluate collaboration models for the future.

IGP structure and management

Funding

4.14 The STINT IGP programme is unique in Sweden and, so far as we are aware, the rest of the world in that it provides significant funds over a relatively long period of time on an institutional rather than project-by-project basis. This is one of the main attractions to participants. It has enabled most to develop closer collaborations than would otherwise be possible for a number of reasons:

- the long term nature of funding means that participants can plan and structure collaboration in a way that would not be possible if they had to bid separately for each activity

- the flexibility of eligible activities, and the inclusion of junior researchers and students as well as principal investigators[11], means that collaboration can be spread within the research group. As well as sharing the benefits this facilitates developing a critical mass and planning activities

- although applicants need to submit plans, these are not fixed; STINT can, and does, respond to changes in expenditure plans to accommodate new opportunities if and when they arise (although many grant holders are unclear about the degree of flexibility which exists and how this might be exploited)

4.15 As was mentioned above, the average level of funding has declined since the IGP was launched and an important issue is whether current levels are appropriate. It is difficult to make a judgement on this, but we would note the following points:

- several of those we interviewed were unaware of likely funding levels. This suggests that in these cases the amount received were probably appropriate to needs

- we have reviewed successful examples of both relatively small and large projects, suggesting that there should be scope to accommodate both within the IGP

- much more tentatively, a very high proportion of the projects we reviewed have achieved much of what they set out to do and derived significant benefits. We encountered virtually no examples where activities supported by the IGP did not generate some positive outcomes[12] and this is at least consistent with the conclusion that the money was well spent. In addition, some projects have unspent funds at the end of the project which indicates that the aim was not 'spend at all costs'.

4.16 Our general view is that if IGP continues in something like its current form then it would be sensible to keep funding at approximately current levels subject to an appraisal of whether the proposed activities were likely to be useful and properly costed. However, we would qualify this in two ways.

[11] A requirement for IGP funding

[12] We acknowledge that in a study of this nature, which relies heavily on interviews with participants it, would be difficult to identify specific activities which did not generate positive outcomes unless the participant identified them

4.17 The first point is financial support to plan and prepare IGPs. One area that has proved problematic in some cases is a failure of the partner to deliver what was initially expected, sometimes because the selection was sub-optimal for the way the project evolved. These instances usually reflect cases where there was little, or no, prior relationship between the partners or where the foreign partner proved to be unreliable, for example in the case of the collaboration between the University of Uppsala and University of Western Cape where staff did not turn up for visits. In this case, it was noted that partnerships are incredibly difficult to build, particularly where the prospective partners are at a completely different stage, where the motivational drivers differ and where the work ethic is different. It is obviously difficult to identify in advance precise requirements of a partner over a four year period and if there has been no previous contact it is difficult to form a judgement as to whether the partner will be able and willing, to adapt to changing circumstances. For this reason, many we consulted felt access to small, mainly travel, grants to enable them to assess partner capabilities and plan collaborations would be valuable. Our recommendations are designed to address this issues but in a rather different way

4.18 The second point arose in a different context during discussions. We explored with participants how the outputs of their IGPs might be assessed and many drew attention to the fact that they receive funding from multiple sources and it would be difficult to disentangle the impacts of IGP funds from other sources. The ways in which research groups are structured, and more importantly funded, is the key issues. At the risk of oversimplification, there are groups receiving funds from a range of sources both for specific projects and for core activities and total research income may be substantial. Such groups have some scope to manage their funds as a single budget and the IGP funds, while generating additional activity, are probably having only marginal impacts. Other groups operate more on a project by project basis and would find it difficult to use these other funds for the activities supported by IGP so the impacts of IGP are probably higher in relation the group's activities. The different sorts of research structure are to some extent correlated with different subject areas but there is no simple relationship between the two.

4.19 We are not suggesting that the first sort of group cannot use IGP funds effectively to consolidate and establish international collaborations, and certainly not that they are diverted to other activities. However, given the way these groups tend to operate they are likely to already have better international networks (perhaps with other countries) and the impact of new collaborations on their underlying capacities is likely to be less than can be the case with the second type of group. One implication is that STINT needs to consider how the IGP funds will be used in relation to the group as a whole, and not simply by the principal investigator and her or his associates.

Awareness of Priorities

4.20 The STINT Foundation web-site notes that 'cooperation with Anglophone countries, especially the US, dominates the programme... the STINT Foundation welcomes applications for cooperation with certain countries (Brazil, Japan, South Africa, South Korea, Taiwan and Thailand)'.

4.21 We asked respondents whether they were aware of the Foundation's priority for certain countries. In general, interviewees were not strongly aware of this priority. However, among those that were aware; it seems to have had an impact in a few cases in encouraging applications involving some of those countries and also, in some cases in discouraging applications for cooperation with other countries such as the USA. Despite these cases, nearly all had a clear preference cooperation with world class researchers with knowledge and expertise in advance of that available in Sweden and a history of pre-existing cooperation that had led to the development of trust and mutual understanding. In some cases, respondents noted that collaboration with partners different from those chosen in leading universities (mainly in the US) would not have been effective.

Application procedure

4.22 Most of those interviewed found the application process simple and straightforward. However, whilst most applicants understood the broad aims of the IGP, many were unclear about specific details including:

- the STINT 'welcome' of applications for cooperation with specific countries, discussed above. However, later applicants were definitely more aware than in earlier years reflecting the increased importance STINT has attached to this
- the amount of funding possible, where several applicants did not realise that they could apply for an amount as large as SEK 4m and were surprised to learn that they could have applied for more
- the possibility of applying a second time where several interviewees were unclear about whether or not this is permissible
- misunderstandings which came to light later on in the project about the rules for paying for foreign researchers from IGP funds.

4.23 In general, interviewees did not have a lot to say about the application process or monitoring apart from the following:

- the application process was straight forward and simple
- the annual and final reporting requirements were entirely acceptable

- there was little feedback from STINT and, in some cases, this would have been welcomed both in relation to unsuccessful applications but also successful ones since the review panels might have valuable suggestions as to contacts and approaches

- there was no format provided for the final and annual reports, which would have been welcomed.

5 Conclusions

5.1 It is worth revisiting the overall aims and priorities of the IGP when considering outcomes. These are:

- renewal of Swedish research and higher education by establishing new patterns of co-operation
- encouragement of partnerships with certain countries (Brazil, Japan, Mexico, South Africa, South Korea, Taiwan and Thailand) and, more generally, outside the English language area
- the interests of the Swedish partner must be at the forefront.

5.2 Taking these in reverse order, we are confident that the last criterion has been met by almost all the projects we reviewed. The only caveats we would mention *in relation to a very small number of projects* are:

- a tendency for activities to focus on a single individual in the Swedish University. In these cases, we have some doubts as to whether any longer term benefits will be generated for the institution. We would note, however, that projects funded after the earliest years of the IGP appear to encompass a wider range of participants from the Swedish institution
- projects where the main outputs are training and development of people in the partner country. The Swedish partner has no doubt benefited to some extent from the opportunity to extend its international contacts, and also test approaches in a practical situation, but the impression we have is that the major benefits have accrued to the foreign partner[13].

5.3 However, these are minor points and we are confident that the vast majority of projects are designed to deliver, and do deliver, significant benefits to the Swedish partner.

[13] These comments are based on a review of proposals and reports only. We have not interviewed the Swedish participants in such projects.

5.4 The priority countries accounted for nearly one quarter of projects approved during 2003 and there has been a shift towards these countries in recent years, with increased awareness amongst Swedish academics of their importance. However, Western Europe and North America were partners in almost 50% of all projects funded up to 2003 and in nearly 40% of projects selected in 2003. Partner country is not, of course a dominant criterion for selection, and STINT stresses the overriding importance of quality and the extent to which the project will contribute to renewal. However, the identification of priority countries does create tension. Researchers wish to choose partners according to their academic credentials and capacity to contribute. Two other factors are also important. First, there is a tendency for most academics to think first of collaborating with foreign researchers with whom they have had some prior contact. Second, the capacity of the partner to continue collaboration after the IGP is a further consideration and this will depend to some extent on the availability of research funding in the partner country. In many disciplines, institutions in the priority countries will not rate highly against these criteria. Several of those we consulted stated they would have chosen an alternative partner, but believed they would not have received funding if they did so.

5.5 The first of the three bullet points *(renewal)* is, of course, the most important aspect of IGP and also open to various interpretations. We believe that IGP has contributed to renewal in several important ways, in particular:

- international networks have undoubtedly been strengthened both between the Swedish and foreign partners but also, in many cases, between the Swedish partner and other foreign institutions as a result of accessing the foreign partners' networks.
- Swedish research capacities and skills have been upgraded, both for relatively senior researchers but also juniors and PhD students. Some projects have consciously used the foreign partner to help develop staff in areas where there are recognised shortages in Sweden, both by age and discipline
- in a few cases, the IGP has played an important role in better establishing research capacities which were previously embryonic
- there have also been significant contributions to teaching and curriculum development.

5.6 In addition, it is difficult to see how the IGP funded activities could have been supported from other sources on anything like the scale that has taken place. As such, we judge additionality to be high.

5.7 A key question is the extent to which these impacts will continue after the IGP project is completed. Upgrading of skills and capacities will bring continuing benefits. As will some components of teaching and curriculum development, although the curriculum needs to be regularly refreshed and the impacts of 'visiting lecturers' may be more transitory.

5.8 The most important issue, however, is whether the networks which IGP has established and strengthened will be maintained post-project? One point is clear; almost all grant holders envisage a substantial decline in the IGP activities (regular visits, workshops, summer schools etc) funded under the IGP once the project is completed. This reflects an absence of alternative funds and several of those we consulted felt the length of the IGP should be extended so that activities could continue. However, most, also, expected that project specific research collaborations will continue, or more likely resume at some time in the future, provided that project funding could be found.

5.9 Almost inevitably, any continuing collaboration is likely to be more narrowly focussed and to involve fewer individuals but we do not view this as necessarily a bad thing. In a very real sense, the IGP has helped to establish the basis and 'infrastructure' for collaboration over a quite lengthy period of time. If the result is a genuine enhancement of capabilities then the partner organisations should be capable of securing *project* funding in open competition with others. We recognise that this quite a sweeping statement, and would also acknowledge that each partner faces practical difficulties in securing funding from national sources for their component of a collaborative project. Nevertheless, many national funding bodies will take into account the potential advantages of international collaboration when appraising proposals, even though they may be reluctant to support the additional costs.

5.10 Whether IGP has established *new* patterns of collaboration is less clear. Almost all those we interviewed had had some prior relationship with their foreign partner, including research collaborations in many cases. The email survey we undertook asked specific questions about this issue and nearly 60% had collaborated previously, and over 30% claimed to have undertaken significant joint activities.[14]. This illustrates the other main tension within IGP; that is the balance between opening up new channels of communication and developing new networks and the general desire of Swedish participants to undertake effective research.

5.11 There is an understandable wish on the part of Swedish researchers to collaborate with existing partners for a number of reasons:

[14] These figures are based on 51 responses at the time of writing. Completed questionnaires are still being received.

- most important, they will have developed mutual trust and appreciation of each others strengths (and weaknesses). We have reviewed a small number of projects, entailing new partnerships, which have achieved little because the partner was not in fact capable of contributing to the project as it evolved or the partner simply failed to provide the inputs which had been agreed at the outset

- it is logistically far simpler to extend existing contacts rather than establish new ones

- almost by definition, collaborations which have developed without specific funding reflect mutual interests and are therefore likely to be preferable to new relationships.

5.12 These considerations appear to be reflected in the review process. Some principal investigators reported that the review panel asked for a proposal to be resubmitted with a different (existing) partner because the risks of a new collaboration were considered too high.

5.13 There is another issue relating to the 'renewal objective'. As was discussed above, our view is that individual projects have achieved much in this respect but the impacts have been narrow in two important respects:

- a relatively small number of research intensive universities are the main beneficiaries of IGP. There has been comparatively little participation by the smaller and less research-intensive institutions

- obviously related to the last point, the focus of IGP projects has been on research activities, both as a means of establishing collaborations and as the primary group of activities. Given that the IGP aim is renewal of HE, this seems to be too restricted and there is the potential for IGP to support teaching and learning, including innovative means of delivering HE.

6 Recommendations

Introduction

6.1 Our overall view is that the IGP has been a very successful programme and we believe it would continue to achieve much if it continued in its current form, with some relatively minor modifications. However, we believe there is scope to enhance its impacts in a number of ways.

6.2 The key characteristic of the vast majority of IGP projects is that they are research orientated:

- in most cases the core cooperative activity is a research project, or series of projects
- some have a training aim, but this is almost always concerned with research, at post graduate level and above, and is naturally related to the subject of the research project
- in a few projects, there have been more general teaching and learning benefits to the Swedish partner, but these tend to be narrowly restricted to the specific area of the research collaboration and, in some cases, were an incidental benefit rather than a primary aim.

6.3 We would emphasise that we consider international cooperation in research to be of the utmost importance

- nobody would deny that if Sweden is to develop leading edge research capabilities then its researchers need to collaborate with the best researchers wherever they are located. The IGP has extended and enhanced research collaboration and in this respect has been effective
- because research is an international undertaking, the networks established through research collaborations help to ensure that Swedish academics are connected to developments elsewhere in the world, both in research, but also in respect of other aspects of higher education. Research networks may therefore confer wider benefits on the higher education sector, although it is seldom possible to identify these through an examination of individual IGP projects.

6.4 We also consider the basic structure of the IGP to be well designed and 'fit for purpose'. In particular, we would emphasise the following aspects:

- the range of activities which can be supported

- the relatively long time period over which funding is available enabling activities to be planned an followed through
- the requirement to involve a range of staff, often including post doctorates and post graduates, in addition to key researchers.

6.5 For these reasons, much of the current strategy, and structure and operation, of the IGP should be retained. Our recommendations are designed to enhance the effectiveness of IGP spend and encompass:

- Identification of research projects which are likely to have the greatest impact
- Extension of the programme to include projects with an education, as opposed to research, focus. This does not require any change in 'rules' but will require STINT to actively encourage such projects and will also have implications for the process by which applications are assessed
- Some modifications in the way priority countries are handled
- The introduction of support for project planning prior to embarking on a full project.

More effective research projects

6.6 Many of the projects, where we interviewed participants, have strengthened their international networks and improved the quality of research outputs during (and sometimes after) the IGP. However, there are a small number which claim to have realised a step change in capabilities as a result of the cooperation. We believe that STINT should encourage more applications with such ambitious aims and, when assessing applications, should seek to distinguish between those projects which are likely to develop new capabilities in Sweden and those which, although potentially valuable, are more focused on extending existing expertise and widening networks. We should emphasise that only a small proportion of projects fell into this category, but an explicit statement by STINT could encourage academics to think more widely and increase the quality of the applications.

6.7 These projects may involve bringing together different, although probably related disciplines. A number of researchers we interviewed mentioned their reluctance to engage in international cooperation and interdisciplinary research at the same, time because of the dual management complications this would give rise to. If STINT signalled its intention to favour such projects it could influence behaviour, at least at the margin, in a similar way that the definition of a list of priority countries appears to have done.

6.8 Given the small number, it is not easy to generalise on project characteristics, but we believe the following are distinguishing features. However, not all of them can be expected to be present in every case:

- most obviously, the foreign partner's expertise is in a different, but complementary, area *and* not available in Sweden

- the foreign partner is at the leading edge. We think this is an important characteristic of many successful projects. Cooperation with leading research teams has enabled Swedish researchers to access wider networks beyond the IGP, in part because the foreign partner has made introductions, but also because the simple fact of collaboration with an international leader enhances the standing of the Swedish partner so far as other research groups are concerned. The likelihood of accessing wider networks should be a criterion in the assessment of this kind of proposal. This also underlines the importance of complementarity in capabilities. If the Swedish partner is aiming to develop a new capability then, by definition, they will not be at the leading edge in that area. If, however, they have high level complementary capability than globally competitive research groups may still be interested in cooperation

- there had been previous relationships with the foreign partner. These were essential both to enable the Swedish partner to identify promising cooperative activities and also to secure the participation of the foreign university. The mutual trust which had been developed previously was also important in facilitating cooperation

- research training, of PhDs and post doctorates in particular, should be a significant component of the project. If the aim is to develop new capabilities then the project should extend beyond achieving research outcomes to training and development. A corollary of this is that the project should involve relatively large numbers of individuals within the Swedish research group. Even if individuals are not directly involved in the sense of travelling to the partner, their participation in seminars and workshops can be useful in disseminating information

- related to the last point, research students need to be actively encouraged to enter new research areas in Swedish institutions, and the possibility of travel to leading edge groups may be a powerful attraction

- there was a significant and tangible commitment from the foreign partner to the project. This was reflected both in the parallel research effort and also the time senior staff were prepared to commit to the cooperations

- finally, this kind of project, if successful, could give rise to a useful demonstration effect within Sweden.

6.9 Another project we reviewed has also achieved special impacts, but in a very different way. Our understanding is that Swedish participation has encouraged the partner countries to make very substantial investments in equipment, not available in Sweden, which the Swedish partner now has access to. In effect the IGP investment has leveraged funding from the foreign funding agencies. We hesitate to generalise on the basis of this single example, but the research cooperation is in an area where substantial commercial benefits are expected to arise and this is one of the main reasons for the foreign investment. It may be that IGPs could provide a vehicle for Sweden to maintain active involvement in subject areas which are not considered top priority in Sweden. However, we recognise the difficulty in defining such areas and also that such considerations may be outside the scope of STINT's mission.

6.10 The discussion above has been concerned with identifying projects which are likely to give rise to a step change in capabilities, but has been mainly concerned with research groups which have already developed in-depth capabilities in at least some areas. In recent years, research funding, from a variety of sources, has become available to university colleges and new universities in Sweden. These institutions need to develop their research capabilities and are being assisted by a variety of agencies, notably the KK-stiftelsen. The question arises as to whether the IGP might also have a special role in relation to developing capabilities within these institutions. We have little doubt that international cooperation could be valuable in this respect, but we have strong reservations as to whether the IGP is an appropriate vehicle. Given their current research capabilities, they are, with notable exceptions, unlikely to be attractive partners to high quality foreign groups and the benefits of collaboration with others abroad are questionable. We understand that some of these institutions have developed real strengths in niche areas. However, if this is the case their applications should be considered on merit in competition with the more established research universities.

6.11 For this reason, we do not recommend that special consideration should be given to these institutions. However, joint projects with the established research groups in Sweden should be encouraged since this is more likely to provide access to high quality foreign partners. Swedish institutions cannot, and should not, be forced to collaborate but STINT could specify such cooperation as something it would welcome. There is a danger that artificial cooperations emerge with, at best, peripheral involvement of the 'new' institution. For this reason, we recommend that applicants should provide evidence of cooperation prior to the IGP.

6.12 The previous discussion has attempted to identify areas where IGP impact is likely to be maximised. The inverse is identification of low impact projects. This is a difficult area but we would draw attention to two general issues. First, some IGP participants are large research groups receiving funding from multiple sources. These groups tend to manage their total research budget as a single budget and it appears to be relatively easy, at least for the principal investigators, to access funding for foreign travel. Indeed, we were told by the Swedish Research Council that it will consider favourably requests for funds to cover the costs of international cooperation provided a case can be made that this will strengthen the research project. These groups are also, typically, undertaking high level research and therefore have good foreign contacts and easy access into international cooperation. For such groups, it is difficult to see how the IGP grant has had more than a marginal impact on internationalisation. Indeed, several consultees drew attention to difficulty of disentangling the impacts of IGP funds from other sources. We would emphasise, that we are not suggesting that IGP funds were not used properly, simply that the impacts on the research group have been marginal.

6.13 In some cases, there have been more definite impacts in that international travel, and collaboration has included PhDs and post doctorates, and this might have been difficult to fund from other sources. However, this could be funded more effectively from a programme targeted at PhDs/Post doctorates rather than the IGP which is much more comprehensive in scope. We do not recommend that applications should be rejected simply because they come from large and well-funded research groups. However, we do recommend that STINT considers carefully the extent to which the IGP is significantly adding to the activity which would take place in the absence of funding. We would note that this issue could become more important with the proposal in the Research Bill to create 'Centres of Excellence'. These will be stable and well-funded Centres and, no doubt, able to submit high quality proposals in terms of likely research outputs. The issue of value added from the IGP grant will then be crucial.

6.14 The second point concerns projects in the social sciences and humanities. STINT has encouraged applications in these disciplines and the success rate, relative to applications, is high. We have reviewed relatively few projects in these areas, and some have been successful on any criteria and have fully met STINT objectives. However, we have also observed the following:

- the nature of social sciences projects often differs from other disciplines. Specifically, rather than actual collaboration with the foreign partner, some projects are mainly concerned with study of various aspects of the foreign *country*. The partner is valuable; since they provide insights, information and data sources but the projects do not represent internationalisation of research in the same way as some other disciplines. Most of the humanities and social sciences projects we reviewed attached a low priority to accessing leading edge expertise abroad, but access to complementary expertise was important

- although this trend is less pronounced, the projects sometimes involve relatively fewer staff from the Swedish partner than is the case in other disciplines

- some of those we consulted have indicated that the humanities and social science researchers receiving IGP grants tend to differ from those researchers receiving peer reviewed grants from the Research Council and other sources, whereas in the natural, technical and medical sciences there is a closer correlation between IGP awards and funding from other sources.

6.15 Some of these issues simply reflect the different nature of research in the humanities and social sciences from other disciplines. Specifically, there is no equivalent of joint 'bench' research. In addition, some research in these areas is, by necessity, focused on Swedish issues and international collaboration would not therefore be relevant. However, we believe that there is at least tentative evidence to suggest that the IGP is acting effectively as a substitute for research funding since it is covering the costs of staff, and student, exchanges and this is sufficient to enable research to be undertaken.

6.16 There may be a need for special encouragement for the humanities and social sciences to engage more with international partners but we recommend that applications from these subjects are scrutinised carefully to ensure that the outcome is enhanced internationalisation as opposed to merely increased research on international issues. Emphasis should be placed on the research quality of the project ensuring that it leads to really new insights and not only more fact-gathering exercises.

6.17 Finally, in this section on research, we recommend that less emphasis is given to establishing new cooperations, or more precisely, that new is interpreted in a wider sense. We have referred several times to the fact that problems can arise when new partnerships are formed. In addition, we think it important that, if research renewal is the objective, then leading edge collaborators are sought and it may be difficult to secure their participation if there has been no previous contact. We would certainly not recommend that IGP funds be used to support research which is a continuation or extension of former research projects. However, we would not rule out collaborations where there is a previous history of joint research provided

that the IGP activities were themselves new and intended to achieve a new, and substantial, aim.

Extending the IGP beyond research

6.18 IGP, through its research focus, has achieved much and we would expect research projects to remain an important, probably the major, component of IGP. However, analogous benefits to those arising from international research collaboration can also be derived from collaboration in other forms of higher education, notably teaching and learning. They are essentially:

- the ability to access leading edge developments in teaching and learning outside Sweden
- the potential to develop jointly new approaches to teaching and learning in higher education.

6.19 There is nothing to prevent such applications at present, but in practice they are not coming forward. This, we believe, reflects a perception that the IGP is a research programme. In addition, as is discussed below, the current process for assessing applications means they would be unlikely to succeed even if more applications did come forward.

6.20 The IGP is a possible vehicle for facilitating such cooperation, and, in some ways, at least as closely suited to teaching and learning issues as to research. In particular, the scope to involve a range of staff rather than a few key individuals, and also the relatively long time scales, both fit well with the development and testing of pedagogical innovations. We would not, however, expect students and post doctorates to be involved in teaching projects, as they are in many research projects.

6.21 We are not in a position to define which topics projects should address. These will depend on the key issues facing Swedish higher education and the priorities of individual institutions. However, we would rule out certain areas, in particular:

- pedagogical research as undertaken by ‘education departments’. International cooperation may be entirely valid in this area but there seems no reason why such projects cannot be brought forward within the IGP as is currently stands and considered in relation to other research projects. The emphasis should be on adapting and adopting practice rather than theory
- the transfer, and adaptation, of teaching materials, essentially because it is not clear why cooperation, on any scale, is required to achieve this.

6.22 Examples of the kind of project we have in mind are given below[15]. Annex C of this report provides some summary information on recent UK higher education institute bids for funding of teaching and learning projects as an illustration of what we have in mind. We would emphasise this is not intended as a list of priority areas for Sweden:

- assessment of learning, including the assessment of prior experiential learning (APEL). This is an important topic as many countries are seeking to widen participation in higher education to individuals with non-traditional, or no, qualifications and at different ages after leaving school
- designing the curriculum including: what is to be learnt; why it is to be learnt; how it is to be learnt and how will learning will be demonstrated and achievement assessed.
- enhancing student employability and enterprise skills
- widening participation in higher education – how to recruit students, what kind of learning support do they require and how should this be delivered, are there innovative ways to combine leaning with work, are there innovative modes of delivery
- creating improved links between teaching and research and promoting their integration into the curriculum.

6.23 The rationale for Swedish universities to access leading edge foreign expertise may be clear, but there is a question as to why foreign universities would be interested in cooperation with a Swedish university seeking to develop its capabilities. We believe this question actually derives from a false analogy between research cooperation and cooperation in teaching and learning. Research cooperations typically depend on complementarity in skills, or more simply, similar groups working together on the basis that 'two minds are better than one'. The latter factor is also a consideration in teaching and learning, but progress in this area depends on development, testing in a practical environment, and reformulation if appropriate. In this context, a Swedish 'test bed' could be valuable to a foreign partner. We would also note that:

- the opportunity to benchmark activities and outputs may be valued
- there is not the same priority attached to being first to publication (or introduction) as with research. Those involved in teaching innovation are, generally, much more open to sharing their ideas and may be willing to cooperate with a Swedish university even if the latter is contributing relatively little in a direct sense.

[15] This is a, far from complete, list of some issues which are important considerations in the UK at present.

Project planning

6.24 One area that has proved problematic in some cases is a failure of the partner to deliver what was initially expected, sometimes because the selection was sub-optimal for the way the project evolved. These instances usually reflect cases where there was little, or no, prior relationship between the partners. It is obviously difficult to identify in advance precise requirements of a partner over a four year period and if there has been no previous contact it is difficult to form a judgement as to whether the partner will be able and willing, to adapt to changing circumstances. For this reason, many we consulted felt access to a small grant, mainly for travel, grants to enable them to assess partner capabilities and plan collaborations would be valuable. We have noted that several projects have under spent their grants because of delays in starting – this may be a sign of inadequate preparation.

6.25 At one stage we considered recommending a small grant for project planning purposes which would be subject to a separate approval process from main grant applications. However, subsequent discussions have led us to believe this would not be appropriate for the following reasons:

- it would impose heavy costs, relative to the grant, on those making proposals
- it would be difficult to assess proposals for planning grants, without some insight into the project which was likely to emerge, since the relative merits of different planning activities are unlikely to be easy to identify. Consequently, there would be a danger of funding all applications, or none, or that grants were awarded only to applicants with substantial research track records.

6.26 For these reasons, we recommend that applicants should still submit proposals for a 'full' project. However, this would comprise:

- a description, with costs and time scales, of any planning activities the applicant intends to undertake
- an *outline* description of full project objectives and activities expected, but contingent on the outcome of the planning phase.

6.27 This should provide those assessing the application with enough information to judge whether the full project is worthy of funding. If so, applicants would be awarded the grant for the planning phase and would be given an in-principle commitment to fund the full project provided the outcome of the planning phase was satisfactory. The planning grant would therefore represent the initial phase of the full project. Applicants would be free to specify the length of the planning period, but we would expect this to be no more than one year and often less.

6.28 Applicants would resubmit the full project application, revised and updated as necessary, after the planning phase was completed. If the planned activities and outputs are substantially unchanged from the initial applications then the project would receive immediate approval. If the planning exercise shows that the project is less promising the applicant should be allowed to revise the project and propose alternative partners and/or activities. Any changes as a result of the planning phase, including partners, would require review but the 'default' position would be to approve the project provided the final application was substantially in line with the initial proposal. There would be no requirement to undertake a planning phase and some applicants might elect to proceed straight to full application.

Country priorities

6.29 STINT has identified priority countries for cooperation. To a limited extent these reflect general Swedish priorities to link with, and assist, certain countries, but the underlying rationale is that they represent emerging and dynamic science and technology areas and that cooperation will confer benefits on Swedish research in the long-term. It should, however, be emphasised, that country of cooperation has not been an overriding consideration for STINT. Quality is paramount, and we encountered one example of an applicant who originally proposed a project with a priority country but was advised by the appraisal panel to seek an alternative partner.

6.30 Nevertheless, the list has occasionally caused some problems. Some participants we interviewed were not influenced by the priority list, indeed some were unaware of it, and submitted proposals for collaboration with a partner which they considered to have the strongest research capability. Others have been influenced, and while we encountered no examples of applicants selecting a partner simply because of location there were instances where the partner would not have been the first choice and the priority list, therefore, influenced behaviour at the margin.

6.31 We believe there is a rationale for a priority list. In ones sense, researchers are the best judge of where research capabilities reside, but the system is subject to considerable inertia and there is a natural tendency for researchers to seek cooperation with countries, and individuals, with whom they have previously worked rather than establish new relationships. This is especially true where language and culture throw up barriers, for example Japan. We would, however, recommend:

- as at present, the priority list should not override considerations quality of outputs and impacts

- it would be helpful to some researchers if STINT explained the reasons why countries were included on the list. More specifically, if the list reflects dynamic research bases then it would be helpful to identify broad subject areas where this is the case. At present researchers may be influenced to seek cooperation with a priority country in a subject area in which the country has no real strength.

Implications for STINT and the application process

6.32 Our recommendations do not require radical changes to the IGP structure in the sense of new overall objectives or new rules. Instead, they are concerned with differences in the kinds of projects to fund. This is obviously has implications for the ways in which applications should be assessed. However, more important is that the academic community needs to be made aware of changes in strategy.

Communicating the changes

6.33 STINT therefore needs to communicate the recommended changes to the academic community, through the web site, published materials and other channels. The key elements which, according to our recommendations, need to be publicised are STINT' interest in receiving applications in:

- areas which will lead to step changes in research capabilities as opposed to impacts at the margin. It should be made more explicit that the IGP is not interested in applications which are essentially concerned with undertaking research in a particular area with minimal impacts on the internationalisation of the Swedish research group

- projects with a teaching and learning focus, possibly, but not necessarily, combined with a research component.

6.34 So far as extending the IGP to teaching and learning is concerned, STINT may wish to indicate that it does not expect to devote a substantial share of the budget to such projects, at least initially. We believe this would be sensible because:

- although we have little doubt that there will be interest in these areas, we have not been able to assess the potential demand

- it will take a year or two before the volume of applications develops and STINT is able to form a judgement about the overall quality of applications in this area. STINT needs to avoid a situation where research applications are unnecessarily discouraged and could therefore present the extension to teaching and learning as a 'pilot' to test demand and potential quality.

6.35 On a more practical level:

- the introduction of funding for planning IGPs needs to be communicated and explained
- we believe more information on the priority countries should be provided. In particular where the rationale derives from their dynamic research and technology bases then this should be noted and the broad areas of technology should also be specified.

6.36 We realise that the last bullet point may create some difficulties. However, we think it important because the current list of priority countries has created some confusion in some sections of the research community and has led to some Swedish researchers seeking cooperation with priority countries in subject areas which do not necessarily coincide with those STINT had in mind when it defined the current priorities. It would probably be sufficient to define broad areas, for example, electronics, medicine, biotechnology etc.

6.37 Some countries are included on the priority list essentially because of wider Swedish policies to link with them, although they may also have strengths in some areas of technology. We believe this is probably recognised by Swedish researchers and should be made explicit.

Assessing applications

6.38 The main implication of our recommendations for the assessment of applications is that research quality and potential cannot remain the only, or principal criterion, as is presently the case. This, in turn, implies that projects with very different aims need to be compared in some sense with one another which creates difficulties. We do, however believe that this difficulty should not be overstated. There are also similar difficulties in judging the relative merits of research proposals in different subject areas, yet the IGP has successfully coped with this for several years. One point is clear, however; the assessment process needs to be extended to include expertise in innovative approaches to teaching and learning as well as in research. We would reiterate, that it is not expertise in pedagogical research which is required, but rather an awareness of innovative developments in Sweden and elsewhere, (although this knowledge might well be embodied in individuals active in pedagogical research.)

6.39 We believe there are two options open to STINT for assessing proposals:

- the overall applications process could be modified by the identification of peer reviewers who would make an initial assessment of proposals as individuals. Some would have research expertise but experience of innovation in teaching and learning must also be available. The applications would then be referred to a single panel which would make recommendations to the STINT board.

- the extension to teaching and learning could be explicitly introduced on a pilot basis, with a notional allocation of funding (although this sum need not be communicated to the academic community). STINT could establish a separate panel to assess proposals with a significant teaching and learning component on an equivalent basis to the current subject panels. The panels would provide advice to the STINT board.

6.40 Both approaches enable STINT to control the balance between teaching and research projects in the light of the volume and quality of applications. Our preference is, however, for the first. It would avoid the need for STINT to make a prior allocation of funding between teaching and research which we believe will be difficult initially. It will not be easy for a single panel to compare teaching and research projects but academic staff whose focus is research can also have insights into, and experience of, the teaching process and members can be selected to ensure that the panel encompasses the appropriate knowledge and experience.