

Institute for Studies in
Research and Higher Education
Munthesgate 29
N-0260 Oslo, Norway
Tel. (* 47) 22 92 51 00
Fax (* 47) 22 43 89 70

U-notat 2/93

Norwegian R&D and the Central and Eastern European Countries*

by Hans Skoie and Nina K. Lidahl

CONTENTS

1. The Overall Pattern of Norwegian International Cooperation in R&D
 - 1.1 Introduction
 - 1.2 The economic resources involved
 - 1.3 Personnel mobility
 - 1.3.1 Norwegian scholars going abroad
 - 1.3.2 Visits by foreign scientists to Norway
2. The Eastern European Dimension
 - 2.1 Introduction
 - 2.2 The Norwegian programmes
 - 2.2.1 General remarks
 - 2.2.2 The East European Programme
 - 2.2.3 The Cultural Exchange Scheme
 - 2.2.3.1 General scheme
 - 2.2.3.2 Specialist Exchanges
 - 2.2.4 The Nordic Baltic Scholarship Programme
 - 2.3 Norwegian visits to East Europe
3. Conclusion
4. References

* Paper submitted to the Vienna conference on East-West Mobility of Scientists and Engineers, February 18-19 1993, on the request of the Norwegian Ministry of Education, Research and Church Affairs. The paper is the sole responsibility of the authors. The authors are particularly grateful to Elisabeth Johnsen, Head of NAVFs Secretariat for Cultural Exchange Programmes (SEP).

1. The Overall Pattern of Norwegian International Cooperation in R&D

1.1 Introduction

Stimulating the international dimension of R&D and international cooperation in R&D has been an important task in Norwegian R&D policies for a long time. The country's small size and geographical location also make such a policy more or less imperative.

In the 1980s this policy was purposively intensified, research staff were strongly encouraged to travel internationally and the country became a member of such collaborative efforts as EMBL, ESA and the ECs Framework Programme through the European Economic Area agreement (which still has to be finally confirmed). Events in eastern Europe also led to opportunities to cooperate with these states more intensively.

In comparison, the mobility among Norwegian researchers is probably higher than in most other OECD countries. This may be a consequence of a traditionally rather weak research training in Norway, and relatively generous financial support by the research councils for travel and longer visits to foreign countries in particular. It may also be fair to say that the research community by and large has recognized and accepted the value of professional training and experience from good departments and laboratories abroad. In 1958, for example, the Nordic ministers of education agreed to advertise all professorships in all the Nordic countries.

The geographical orientation of personnel mobility has increasingly been Anglo-American, in strong contrast to the situation before World War II when cooperation with the other Nordic countries and Germany was dominant. The Anglo-American orientation has obviously been strengthened by attractive Ph.D. research training programmes. Furthermore, the effect of the rise

of institutional cooperation in R&D - particularly in basic science - has had a significant impact.¹⁾

At the same time, Norwegian research policy has always emphasized that informal cooperation, initiated and sustained within the scientific community, should form the bulk of such cooperation. By the same token, Norway has probably negotiated fewer agreements with foreign countries in this area than most other OECD countries. In the last few years, however, the number of such agreements has increased. This is not least a result of the new developments in eastern Europe and closer contact to some developing countries.

As regards Eastern Europe the Norwegian Government has launched a long-term action programme covering the period 1992-96. The main objective of the programme is to contribute to the development of democracy and to a sustainable economic development. In particular, measures involving the transfer of knowledge and expertise will be supported.

The measures implemented are at the present focused on countries in the immediate vicinity of Norway, i.e. the northwestern parts of Russia, the Baltic States and Poland, but other countries may also benefit from the programme. Education and research is defined as one of the major priority sectors in the programme. In addition aspects related to research will be included in other main sectors, e.g. democratization, environmental and energy-related measures. Within research high priority will be given to exchanges, support to research institutions and other measures to prevent brain-drain from Eastern European countries.

1.2. The economic resources involved

It is difficult to estimate the amount of economic resources involved in international R&D cooperation in most countries. In addition to major formalized collaborative efforts which are easily identifiable in state budgets, research council budgets,

etc., there is considerable expenditure for travel and other matters which are usually concealed in non-identifiable budget items both at a national and "bench" level. Based on our analyses of the state budget, we have calculated the R&D expenditure for organized international R&D cooperation in Norway to be approximately 1 300 million NOK in 1992 (Table 1.) This is a low estimate due to the additional and non-identifiable expenditure mentioned above. Within the Government's action programme grants for bilateral measures in Eastern Europe in 1992 amounted to 310 mill. NOK of which 174 mill. NOK was granted to project assistance to Eastern European countries in different fields. For 1993 the grants for project assistance will be increased to 261 mill. NOK. The sum allocated to research projects is not specified. In 1992 the sum corresponded to around 8 mill. NOK. It is expected that the sum will increase considerably in 1993. These sums are not included in the table below.

Table 1. shows that Government ministries and research councils spend approximately twice as much as private industry on international R&D cooperation. Only somewhat more than half of the resources can be specified by geographical region. Cooperation with Europe takes up most resources. This category includes well known cooperative efforts like CERN, EMBL, ESA, and EC activities. The category "outside Europe" includes a lot of UN activities related to developing countries.

Table 1. Approximate Norwegian expenditure for organized international R&D cooperation in 1992. By main geographical orientation.

Source	Nordic	Europe	Outside Europe	Not specified	Total
Government ministries	40	280	200	180	700
Research councils	15	100	50	15	180
Industry				400	400
Total	55	380	250	595	1280

Source: Institute for Studies in Research and Higher Education. Also published by the Government in the State Budget Analysis for 1993. ²⁾

1.3 Personnel mobility

1.3.1 Norwegian scholars going abroad

In Norway there is a tradition of going abroad to study resulting from the inability of the educational system to provide sufficient training in some professional fields as well as weak research training. In most of the years since the Second World War, between 10 and 20 per cent of the total number of Norwegian students have been enrolled abroad, mainly in western Europe outside Scandinavia. This enrolment has been heavily concentrated in certain professional fields like engineering, medicine and dentistry. At the doctoral level, 20 per cent of all holders of doctorates had obtained foreign degrees at the end of the sixties - today this proportion is smaller.

In a study of tenured university faculty at the University of Oslo in 1968 we found that 75 per cent of the staff sampled had made at least one visit abroad of not less than one term's duration; each of these persons had an average of two visits. Nearly 80 per cent of the visits were for one year or more.³⁾ We think the number and direction of long visits of this kind are a good indication of active scientific cooperation among coun-

tries. Accordingly, we shall present some data on such visits (Table 2.).

Table 2. Visits abroad by University of Oslo staff members in different time periods, according to country of visit (by percentage of all visits).

Time period	The Nordic countries	Elsewhere in Europe	Canada and USA	Elsewhere in world	Total	
					No.	%
1939 and before	11	71	18	0	28	100
1940-1954	15	32	52	0	65	100
1955-1968	9	24	61	6	147	100
Total	11	32	53	4	240	100

We notice in Table 2. that Canada and the USA have the highest rate of visitors - 53% in total and particularly so in the postwar period. East Europe has not been specified but the number was negligible in the early postwar period.

The pattern of such visits has also been studied for more recent years in two major surveys of tenured university staff: 1981⁴⁾ and 1991.⁵⁾ These surveys have the advantage that they cover all four universities in Norway. The results of the 1981 survey are given in Table 3. below.

Table 3. Tenured academic personnel by region where they had at least one longer research period abroad. By field. Percentage. 1981.

Region	Humanities	Social Scs.	Natural Scs.	Medicine	All
North America	17	34	46	33	33
West Europe excluding the Nordic countries	31	20	28	15	24
East Europe	3	1	1	-	1
Other	4	7	3	3	4
(N)	(434)	(298)	(491)	(362)	(1585)

The percentages are based on all researchers in tenured academic positions.

The 1981 survey also shows a North American dominance in all fields apart from the humanities. The number of visits to East Europe is still small, however in the humanities it is noticeable.

The results of the 1991 survey are given in Table 4.

Table 4. Longer research visits abroad by region and field.
Percentage of number of visits. 1991.

Region	Humanities	Social Scs.	Natural Scs.	Medicine	Technology
West Europe excluding the Nordic countries	47	30	21	20	21
North America	32	48	64	57	66
East Europe	2	2	-	1	1
Other	6	15	8	12	10
Nordic countries	13	5	8	11	3
Total	100	100	101	101	101
(N)	(198)	(192)	(445)	(160)	(122)

In Table 4. we observe the North American dominance is still strong apart from the humanities. Furthermore, East Europe appears weak in the Table.

In Table 5. the 1981 and 1991 university surveys give an account of all foreign travel among tenured staff in Norway in a single year; 1981 and 1991 respectively.

Table 5. Research visits in 1981 and 1991 by geographical orientation and type of visit. Percentage.

Region	Conferences seminars		Guest lecturers		Study/research visit		Evaluation work	
	1981	1991	1981	1991	1981	1991	1981	1991
Nordic countries	37	28	41	29	21	17	83	71
West Europe	43	45	31	35	43	42	9	15
East Europe	4	5	5	8	3	4	-	1
North America	11	16	17	19	25	24	5	6
Other	5	6	6	9	8	13	2	6
(N)	(1392)	(1609)	(387)	(551)	(488)	(578)	(121)	(160)

The percentages are based on the number of trips in each category.

Source: The University Surveys of the Institute for Studies in Research and Higher Education.

North American continued to be a continent to visit during the 1980s, but increases in visits were not large. There is an increase in the percentage of research trips among university staff travelling farther in 1991 than they did in the previous decade. This tendency holds for all types of research trips.

West Europe holds its position as the favourite place to visit by Norwegian researchers. In contrast, the Nordic countries' attractiveness decreased during the period 1981 to 1991. This tendency also holds for all types of research visits.

As a result of the turbulent situation in eastern Europe and the following openness and orientation to the West, we could expect an increase in the percentage of persons undertaking research visits to Norway. Compared with the university studies of 1981 and 1991 we see that this has only occurred to a very modest extent so far. The largest increase we have registered concerns guest lecturers, but even this increase is small: the figure was 5 per cent in 1981 which increased to 8 per cent in 1991.

1.3.2. Visits by foreign scientists to Norway

Unfortunately, we do not have comparable data on foreign scholars visiting Norwegian colleagues on a professional basis for longer periods of time. However, there has been a long tradition of foreign scholars and scientists visiting Norway as guest lecturers. The number of foreigners who come on a temporary basis

(at least one term) to work in the Norwegian research establishment is rather small in most areas and a remarkably high proportion (75 per cent) of these few visitors come from the USA, at least that was the case in the early postwar period where we have some data (see Table 6.).⁶⁾

There are to our knowledge no regular visiting professorships at the Norwegian universities. There exist, however, two successful experiments with regard to foreign research workers coming to Norway. The Council for Scientific and Industrial Research (NTNF) has for years run a special postdoctoral fellowship programme with the aim of attracting foreigners to work for one year in Norway. The Council has by and large been able to attract able people and interest in the programme has been good. Here too, the American group is large and of increasing significance (see Table 6.).

The Institute for Social Research, an independent institute in Oslo, has, with the exception of one year, had at least one scholar from abroad in the period 1948-1966, nine out of ten of these have been Americans (see Table 6.). The Institute has not provided financial support for the visitors, although it has actively sought to attract foreigners.

Table 6. Foreign scholars on visits to Norway

Visit from	NTNF programme (1957-1966)		Inst. for Social Research (1948-1966)		Univ. of Oslo (8. depts.) (1963-1967)	
	No.	%	No.	%	No.	%
The Nordic countries	0	0	2	5	1	2
Elsewhere in Europe	33	41	3	7	7	18
America	31	39	38	88	30	75
Elsewhere	16	20	0	0	2	5
Total	80	100	43	100	40	100

During the 1980s better financial arrangements have been provided by the research councils to attract foreign researchers to Norway on a temporary basis. Rather generous schemes have been set up. However, the infrastructure meeting foreign scholars is usually

not particularly well suited for foreign scholars on temporary visits to Norway according to many observers.

In 1991 the Institute for Studies in Research and Higher Education undertook a survey of the institute sector (institutions not affiliated to universities). This showed that some institutes had guest researchers from East Europe even though most visitors came from the West (Table 7.). The majority of the visitors from East Europe came from Russia and Poland.⁷⁾

Table 7. Foreign guests to the Norwegian institute sector who stayed for more than two weeks in 1991. The number of institutes who hosted at least one foreign guest. By region.

Region	No. of institutes
Nordic countries	13
West Europe	26
East Europe	22
America	32
Africa	5
Asia	7
Other	3

2. The Eastern European Dimension

2.1. Introduction

The overall picture we have given shows that the eastern European dimension in Norwegian R&D cooperation so far has been modest or non-existent. The Cold War period obviously had a particularly strong effect in this area - ordinary scientific cooperation did not exist in the majority of areas. Very few scientists travelled either way and project cooperation was more or less non-existent. To some extent we find an exception however, in research related to the Northern and Polar regions. Here some cooperation has existed for a long time - in particular between Russian and Norwegian scientists.

The recent transition period has gradually transformed this picture somewhat. In particular, the number of visits either way has increased significantly - partly due to some earmarked funding arrangements for scientific cooperation set up by Government. Project cooperation is now also emerging. In addition to research topics related to the Northern and Polar regions in both natural science, history and archaeology, special projects related to fishing are underway.

2.2 The Norwegian programmes

2.2.1 General remarks

The Norwegian approach in recent years has been to seek active cooperation with eastern Europe and to help in the transition period. Research has been seen as an appropriate area for such cooperation and assistance. Furthermore, the Government has given priority to the Baltic states in this connection both in general and in the field of research in particular.

During the past few years several programmes directed towards eastern Europe have been initiated in Norway and the other Nordic countries. Exchange programmes for researchers have been the dominant feature.

The programmes directed towards eastern Europe have usually been politically initiated and they are primarily financed by the Ministry of Foreign Affairs. These programmes are intended to establish professional links and to transfer knowledge. In general there has been great interest in these programmes among researchers both in Norway and the eastern states.

In 1991 a general programme for research collaboration between Norway and eastern European countries was established (the East European Programme). This programme is financed by the Ministry of Foreign Affairs and during its first year it encompassed the fields of economics, marketing and political science. The number of fields and the duration of the fellowships are being continually increased. In 1991 two one-year subsidiary programmes

were also established for eastern Europe: the Norwegian-Baltic programme includes the fields of economics and the social sciences, while a Norwegian-Polish programme supported collaborative efforts within trade, economics and marketing. These two programmes had a budget of 1.7 million NOK. Now these programmes have been streamlined into a single East European Programme which for the time being gives priority to the Baltic states in addition to some other countries.

In addition to these programmes, for a long time Norway has had cultural agreements with several eastern European countries. The target groups for these fellowships are students and young researchers. A certain number of fellowships are supported financially through these agreements. Furthermore, there is also a specialist exchange programme under the cultural agreements which particularly supports short-term exchanges.

Nordic arrangements include, inter al., the Nordic Baltic Programme which is financed by the Nordic Council of Ministers. This programme also started in 1991 for a duration of five years.

2.2.2 The East European Programme

In addition to the Government's action programme for assistance to economics in transition in Eastern Europe, cf. 1.1. above, a special scholarship programme aiming primarily at research cooperation with the Eastern European countries was started in 1991. The Norwegian Research Council for Science and the Humanities' (NAVF) Secretariat for Cultural Exchange Programmes (SEP) manages the programmes for collaboration between Norway and Central and East European countries. SEP received 2 million NOK annually under the East European Programme in 1991 and 1992. In 1993 the budget was doubled.

The objective of the programme "is to promote research cooperation, i.e., to initiate new contracts or to develop already existing collaboration between research workers (both senior and junior level) in Norway and the cooperating nations".

Both prioritized countries and fields of learning have changed somewhat over time. The duration of the fellowship period has also varied. During the first year the programme only encompassed short-term exchanges, while from 1992 it also includes visits of a longer duration. Support is primarily given for visits to Norway by Central and East European researchers and students. Visits may be up to six months.

Applications may also be made by Norwegians who work at research institutes who already have or desire to initiate collaboration with institutions or individuals in Central or East European countries. Norwegian institutions may also apply for support for the arrangement of courses, seminars, etc., with participation from Central and East European researchers.

As already mentioned at present the Baltic states are among those given priority within the Programme. So far fields in the social sciences and the humanities have received most of the funds. Table 8. gives the number of fellowship holders by country within the East European Programme. The figures for the separate Baltic Programme in 1991 are included.

Table 8. East Europeans who visited Norway and Norwegians who visited Central and East European countries under the East European Programme. 1991-1992.

Country	No. of people coming to Norway from	No. of people going from Norway to
Albania	3	
Bulgaria	10	1
Estonia	22	6
Yugoslavia	5	1
Latvia	13	6
Lithuania	14	8
Poland	19	1
Romania	8	1
USSR	3	6
Russia	7	3
Czechoslovakia	16	7
Hungary	12	5
Total	132	45

Source: NAVFs SEP. Norwegians who visited more than one country only appear once in the Table.

We notice that one hundred and thirty-two East Europeans came to Norway and forty-five Norwegians visited East Europe with funding from the Programme in 1991-1992. Funds from the Programme were also used for joint seminars, etc., with participants from Central and East Europe.

2.2.3. The Cultural Exchange Scheme

2.2.3.1 General scheme

The cultural exchange scheme includes two types of exchanges - Government scholarships and special exchanges. Such agreements have been established with Bulgaria, Czechoslovakia, Poland, Romania, Russia, Yugoslavia, and Hungary. The target groups for the Government scholarships are young researchers and students in the countries with which Norway has cultural agreements. Such

agreements vary from country to country. The number of scholarships included in the current agreements with Czechoslovakia and Poland are the most extensive.

The intention behind these scholarships is "to establish contacts between Norwegian and foreign students/researchers and institutions of higher learning/research. They are not intended to finance a complete education/research project in Norway".

Candidates who intend to study Nordic topics are prioritized. In order to be eligible an applicant must have at least two years' higher education or equivalent. The scholarships are usually given for one academic year.

Table 9. shows that in the period 1988-1993 more than two hundred researches from East Europe have come to Norway under this scheme. Poland and Yugoslavia are particularly well represented.

Table 9. The number of government scholarship recipients in Norway from Central and East European countries, 1988-1993.

Country	1988- /89	1989- /90	1990- /91	1991- /92	1992- /93	Total
Bulgaria	3	4	5	3	2	17
E. Ger- many	5	4	-	-	-	9
Yugo- slavia	3	3	7	5	-	18
Poland	13	15	13	11	15	67
Romania	-	-	-	1	3	4
Russia	-	-	-	-	7	7
USSR	4	7	7	5	-	23
Czecho- slovakia	12	12	10	12	12	58
Hungary	5	1	5	6	5	22
Total	45	46	47	43	44	225

Source: NAVFs SEP

2.2.3.2 Specialist Exchanges

These are intended for short exchanges of one to three weeks' duration so that a specialistist can become familiar with his topic in the host country and establish contacts with the intention of further collaboration between the countries involved. Due to budget shortages only a small proportion of the quotas involved are currently filled. Table 10. shows that many more eastern Europeans come to Norway than Norwegians travel to East Europe. During the years 1989-1992, 162 East Europeans visited Norway under this scheme, the number has decreased although the quotas have not changed. The number of Norwegians visiting eastern Europe has also decreased.

Table 10. Specialist exchanges under the cultural agreements in the years 1989 to 1992.

Country	Norwegians to East Europe					East Europeans to Norway				
	1989	1990	1991	1992	Total	1989	1990	1991	1992	Total
Bulgaria	-	4	1	3	8	4	5	4	1	14
Yugoslavia	3	3	1	-	7	9	8	4	-	21
Poland	9	7	-	2	18	9	12	2	3	26
Romania	-	-	-	-	-	-	2	-	2	4
Russia	-	-	-	2	2	-	-	-	3	3
USSR	7	6	4	-	17	10	10	2	-	22
Czechoslovakia	3	4	3	2	12	7	11	7	5	30
East Germany	5	9	-	-	14	8	13	-	-	21
Hungary	4	-	1	2	7	-	13	2	6	21
Total	31	33	10	11	85	47	74	21	20	162

Source: NAVFs SEP.

2.2.4 The Nordic Baltic Scholarship Programme

This Programme is based on a multinational agreement between the Nordic countries and the Baltic republics. The Programme is financed by the Nordic Council of Ministers, and NAVFs SEP manages the Norwegian part of the Programme. This Programme began in 1991 and is intended to last for five years. During its first year it had an annual budget of five million NOK. It now has an annual budget of about ten million NOK of which the Norwegian contribution is approximately two million NOK annually.

The objective of the Programme is "to promote the opportunity of study/research in Denmark, Finland, Iceland, Norway and Sweden of students and staff resident in Estonia, Latvia, and Lithuania". Support is given from three to six months, while Norwegians generally are supposed to have shorter visits.

The Programme offers scholarships for travel both ways. The criterion for Nordic scholars is that "they intend to stay as a visiting professor or scientist, advisor, etc., in one of the Baltic republics". From the start the Programme concentrated heavily on areas in the social sciences. However, from 1993 its scope was enlarged to also include natural sciences, medicine and technology.

Table 11. Baltic nationals who visited Norway and Norwegians who visited the Baltic republics under the Nordic Baltic Scholarship Programme. 1991-1992.

Country	No. of Baltic nationals to Norway	No. of Norwegians to the Baltic republics
Estonia	27	2
Latvia	26	1
Lithuania	35	2
Total	88	5

Source: NAVFs SEP.

Norwegians who visited several countries are only registered once in the Table.

Altogether, eighty-eight Baltic nationals visited Norway under the Programme, while five Norwegians visited the Baltic republics. The difference is because Baltic nationals are prioritized.

2.3. Norwegian visits to East Europe

Table 12. lists the East European countries which were visited in 1991 by Norwegian university scholars and the objective for the trip. The Table shows that most people travelled to East Europe in connection with conference participation, a considerable number also travelled to give guest lectures or to do collaborative research. USSR is the country visited most often followed by Poland and Hungary.

In Table 13. information is given on the number of Norwegians who have visited eastern Europe under the exchange programmes dealt with earlier. Altogether 135 Norwegian scholars have made such visits, with the USSR, Poland and Czechoslovakia as the main targets.

Table 12. The number of trips made to East Europe by Norwegian university staff in 1991. By country and objective.

Country	Conferences	Guest lectures	Study/Research	Evaluation work	Research collaboration	Total
Albania					1	1
Bulgaria		1	1		1	3
Yugoslavia	7	2	1		4	14
Poland	12	14	4	2	5	37
Romania	1	1			1	3
USSR	24	22	14		22	82
Hungary	29	2	1		3	35
Total	(73)	(42)	(21)	(2)	(37)	(175)

Source: Institute for Studies in Research and Higher Education.
University Survey.

Table 13. Norwegians to East Europe under different exchange programmes.

Country	East Europe Programme 1991-1992	Nordic Baltic Programme 1991-1992	Specialist exchanges cultural agreements	Total
Albania				
Bulgaria	1		8	9
Estonia	6			6
Yugoslavia	1	2	7	10
Latvia	6	1		7
Lithuania	8	2		10
Poland	1		18	19
Romania	1			1
Russia	3		2	5
USSR	6		17	23
Czecho-slovakia	7		12	19
Hungary	5		7	12
East Germany			14	14
Total	45	5	85	135

3. Conclusion

The international dimension in Norwegian R&D is increasingly seen as an important one. Events in eastern Europe have given the scientific community in Norway greater possibility for professional exchange and cooperation with states which so far have not been well integrated within western research.

The Norwegian Government has made deliberate efforts to strengthen and assist our neighbours in eastern Europe in the areas of science and technology in recent years. Particular exchange schemes have been set up and many have applied for fellowships, etc., through these schemes. Accordingly, Norway has experienced an influx of many visitors. However, so far no immigration (brain gain) has been observed. Table 14. summarizes the number of East

Europeans who have visited Norway under the special exchange programmes which have been established - altogether 607 researchers. Most countries are represented - particularly the small Baltic countries due to the priority they have been given.

Table 14. East Europeans to Norway under different exchange programmes.

Country	East Europe Programme 1991-92	Nordic Baltic Programme 1991-1992	Cultural agreements 1989-1992		Total
			Govt. scholarships	Specialist Exchanges	
Albania	3				3
Bulgaria	10		17	14	41
Estonia	22	27			49
Yugoslavia	5		18	21	44
Latvia	13	26			39
Lithuania	14	35			49
Poland	19		67	26	112
Romania	8		4	4	16
Russia	7		7	3	17
USSR	3		23	22	48
Czechoslovakia	16		58	30	104
Hungary	12		22	21	55
East Germany			9	21	30
Total	132	88	225	162	607

We have also noticed that project cooperation has been initiated and pursued to a significant extent. This applies particularly to Northern and Polar regions where Norwegian and Russian scientists have launched several joint efforts. Hopefully, this development might be extended in the years to come in many disciplines and research areas.

References

1. International cooperation is as a rule more extensive in basic research than applied research and development activities due to the political component involved in the latter.
2. The State Budget for 1993. The Ministry of Education, Research and Church Affairs. Page 20.
3. Hans Skoie: The problems of a small scientific community: the Norwegian Case. Minerva Vol VII, No 3, Spring 1969.
4. Karen Nossun Bie: Internasjonal kontakt blant universitetsforskere: Institute for Studies in Research and Higher Education. Report 1985:6. (International Contacts Among University Research Workers. English summary.)
5. Ingvild Marheim Larsen: Norske universitetsforskere - kosmopolitter i forskning? Institute for Studies in Research and Higher Education. Report 11/92. (Norwegian University Researchers)
6. Hans Skoie see above.
7. Ole Wiig: Unpublished results from a survey by the Institute for Studies in Research and Higher Education 1991.