

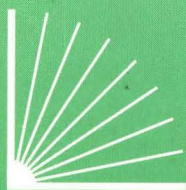
Rapport 3/94

Science Policy Studies in Norway

Hans Skoie



1969 – 1994



Utredningsinstituttet

FOR FORSKNING OG HØYERE UTDANNING

Rapport 3/94

Science Policy Studies in Norway

Hans Skoie

Oversikt over andre publikasjoner på feltet

Blume, Stuart (1978): *Science policy research*. NAVF-U, Melding 1978:1.

Skoie, Hans & Anne Rollefsen (1984): *Norsk forskningsorganisasjon og forskningspolitikk i etterkrigstiden*. En bibliografi. NAVF-U, Notat 4/84.

ISBN 82-7218-311-0
ISSN 0804-6395

GCS AS - Oslo

Foreword

In this report we give first a broad overview of the activities in the area of science policy studies in Norway. The article gives a general perspective including a short history of the development of studies of this kind in Norway. In addition, the second article gives an account of the activities at the Institute for Studies in Research and Higher Education where such studies have been carried out in a separate Department of R&D Statistics and Science Policy Studies for the last twenty-five years. To get a better grasp of the activities at the Institute we have also included a list of Science Policy Publications for the last three years.

The articles were originally presented in a Nordic/Norwegian context and have been translated into English. We hope the report may be of some interest to a wider audience.

Hans Skoie, Head of the Department mentioned for twenty-five years, has written both articles.

Oslo, May, 1994

Johan-Kristian Tønder
Director

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Science Policy Studies in Norway *- an overview**

1 Introduction

The concept of "research on research" only began to gain some acceptance in Norway in the last few years, and then only as a rather vague term for a number of scholarly activities. Terms that were in more common use included the theory of science (*wissenschaftstheorie* - centred on the philosophy, sociology and history of science); *science policy studies* (sociology, political science); and *innovation and technology studies* (economics, economic history, the history of technology). Questions relating to research ethics are not normally included in those categories, nor will they be considered here. The theory of science has mainly been a university concern, whereas studies of science policy have won more of a place in the institute sector and in the research policy establishments.

I shall in the following attempt to give a brief survey of activities in these areas in Norway. The first part will review important factors and events that clearly affected the development of research in this area. The second part will consider the current situation, with the emphasis on *institutionalised* activities. This is, I repeat, primarily a survey: no attempt is being made to deal systematically with such questions as quality or usefulness of these activities.

* This paper was commissioned by the Research Policy Committee of the Nordic Ministerial Council. It was published in the report "Forskning om forskning", by the Nordic Council, Copenhagen, Tema Nord 1994: 530.

2 A brief retrospect

2.1 The Norwegian philosophical tradition and Arne Næss

According to Professor of philosophy Knut Erik Tranøy, Norwegian philosophers have taken a keen interest in science ever since the end of the last century¹. An especially prominent part has been played by Professor Arne Næss, notably in connection with the hypothetical deductive method, hermeneutics, and empirical semantics. The interest he took in and inspiration he gave to the emerging social sciences during and after World War II have been well studied and documented².

In his many lecturing activities, Næss managed in due course to spread his interest in questions related to science widely, not least thanks to the unique Norwegian institution of *preliminary university* examinations: the syllabuses of which devote a fair share of attention to the philosophy of science.

2.2 The economists and the residual factor

The economic importance of research and education in addition to labour and capital ("the residual factor") began attracting attention in the 1950s in works by such economists as Schultz, Denison, Solow and Arrow. They were quick to find readers in Norway, where several other analyses along the same lines were carried out by Odd Aukrust, Juul Bjerke and Kjell Eide.

But in Norway this did not really add up to a "school of thought", and Norwegian economists soon lost interest in this aspect of research and technology. Not until the late 1980s did interest in this field begin to build up again among some economists, especially in connection with questions related to technology and innovation.

2.3 The Role of the Research Councils

To a greater extent than research councils in most other countries, those in Norway, and particularly NAVF (the Norwegian Research Council for Science and the Humanities), have themselves initiated scholarly inquiries into research and research policy³. This took off in earnest in 1957, with the large-scale inquiry into the supply and demand of university graduates by the Research Councils and their Joint Committee. The secretariat set up for that inquiry in NAVF was in 1960 formalized into NAVF's Department for Studies in Research and Higher Education. The Department was closely linked to NAVF, but had a separate Board.

In 1969, the Department was turned into an independent institute, which right from the start had a special department for "research statistics, research organization and research policy". It was originally essentially intended to contribute to the operations of the Research Council *as such*, but as it gradually extended its scope it became in effect a national centre in this area. Among the factors which had an important bearing on the Institute were the responsibility given to the Research Councils for national R&D statistics in the 1960ies⁴, and their heavy involvement in the training and recruitment of researchers. The latter led to numerous analyses of the researcher population and its development. Through its *statistics*, its *studies*, and its *research*, the Institute having a staff of approximately 50 people, has over the years shed light on many questions relating to resources, organization, and policy in the academic and research community⁵.

2.4 The Nordic Dimention

In the 1960s, the Nordic Summer University was a vital and active organization, and ran study groups in several towns in the Nordic countries⁶. In the middle of the decade, one of the study groups began concentrating on research policy, at that time a new and rather *esoteric subject*. The political scientist Sverker Gustavsson from Uppsala led the work and the lively discussions at the summer sessions held for a number of years, with participants both from the academic world and from research policy practitioners⁷. The latter included Professor Bror Rexed, then an influential general secretary of Sweden's Science Advisory Board, which was in its hectic start-up phase.

The research policy debate on "Criteria for Scientific Choice" initiated by Professor Edward Shils in the new periodical *Minerva* was a particularly prominent feature of the activities, not least at the Nordic summer sessions. The Oslo group took up a somewhat broader range of topics, including university policy and the training of researchers⁸. The work probably had its greatest impact in Norway, where it inspired and legitimised the studies of research policy being taken up at NAVF's Institute for Studies in Research and Higher Education⁹.

Also other developments in the Nordic countries gave inspiration in the same direction. The setting up of the Research Policy Programme in Lund in the early sixties was such an event. Dr. Stevan Dedijer, the central organizer, also toured the Nordic countries in the mid-sixties giving vigorous talks on the need for developing national science policies and science policy studies in particular^{9a)}. The Natural Science Research Council in Sweden also set up a Committee on

Research Organization and Research Economy which awarded small grants for science policy studies in the sixties and seventies^{9b}). Furthermore, a small Nordic Contact Group for exchange of information in the area of science policy and science policy studies met regularly once or twice a year in the latter part of the sixties/early seventies^{9c}).

2.5 The theory of science and NAVF's initiative

As mentioned earlier, a philosophy of science approach gained a prominent position in this area at an early stage. The student revolution in 1968 and the turbulent years which followed added to the interest, especially in connection with the *critical activity* carried on within disciplines and departments. To some extent, this was an extension and amplification of the intense discussion of positivism which had already been going on in Norway for many years. (As professor in sociology, Vilhelm Aubert remarked in the 1970s, a philosopher can make a living in Norway by professing antipositivism: as an academic occupation, it has found a niche at the university¹⁰.)

In 1974, NAVF's Council for Research in the Humanities initiated a state of the art study of subjects related to the theory of science in Norway. Knut Erik Tranøy undertook the assignment. Discussing the terminology, Tranøy found that "philosophy of science", "theory of science" and "science studies" were given varying meanings. Interestingly enough, he recommended the term "*science studies*" "because it is broader in scope", comprising "the study of the social, historical and political aspects of scientific work". Tranøy made a point of the interest taken in the subject in Norway by philosophers and notably by Arne Næss. The history and sociology of science, on the other hand, he found "sorely neglected in Norway". He proposed measures for strengthening this area of inquiry, particularly under NAVF auspices, following more detailed discussion at a large-scale conference¹¹.

NAVF's *Council for Research in the Humanities* arranged such a conference at Jeløya, near Oslo, in 1975. In addition to Tranøy's report, discussions at the conference, which attracted 50 participants, centred on contributions from Jon Elster, Göran Hermerén and Sven Erik Liedman¹².

Although Tranøy had recommended a broad definition of the subject area, the conference concentrated in practice on the *theory of science* in a relatively narrow sense of the term. Indeed, Elster pointed out that, to his knowledge, studies of the economics of research or of problems in the psychology of science were non-existent in Norway. There was substantial support for boosting research in the area, but also some disagreement as to the steps to be taken. One

proposal which figured prominently was that, instead of concentration and the establishment of new units, most effort should go into grants and accordingly "*irrigate the research environment in the area*". This of course offered the advantage that very many of those at the conference stood to benefit from such a scheme.

NAVF followed this up by appointing a *special committee* for the theory of science. The committee operated from 1976 to 1982, chaired for three-year terms by Professors Ottar Dahl and Gunnar Skirbekk. It received its own budget, and was mandated to "initiate measures which can contribute to the development of the theory of science subject area...". The terms of reference also mentioned that the committee should consider the field of "research on research" and possible measures in that field.

The committee adopted a traditional "irrigation" policy, based on grant applications from researchers. In due course, however, regular *seminars in the theory of science* came into being in all four universities, with considerable support from the committee, especially in the form of invitations to visiting scholars from abroad. At the end of the committee's six-year term, the respective universities assumed responsibility for the seminars. The history of science, too, attracted some attention: among other things, a number of relevant private archives were registered and obtained for safe keeping. There was little activity, on the other hand, on "research on research" in a wider sense despite this term was mentioned in the mandates for these committees¹³.

2.6 New measure adopted by NAVF: research on research

In the 1980s the *Science Policy Council*, the Government's advisory body on research, recommended that efforts should be made to acquire "research-based knowledge concerning the function and effects of research and the research system", as a basis for strategic planning and the formulation of policies in the field of research. The Council added that the Joint Committee of the Research Councils should be given special responsibility for encouraging and funding "research on research"¹⁴.

Following discussions in the Joint Committee, NAVF decided to launch a 5-year "research on research" program on its own, but leaving the possibility open for the other four Research Councils to finance specific projects in the program as agreed in each case. This was because it had not proved possible to get all the Councils to adopt joint measures. The Institute for Studies in Research and Higher Education was asked to run the program, for which an *empirical approach* was chosen, with the focus on:

- i) Studies of the organization of research and the behaviour of researchers
- ii) Studies of methods of evaluating researchers, research programs and research environments.

Intended essentially as a training program for researchers, the program had M.A. and dr.scholarships at its disposal. For the dr.students, "a stay of some duration, at least one year, abroad at a leading research institution in the field" should "be obligatory".

One important consideration underlying the decision to entrust the program to the Institute for Studies in Research and Higher Education was a wish to make use of the data and the experience with studies concerning research policy and research organization which the Institute had already acquired. The emphasis should accordingly be given to *empirical studies*. The scientific program as defined included international participation on a separate Programme Board.

2.7 A critical perspective

In the 1980s, as the research community expanded, research and technology in Norway, too, came in for some critical examination, which was driven by a number of different impulses.

Among other things, greater scope was created for critical studies of the consequences of research and technology. Under the auspices of NAVF's Council for Social Science Research, a separate research program was set up in 1986 on "*Technology and Society*", and the University of Trondheim established a centre with the same name in 1987. In Oslo a Centre for Technology and Culture (TMV) was opened where, as at the Centre for Theory of Science (SVT) in Bergen, Weber's old subject, the cultural and political role of science in modern society, once again attracted attention, not least in the light of the Frankfurter school's involvement.

Another critical element was introduced with the growing interest in research ethics, which led at the end of the 1980s to the establishment of special national research ethics committees in the three main subject areas medicine, natural sciences/technology, and the humanities/social sciences. At the same time, secretariats were set up with powers to initiate and in part also to carry out research¹⁵. In addition a special research program relating to ethics in general was set up under NAVF. In 1988 the Centre for Technology and Culture was also established at the University of Oslo "to carry out and promote research and mediation concerning the relations between technology and human values

in society". Furthermore, it might be added that the extensive research carried out in Norway into the position of women often has implied a critical attitude to research and technology.

Another motivating force which became very significant from the mid-1980s on was the interest taken in *evaluating the R&D efforts*. At the same time, economic problems and high unemployment resulted among other things in substantial increases in R&D allocations, on the assumption that they would help to stimulate economic growth. A parallel to this development was a renewed interest in studies of research and technology, often referred to as *technology and innovation studies*. In Norway, this began outside the classical departments of economics, the main initiative coming from a special technology policy research group at the Norwegian Computing Centre, (the STEP group). The Council for Scientific and Industrial Research (NTNF) was its main sponsor. A couple of individuals at the Central Bureau of Statistics and the Norwegian Institute of International Affairs also took up this kind of question.

It seems relevant also to mention an increasing volume of work in the field of *university history*, chiefly stimulated by university anniversaries¹⁶. University policy, too, has in recent years had some light shed on it in connection with a major political science project at the University of Oslo¹⁷.

2.8 The 1990s: A knowledge base for research policy

The official report presented in 1991 on the structure of the Research Councils argued that Norwegian activities in the field of "research on research" should be stepped up, among other things by establishing a special policy research institute in connection with the proposed new single research council. The report evidently believed that such activities were of importance to research policy, and contained a separate appendix in which that question was discussed¹⁸.

The Government's Proposition to the Storting concerning the merging of the research councils into a single council, followed the report's recommendation on this point, and proposed giving the Strategy Department of the new research council *special responsibility* for "research on research"¹⁹. The 1993 Report to the Storting on research policy supported this, and explicitly underlined the need to provide more knowledge as a basis for policy planning in science and technology²⁰. The Report obviously attached great importance to this instrumental *utility approach*.

Responsibility for further developments now clearly lies with the Research Council of Norway. In August 1993, on behalf of the Council, the Institute for Studies in Research and Higher Education held a two-day conference at *Soria*

Moria, Oslo on "The knowledge base for Norwegian research policy". It gave various interested circles an opportunity to present themselves, and users from industry and public life spoke of the needs they saw from their respective standpoints. The latter contributions did nothing to dispel the impression that the authorities wish to boost activity in this area, or that their wish is primarily utilitarian in its motivation²¹.

2.9 A brief summary

The above review reveals a number of striking features of Norwegian developments in this area. Among the most evident ones are the strong position of the philosophy of science at the universities, the traditional policy and user oriented concern of units outside the universities, and the interest taken in technological, social and research ethics at centres on the fringes of the universities. *Impulses from abroad* have been strong throughout: from economists in the 1950s, from the Nordic countries and the Nordic Summer University in particular and the pages of *Minerva* in the 1960s, from the Frankfurter school in the 1970s, from the OECD through large parts of the period, and from numerous individual researchers and environments abroad in particular connections. The engagement of the Science Policy Research Unit (S.P.R.U.) at the University of Sussex in connection with the Thulin Committee's report on the technical-industrial R&D system drew the attention of the authorities in particular to the value of such studies, and obviously contributed to many of the subsequently expressed wishes to provide research policy with firmer foundations in knowledge²².

3 The present situation**

3.1 General

There is currently a good deal of activity in Norway in *certain areas* of what I have somewhat loosely called science policy studies. There is also considerable variety, both terminologically and in substance. Some of the activity, naturally, is linked to individuals independent of any institutional context. In the following, however, I shall concentrate entirely on institutionalised activities in Norway's four university towns, which is where they are located, principally in Oslo and Trondheim (and in Bergen where the philosophy of science is concerned).

3.2 Centres of activity

3.2.1 Oslo

The University of Oslo established the first seminar in the theory of science, in the first half of the 1970s. There is on the other hand no separate institute or department for the history of science, only two adjunct professorships (one at the Department of History and one in Biology, in the Faculty of Mathematics and Natural Sciences). A forum for university history has also recently begun holding regular seminars.

In 1988, as mentioned earlier, the University opened a separate Centre for Technology and Culture (TMV), located in the Oslo Research Park. Its mandate states that "technological research and development are an important aspect of the development of society and constitute human, social and cultural challenges to the systems of values and norms generally accepted in our culture". There is a need to raise levels of awareness in this area. In practice, economic history and the history of technology have loomed large in TMV's program. The three national ethics committees which have been established in recent years are also housed in the Research Park, near the university campus. Their establishment has also occasionally stimulated research and seminars in the science policy area.

The University of Oslo has not traditionally offered regular *teaching* in the field on any significant scale. There has for instance been no regular slot in the curriculum for either the sociology of science or research policy. Different

** Fall 1993.

varieties of the theory of science have however found a place from time to time. This picture changed a little in the autumn of 1993 with the launching of an inter-disciplinary postgraduate course leading to a Master's degree in "Society, Science and Technology". This is part of a cooperative arrangement between European universities on "Education in Society, Science and Technology" (ESST).

Outside the University, *two contract research units* are permanently engaged in this area: the technological policy group (STEP) at the Norwegian Computing Centre, and the Institute for Studies in Research and Higher Education (formerly under the Norwegian Research Council for Science and the Humanities - now the new Norwegian Research Council). The focus at the STEP group is mainly on technology and innovation studies.

At the Institute for Studies in Research and Higher Education, there have in recent years been separate groups for R&D statistics, research training and recruitment of R&D personnel, studies of research centres, research evaluation, and research organization and policy. As mentioned earlier, the Institute is also running a modest scholarship program at the postgraduate and doctoral level in "research on research". The Institute has also published the periodical *Forskningspolitik* (Research policy) for over fifteen years, and has, not least, hosted numerous *seminars and conferences* with many foreign speakers on topics relating to research and research policy. Participants have been attracted both from academic circles and from research councils and Ministries. The Institute has also built up the most extensive science policy library in the Nordic countries.

Plans have recently been aired to *expand and reorganize* activities relating to research studies in Oslo. The University of Oslo set up a working party to assess the environments which concern themselves with ethics and values (the Christoffersen committee)²³. The committee's report, presented in 1993, recommends closer coordination and expansion of the ethics and value-related research environments at present located in the Research Park. Furthermore, an inter-disciplinary development, in connection with those units, of "the theory of science, and research on research, which are at present poorly covered at the University of Oslo" is recommended. The report is at present being debated at the University.

A group of individuals connected to the Norwegian Computing Centre have launched the so-called *ASTRA initiative* (analysis for strategic decisions)²⁴. The intention is "to establish a broadly based effort to contribute to meeting the national need to conduct research and innovation policies based on knowledge

of, insight into and understanding of the role of research and technology in society". The aim is to support strategic decision-making processes in the public sector which are concerned with promoting science and innovation through research. Underlying the proposal is the establishment of the new Research Council of Norway and the responsibility for research policy which the Council has been given". The scientific program outlined by the group is ambitious, extending well beyond the innovation and technology studies which have been the group's core activities to date.

3.2.2 Trondheim

In addition to a seminar on the theory of science, there are two units which are active in this area on a permanent basis. At the University there is the *Centre for Technology and Society*, which reports directly to the Senate. It was started in 1988 with a mandate to "engage in basic research and teaching in the field of 'Science, technology and society', with special emphasis on the interplay between social and technological development, the history of technology, and studies of technological research and innovations". The Centre is moreover supposed to explore the special potential available at the country's largest technological research environment (NTH/SINTEF) (the Foundation for Scientific and Industrial Research at the Norwegian Institute of Technology). There are few permanent posts at the Centre, but considerable activity is maintained by a number of dr.students who work there.

At *SINTEF*, easily the country's largest contract research institute, there is SINTEF Industrial Development Division which, in close cooperation with the Institute of Social Research in Industry (IFIM) and several other SINTEF and Institute of Technology units, recently set up a special program devoted to technology policy and technology management.

3.2.3 Bergen

At the University of Bergen, the principal body in the field with which we are concerned is the *Centre for Theory of Science* (SVT), headed by a Professor in a full-time post. The Centre has several other permanent posts. Its work is mainly rooted in philosophy.

In connection with the University's fiftieth anniversary in 1996, a major university history project is now nearing completion, but it is not clear that it will lead to more permanent activities in Bergen in the history of science. Some of the work at the Norwegian Research Centre in Organization and Management (the LOS-Centre) do include analyses of policies for universities and higher

education. At the Norwegian School of Economics and Business Administration and its associated Centre for Research in Economics and Business Administration, research and technology have figured prominently in the large research project "A competitive Norway", which adopts a theoretical approach based on Michael Porter's theories and "cluster concept" in particular.

3.2.4 Tromsø

Apart from a theory of science seminar, there are no regular activities in this field in Tromsø, nor has any increase been planned.

3.3 Main impressions

3.3.1 Subjects and themes

Evidently, work in the theory of science which is closely related to *philosophy* is relatively strongly placed in Norway. It also has close links with the seminars in the theory of science held at the universities. In practice, those seminars have occasionally also opened their doors to a somewhat broader range of subjects, especially in connection with *foreign guest lecturers*. In addition to the regular seminars, the syllabus for the preliminary university examinations has as mentioned had some impact. In the 1980s, special theory of science courses also found places in a number of the new dr. courses, in some cases surprisingly enough as mandatory ingredients. The contents, however, vary considerably from faculty to faculty and from institution to institution.

The history of science is much more modestly placed in Norway, especially at the institutions, and the same can be said of the sociology of science. Nor have the universities' political scientists or economists shown any special interest in the field. At the Universities of Oslo and Trondheim, studies of technology and society have gained considerable strength, and economic history and the history of technology are also well placed.

In the *institute sector*, as mentioned above, three organizations work on various aspects of the field we are concerned with: SINTEF, the Norwegian Computing Centre, and the Institute for Studies in Research and Higher Education. All three are very utilitarian in their approach and geared to contract research; they engage in applied research and statistics and surveys, and their work is often multi-disciplinary.

One inescapable conclusion is that very few regular university posts are earmarked for this area. There are more scholarship holders working for doctorates, however, particularly at the Centres for Technology and Culture

(Oslo) and Technology and Society (Trondheim) and the Institute for Studies in Research and Higher Education. The institute sector also predominates in terms of the number of people engaged in "*statistics, studies and research*" on research.

In addition to the theory of science program conducted by NAVF in the 1976 to 1982 period, the following earmarked research council programs have had a significant impact on funding in the field in recent years:

- Research on research (NAVF)
- Technology and Society (NAVF/the Council for Social Science Research)
- Culture and research (NAVF/the Ministry of Cultural Affairs)
- The ethics program (NAVF/the Council for Research in the Humanities)
- Technology policies for the future (NTNF)
- LOS (the Norwegian Research Council for Applied Social Science).

3.3.2 Teaching and studies

Except where the theory of science is concerned, teaching in this field has as mentioned been on a modest scale. Hardly any teaching has been offered in the sociology of science, research policy, or innovation/technology. The recent ESST initiative at the University of Oslo and the University of Trondheim course on "The history, sociology, and politics of research" (1994) are beginning to adjust the balance.

There has also been little academic research in these areas, with the exception of economic history and the history of technology. The numerous scholarship-holders currently preparing dr.dissertations in the area are changing the picture considerably.

Norway's traditionally large institute sector makes its presence felt in this area, too. The main driving force has by and large been the demand of the authorities for inquiries and applied research, obtained by means of contract research funding from research councils and Ministries.

3.3.3 Quality and results

The quality of work in this field has not been the subject of much scrutiny in Norway. Demands for both qualitative and quantitative improvements are heard from time to time, but probably no more often than in many other fields.

The relatively large proportion of applied research and studies which characterises parts of the area is reflected in the many reports quoted and

referred to in official reports and Reports to the Storting. That may be one reason why fewer accusations have been heard than in some other countries of "a gulf between science policy studies and science policy". But we still know little about *the real impact* of the work on major research policy decisions.

Daryl Chubin of the Office of Technology Assessment, a congressional agency in Washington D.C., recently expressed considerable *user disappointment* with the STS environments in the USA, maintaining that they are academically narrow and "captured by academic politics". Chubin also felt that the studies are too one-sidedly aimed at the research community and not sufficiently addressed to decision-makers, interest groups and critics, who also participate in "the cruel politics of intellectual life"²⁵.

However justified such criticism may or may not be in the USA, the impression remains that there has so far been little criticism in Norway along similar lines. As expectations increase that contributions will be made to a knowledge base for Norwegian research policy, that picture may of course change.

3.4 Final remarks

As we have seen, Norwegian *efforts are variable*, and measures are being demanded in various sectors to strengthen them. Covering the field within the regular scope of university curricula is proving a slow process, one reason probably being the unclear and sometimes controversial status of the centres in relation to the universities in general.

Current plans at the University of Oslo, and the ASTRA initiative, may also bring about changes, as may the Government's clear mandate to the Research Council to assume leading responsibility for research and expertise in this area. One *indisputably favourable trend* is the growing supply of doctores with dissertations on subjects in the area, despite that major gaps can still be seen on the staffing side.

The question is whether such plans can be realised. University budgets, and the 1994 budget for the Research Council of Norway in particular, sound a note of warning in that respect. The *hard times* for the public sector economy do not seem likely to improve in the immediate future, and may place serious obstacles in the way of new measures and expansion in this area, too. The choice between consolidation around existing units and establishing completely new units is of course also difficult.

Noter

1. Tranøy, Knut Erik, "Om vitenskapsteoretiske fags stilling i Norge" (On the position in Norway of subjects relating to the theory of science), Memo to NAVF, June 1974, p. 135. Published as Appendix III to the conference report *Vitenskapsteoretiske fag*, NAVF, April 1976.
2.
 - i) Tranøy, *ibid.*, p. 135.
 - ii) Thue, Fredrik W.: "Empirisme og demokrati: Arne Næss og fremveksten av et norsk institutt for samfunnsforskning 1939-1950" (Empiricism and democracy: Arne Næss and the emergence of a Norwegian institute for social research 1939-1950), MA dissertation in History, the University of Bergen, 1992.
3. The same tradition can be seen in the National Science Foundation in the USA, in the form both of intramural research and of contract research.
4. Interestingly enough, Stevan Dedijer recommended in the early 1960s that a science policy unit also should "undertake the continuous compilation of the country's research resources, their growth, their distribution according to branches, fields and types of research, institutional settings and geographic area". *Minerva* 1966 (Summer) in the article "The Science of Science: A Programme and a Plea".
In Norway all three directors of the research councils took an immediate interest in establishing R&D statistics along the Frascati lines. Robert Major, the NTNF director was not least inspired by the OECD offensive in the science policy area in the early sixties and his own membership in the Piganiol Group.
5. Skoie, Hans, "Utredningsinstituttet for forskning og høyere utdanning" (The Institute for Studies in Research and Higher Education) - paper delivered at the Soria Moria Conference, August 1993; and published in an english version in this report.
6. During this period, the journal *Nordisk Forum - Tidsskrift for universitets- og forskningspolitikk* had an important role.
7. Gustavsson's work later found expression in his dr. dissertation *Debatten om forskningen och samhället*, Almquist & Wiksell, Stockholm 1971.
8.
 - i) Among other things, the group published a number of articles on research training in *Nordisk Forum*, 1966, no. 6; the membership of the group appears on p. 343.
 - ii) Discussion of the group can also be found in an interview with Tore Olsen in *Vitskap* 3/92.
9. The following members of the Institute staff and persons associated with the Institute took part in the summer sessions: Reidar Haavie, Tore Lindbekk, Hans Skoie and Sigmund Vangsnes.

- 9a) Stevan Dedijer: "The Science of Science: A Programme and a Plea". Minerva 1966 (Summer).
- 9b) The Committee actually published a series of papers under a science policy heading. The editor was Göran Friberg from the Council staff.
- 9c) The participating organizations were the National Science Research Council of Sweden, The Swedish Coordinating Council (Göran Friberg/Roger Svensson), the Institute for Studies in Research and Higher Education (Hans Skoie), the Finnish Academy (Esko-Olavi Seppälä), and the Danish Research Secretariat (Jørgen Knudsen et al).
10. Aubert, Vilhelm, *Sosiologi*, Universitetsforlaget, 1979, p. 46; Mjøset, Lars, *Kontroverser i norsk sosiologi* (Controversies in Norwegian sociology), Universitetsforlaget, 1991; Slagstad, Rune (ed.), *Positivism, Dialektikk, Materialisme. Den norske debatten om samfunnsvitenskapenes teori* (Positivism, dialectics, materialism: the Norwegian debate on the theory of the social sciences), Universitetsforlaget, 1976.
11. Tranøy, op.cit. p. 147.
12. "Vitenskapsteoretiske fag" (Theory of science disciplines), conference report, NAVF, April 1976.
13. "Seminar om arbeidet med vitenskapsteori ved universitetene og i NAVF" (Seminar on work in the theory of science at the universities and within NAVF), Voksenåsen Hotel, 22 October 1981. Arranged by NAVF's Committee on the theory of science. Stencilled report, Oslo, 1982.
14. The Science Policy Council, Report 2/1985.
15. This was done in connection with Report no. 28 (1988-89) to the Storting "On research".
16. At Bergen, Oslo and Tromsø.
17. Funded by the University, and especially concerned with examining a number of reforms there. The project was headed by Professor Knut Midgaard.
18. i) NOU (Norwegian Official Reports) 1991:24: "Organisering for helhet og mangfold i norsk forskning" (Organizing Norwegian research for unity and multiplicity), the Ministry of Education, Research and Church Affairs (the Report of the Grøholt Committee).
- ii) Smith, Keith, "Research needs of research policy: the role of science and technology studies", Appendix 6 to NOU 1991:24, "Organisering for helhet og mangfold i norsk forskning", pp. 155-160.

19. Report no. 43 (1991-1992) to the Storting, "Et godt råd for forskning: om endringer i forskningsrådsstrukturen" (A good council for research: on changes in the research council structure), the Ministry of Education, Research and Church Affairs.
20. Report no. 36 (1992-93) to the Storting, "Forskning for fellesskapet: om forskning" (Research for the community: on research), the Ministry of Education, Research and Church Affairs.
21. "Kunnskapsgrunnlaget for norsk forskningspolitikk" (The knowledge base for Norwegian research policy), stencilled report on a Workshop at Soria Moria, Oslo on 27-28 August 1993, the Institute for Studies in Research and Higher Education, November 1993.
22. NOU 1981:30.
23. Report of 25 August 1993 by the working party appointed to assess the ethics and value-related scientific environments.
24. Memorandum by Keith Smith and Olav Wicken, May 1993 (stencil).
25. Technoscience, Fall 1992.

The author wishes to *thank the following colleagues* for their contributions to this survey in comments and discussions: Håkon With Andersen, Kjell Eide, Robert Marc Friedman, Jan Rune Holmevik, Reidar Haavie, Werner Christie Mathisen, Thomas Nygaard, Nils Roll-Hansen, Randi Søgner, Knut Holtan Sørensen, and Fredrik W. Thue.

*Science Policy Studies at the Institute for Studies in Research and Higher Education**

1 The Institute's General Objectives and Activities

The Institute for Studies in Research and Higher Education has essentially had its present statute during the twenty-five years of its existence as an institute.** Its terms of reference read as follows:

The Institute shall carry out studies on research and higher education in the form of statistics, research-related activities and research for the Norwegian Research Council for Science and the Humanities, NAVF, and other agencies. The Institute shall also make the results of its activities known to those interested.

The Institute is associated with NAVF as stated in the statute, now superseded by the new Research Council of Norway, which appoints the Board of Directors of the Institute (from users and researchers). The Board has responsibility for all research activities. In terms of general economic and personnel guidelines and regulations responsibility rests with the Council.

Today the Institute has approximately fifty employees, of which about thirty are in permanent positions. Other staff are on short-term contracts or are scholarship holders. The total 1993 budget was approximately 28 million Norwegian kroner of which about 11 million were contract funds.

The Institute has since 1969 been organized in two research departments within the following main areas:

- i) The Department of R&D Statistics and Science Policy Studies which focuses on R&D resources, the organization and evaluation of research, and research policies.

* Paper presented at the Workshop: The Knowledge Base for Norwegian Research Policy. Soria Moria, Oslo, 27-28, August 1993. Available in the stenciled Conference report from the Institute.

** The origin to the Institute goes further 15 years back (1954).

- ii) The Department of Higher Education and Labour Market Studies, with emphasis on students, graduates and evaluation.

In the rest of the paper, we shall focus on the Department of R&D Statistics and Science Policy Studies which carry out the bulk of the science policy studies work at the Institute.***

*** From January 1994, the internal organization was somewhat changed. The two departments were replaced by four groups/sections. However, this change do not mean any change in the substansive work of the Institute.

2 Studies on R&D Resources, the Organization and Evaluation of Research and Research Policies

Through statistics, research-related activities and research, The Institute tracks the resources devoted to R&D, and organizational and policy issues related to Norwegian universities and research. Much of the work is done for the Council. This is regulated through three budget categories: a basic appropriation, program appropriations and short-term contracts. Research-related activities for other agencies, especially other research councils and the Ministry of Education, Research and Church Affairs, have gradually also become an important part of our work. Contract work and dissemination of the results are central to our activities and have gradually made us a national centre and forum for studies and discussions related to research and research policy.

An esoteric area

The field of science policy is rather special and does not usually receive widespread attention - not even in the scientific community. This prompted NAVF's call for the establishment of the magazine "Forskningpolitikk" (Science Policy) fifteen years ago: the idea was to present short notes and articles about our work as well as about the dissemination of various national and international impulses and discussions in the field.

User orientation

The Institute is primarily a user-oriented institution; its main task is to assist research councils and other contractors who pay for our studies and services (mainly policy research). This is our mandate. Over the years the proportion of research has increased, especially after the start of the research training program "Research on Research". However, the main objective is research-related activities with a clear user orientation.

Program and subject areas in recent years

The program and subject areas in our work programme, have evolved gradually starting with R&D recruitment/personnel and R&D statistics. These activities have been included setting up and maintaining two important registers; a register of R&D personnel and a register of external research funding at the universities. Both have also given ample opportunities for broader analyses and research. In the fall of 1993 the subject areas in the Department are as follows.

- . R&D statistics
- . Research personnel/recruitment
- . Research institutions
- . Research evaluation
- . Research organization/policy
- . "Research on Research"
- . Magazine, seminars and other dissemination

Staff

The Department has nearly thirty staff members of which about half are permanently employed (there are currently six fellowship recipients, two of whom hold MA scholarships, while the others have doctoral fellowships). Activities are directed by a department head assisted by four research coordinators/program leaders.

Most of the staff have a background in social science; political scientists are in the majority. But we also have five natural scientists, including a part-time employee with bibliometric expertise who is a professor in oncology/biology. Two staff members are adjunct professors (one in the history of biology and the other in science policy studies), a further two hold doctorates and several have various teaching experience or have worked as research assistants at universities.

The "Research on Research" program

NAVF initiated a five-year research training program for MA students and doctoral degree students working on topics related to research. In all, five fellowship holders and eleven scholarship recipients have so far participated in the program.

This program has its own Advisory Board appointed by the Institute's Board. The following are advisory board members: Professors Ulf Torgersen (chairman), Tore Lindbekk, and Stuart Blume and Dr. Elisabeth Crawford. The Council's general fellowship regulations and guidelines are followed in the program.

In 1992 a mid-term evaluation of the program was carried out by Professor Stefan Björklund of the University of Uppsala. His conclusion was by and large positive and he stated among other things that: "Without doubt the program has benefited from being located at the Institute for Studies in Research and Higher Education; this pertains to resources such as the library and databases as well as to the intellectual environment".

3 Significant Developments in Recent Years

Impulses from NAVF

We received four major impulses from the NAVF Council in the 1980s:

- demand for assistance concerning evaluations - the development of methods and procedures
- studies in connection with maintaining and developing research recruitment and doctoral training
- several concrete projects related to the universities which could be organized in one relatively large university program
- the research training program "Research on Research"

Public commissions

There were several important commissions working in the area of science policy and higher education during the 1980s which contracted many studies from the Institute. The Thulin Commission studied technical-industrial R&D; the Gjørvoll Commission dealt with basic research; the Central Committee for Norwegian Research/the Science Policy Advisory Council advised the Government on the general organization of research and research policies; the Hernes Commission investigated higher education and university research; and the Grøholt Commission considered the organization of research and the research council system in particular. (See Appendix 1).

The work for the Thulin Commission meant in particular a big leap forward for the Institute - our visibility and reputation was obviously significantly improved. Later the number of external contracts to the Institute increased and especially the research councils engaged us in more work in many areas.

National and international research policies

In addition to the evaluation of research, studies concerning the development of Norwegian and international research organization and policies in the postwar period represent something significantly new in the 1980s. The main trends in research and technology policies in several OECD countries have been studied and analysed as have EC policies in this area. Our seminar forum and the magazine "Forskningspolitikk" have been of considerable help in this connection.

4 Production and Dissemination

Publications

The Institute has its own publication serie. However, to an increasing extent we have also been publishing in external publications in Norway and internationally. In addition to writing project reports, staff are encouraged to write articles and also to publish in English - cf. Appendix 2, Table 1 and the separate publication lists which illustrate this point.

The Magazine: Forskningspolitikk (Research Policy)

The Institute has also published the small magazine *Forskningspolitikk* since 1978. This magazine is issued four times a year. It concentrates on three areas. We present the key findings of our own studies, collect and disseminate national and international research policy news, and present other important studies on research, the organization of research, research policy, as well as work within the history and sociology of science which otherwise receives modest attention in Norway. This publication also contains many external contributions and it is well received.

At the end of 1993 the magazine completed its 16th year. Interest in it has grown and now almost 6,000 people subscribe to it, mostly in Norway, but it is also read in other Nordic countries. Probably, the magazine has done much to strengthen the visibility and image of science policy studies in Norway.

Seminars and conferences

Since the end of the 1960s we have arranged a considerable number of seminars, workshops and conferences of one to two days' duration on research topics. The objective has been twofold: to get international impulses and to debate Norwegian organizational and policy issues in the R&D area. We have consciously created a forum where the research community as well as research administrators and politicians can meet. On the whole we have been rather successful in this respect - judged by the number of participants and general attendance. Most of the seminars have included foreign guest lecturers - cf. Table 2 in Appendix 2 and the list of conferences in Appendix 3.

Lectures and teaching

Staff have increasingly been invited to give lectures and present papers at home and abroad, and are encouraged to do so - cf. Appendix 2, Table 3. Due to the extremely modest teaching of subjects related to research at Norwegian universities, staff have not been much involved in regular teaching, however. The two adjunct professors on the staff are an exception. Also, the new ESST course at the University of Oslo included several staff members as teachers.

5 Perspectives for the years to come

A. Norway at large

A strengthened knowledge base for Norwegian research policy?

The desire to strengthen the knowledge base for Norwegian research policy stressed in the Government's last Report to the Storting on research is of course welcome. We interpret this as a need for better *statistics*, *studies* and *research on research* and technology policy matters. In other words, Norway should have a solid base of expertise to shed light on R&D and technology activities and policies. Nothing indicates that government ministries or the new Research Council of Norway are any less interested in statistics, indicators or studies than the former Research Councils were. As we see it, these activities should be continued and expanded with more longterm research, which should come in addition to the traditional activities.

Realistic expectations

It is important that we as investigators and researchers do not "promise too much" to the users - one can not "invent" science and technology policies through research alone. At the same time, it is clear that the influence of users and deadlines in particular are important to user- and contractor-inspired activities of this kind. Among other things, it is important to avoid "the gap between science and science policy studies" which is alluded to in many other countries from time to time.

Demands on users

Users must be able to assess their needs and negotiate studies and contracts. They should also be able to understand and digest the results put on the table. Unfortunately, this has not always been the case in Norway. However, competence of this kind varies much by the agencies and individuals involved.

The situation in Norway is far from bleak

Competence among the researchers in the area is certainly not absent in Norway - particularly not when compared to the other Nordic countries. However, the expertise is often closely linked to key individuals and accordingly rather vulnerable. The expertise in areas like general surveys of resources ("input"), analysis of science policy at a governmental and ministerial level, the history of economics and technology, studies of the interface between technology and society, and the study of scientific methods and theory and the philosophy of science is relatively good. The areas of evaluation of research and the history of universities are topics currently being strengthened. Innovation studies and the history and

sociology of science are so far weaker fields, particularly in terms of the number of tenured posts.

Plurality is needed

Today research and technology activities are very complex and large areas. Norway now has more than 20,000 researchers, and R&D expenditures amount to between 12 to 13 billion kroner annually. Studies related to these activities and not least to their interaction with society at many levels indicate that a plurality of methods and disciplines should be applied.

B. The Institute for Studies in Research and Higher Education

National and international collaboration

The Institute has no intention to monopolize this field of expertise. Large and complex tasks mean that a variety of approaches may be valuable in this area. We especially welcome that Norwegian universities are now setting up units or in other ways becoming more involved in research and teaching in relation to science and technology issues. Among other things, this will result in more graduates becoming familiar with problems in this area. Our contact with such activities in Oslo and Trondheim is good, but should be further strengthened in the years to come.

Internationally we have had very good contacts with many well-known institutions and organizations concerning R&D statistics and science and technology indicators. Our seminar forum has been visited annually by eight to ten well-known foreign scholars and policy makers, and served as an important bridge to the international community in a broad area of topics related to R&D and higher education policies.

Greater scope

The Institute has naturally been strongly influenced by its two central contractors, the NAVF Council and the Ministry of Research, Education and Church Affairs. However, analyses of the technical-industrial R&D apparatus, as well as analyses of national and international science and technology policies, appear increasingly in our publication lists. Following NAVF's initiative to assign the Institute as a centre for research evaluation, and the establishment of the Research Council of Norway, there are now reasons for broadening our expertise somewhat, including widening the range of disciplines among staff members. More studies on research personnel in industry (recruitment and mobility, e.g.) and a closer scrutiny of Government policies toward industry also represent a natural expansion.

Still many contractors

The Institute should continue to serve a variety of users and contractors even though the amalgamation into one single council - The Research Council of Norway - may exhaust much of our capacity. But we should also systematically work to continue to receive contracts from government ministries (especially the Ministry of Research, Education, and Church Affairs, and the Ministry of Industry and Energy), public committees, R&D institutions, and international and particularly Nordic agencies.

The three tasks of the new Council

There is reason to believe that The Research Council of Norway will need statistics, studies and applied research concerning research issues which have a bearing on Norwegian R&D, and in particular the running of the Council as a research council. The Council is, however, intended to be different from NAVF and the other previous research councils.

Actually, the new Council has three very different functions. They all directly or indirectly affect our Institute: first, the Council is intended to be a *research council*; second, it is responsible for a national policy for the institute sector through basic appropriations and *institute policies*; third, it is to be a science and technology policy *advisory body*. In all functions studies may be needed.

Policy relevance - the main concern

The Institute has a comparative advantage in its practical user- and policy-oriented approach and long time experience through projects, policy-relevant seminars as fora for both practitioners and academicians/researchers, the magazine "Forskningspolitikk", and the most extensive science policy library in the Nordic countries. Furthermore, the development of the Institute has been strongly influenced by the needs of our contractors, indeed one might say that the Institute has undergone an evolutionary development, with user impulses as a driving force.

It is our experience that the users primarily want an elucidation of the problems they face - whether this is carried out through statistics, studies, or research is not their concern. In other words, it is not research as such which is requested, but good quality elucidation - i.e. the "Weinberg Principle" in practice. This should continue to be our main approach. However, we should also attempt to have somewhat more long-term research where we have the professional competence, or are able to develop such competence. This may give us a larger "battery of competence" with which to meet the problems of the users, and a long-term advantage in the form of program appropriations which can contribute to the necessary maintenance and development of competence over time.

Extensive experience

We now have twenty-five years' experience at the Institute with activities which have been dominated by statistics, studies and many research projects which are clearly relevant to the everyday life of research administration and research policy, cf. the many research council documents, the official government documents, and Reports to the Storting which include appendices and other material from our Institute.

Traditionally the Institute has had many small contracts and projects. This is natural and enables us to be useful to our contractors by means of continuous contact and involvement. However, a parallel development of some larger/and long-term projects and programs is something we now are eagerly seeking. Our new budget structure hopefully makes it easier to envisage such a possibility.

We are now facing many issues which probably best can be treated within a combination of a stronger research profile and our traditional competence based on a strong relevance- and user-orientation and our extensive empirical material and databases. This combination is probably also what has made the Institute somewhat unique.****

**** This uniqueness has been pointed out by professor Erik Allardt among others.

Appendix 1

The overview below shows direct references to the Institute's material on research and university policy documents in Norway during the 1980s. In addition there are several OECD publications concerning Norwegian research and higher education - the Institute receive citations in all these publications (cf. 1970, 1973, 1976, 1985 and 1989).

I	Public reports	Direct contract	Explicit references
1981	Thulin Commission (NOU 30A og B)	2 - published	yes
1981	Gjærvoll Commission (1981:46)	-	yes
1982	Central Committee for Nor. Research (No. 6)	3 - all publ. as appendices	yes
1983	Sc. Policy Advisory Council (No. 4)	-	yes
1988	Hernes Commission (NOU 1988:28)	3 - one publ. as an appendix	yes
1991	Grøholt Commission (NOU 1991:24)	3 - own publ.	yes
II	Reports to the Storting (natl. assembly)		
1981	On Research (St.meld.nr. 119 (1980-81))	-	yes
1985	On Research (St.meld. 66 (1984-85))	1 - summary of the report publ. as appendix	yes
1985	On Higher Education (St.meld. 66 (1984-85)) m/tillegg (St.meld. nr. 19 (1986-87))	-	yes
1989	On Research (St.meld.nr. 28 (1988-89))	several	yes
1993	On Research (St.meld.nr. 36 (1992-93))	several	yes

Appendix 2

Table 1 Published work by Department staff 1970-1993.*

Period	Inst. publ.		Ext. publ.		Total	In English	% Ext. of tot.
	Reports	Fpol.	Rep.	Art.			
1970-72	15			5	20	3	25%
1973-75	19			5	24	3	21%
1976-78	14	2		5	21	2	24%
1979-81	23	9		12	44	7	27%
1982-84	23	10		16	49	6	33%
1985-87	22	11	2	19	54	8	39%
1988-90	28	9	5	41	83	17	55%
1991-93	29	12	14	52	107	20	62%

* R&D statistical publications are not included in the figures, cf. a separate publication list. "Forskningpolitikk" (Fpol above), the number of issues are counted. For articles in the magazine - cf. the separate index for the first 15 years published by the Institute.

Table 2 Foreign guest lecturers at seminars, 1970-1992.

Country	1970-82	1983-89	1990-93
Nordic other than Norway	10	16	3
England	16	12	7
Other European	8	2	6
USA/Canada	4	9	7
Other	1	1	2
Total	39	40	25

Table 3 Lectures, etc., held by Department members in the period 1985-1992.

Place	1985	1986	1987	1988	1989	1990	1991	1992	1993
Higher Education Sector, Norway	1	5	3	9	5	16	7	7	19
Research Councils*	1	2	4	13	8	8	15	7	5
Other research/Educ. Institutions	2	2	-	5	4	8	14	8	18
Organizations, etc.	1	2	-	-	7	3	6	5	4
Abroad	7	3	8	11	11	11	11	9	18
Sum	12	14	15	38	35	46	53	36	64

* Other than NAVF

Appendix 3

Conferences of 1 to 2 days' duration

- 1976 Norsk forskningspolitikk i lys av Regjeringens forskningsmelding (Voksenåsen) (Norwegian Science Policy in View of the Government's Report on Research Policy)
- 1976 De nordiske land og internasjonalt organisert forskningssamarbeid (Gabelshus, Oslo) (The Nordic Countries and Internationally-organized Research Collaboration)
- 1979 Scientific Expertise and the Public (Voksenåsen). Arranged in collaboration with The International Council for Science Policy Studies
- 1983 Norsk forskerrekuttering (Voksenåsen) (Recruitment to Norwegian Research and Development)
- 1983 Norsk forskningspolitikk i lys av forskningsmeldingen (Ingeniørenes Hus) (Norwegian Science Policy in View of the Government's Report on Research Policy)
- 1986 Når mange kjøper forskning (Soria Moria) (When Many Buy Research. Arranged on commission for the Joint Committee of the Norwegian Research Councils)
- 1989 Norsk forskningspolitikk i lys av forskningsmeldingen (Lysebu) (Norwegian Science Policy in View of the Government's Report on Research Policy)
- 1989 Governance of University Research. Workshop within the program "Research on Research" (The Institute)
- 1991 Research Evaluation (Holmenkollen Park Hotell, 30.-31.05.91). Arranged on commission for the Joint Committee of the Norwegian Research Councils
- 1991 Forskningspolitisk konferanse om Grøholt-innstillingen (Soria Moria, 23.09.91) (Science Policy Conference on the Grøholt Commission's Report on Research Organization)

- 1992 Forskning og høyere utdanning i det regionale kunnskapssystem (Lysebu, 03.06.92) (Research and Higher Education in the Regional System)
- 1992 Innsatsområdene som forskningspolitisk virkemiddel (The Institute, 11.06.92 - arranged on commission for the Ministry) (The Research Priority Areas as Science Policy Tools)
- 1992 Brukerseminar om evaluering (The Norwegian Academy of Science and Letters, 01.12.92 - arranged on Commission for the Joint Committee of the Norwegian Research Councils) (User Seminar on Evaluation)
- 1992 Kunnskapsgrunnlaget for en norsk forskningspolitikk.
Workshop (Soria Moria 27.-28.08.93 - arranged on Commission for the Research Council of Norway) (The Knowledge Base for Norwegian Research Policy).

*Institute for Studies in Research and Higher Education Selected List of Publications**

Subject Area

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* A complete list of publications for the period 1969-1993 is available at the Institute. Here total publications 1991-1993 from the Department of R&D Statistics and Science Policy Studies are included. In addition all Non-Norwegian Titles 1969-1990.

I R&D Statistics and Resource Analysis

Regular publications

- a) The main results of R&D surveys based on the "Frascati Manual" have been published biannually since 1963. English summaries are included and separate Information Sheets have been published in English since the mid-1980s.
- b) R&D Estimates in the Annual Government Budget have been calculated and published since 1970.
- c) The Annual Government Budget - an Analysis of Policies for R&D and Higher Education. Published annually since 1970.
- d) Government Appropriations to R&D by Ministry at Project/Programme Level. Published occasionally.

Special reports 1991-1993

Wiig, Ole & Britt Bruaas: "Den samfunnsvitenskapelige instituttsektoren. En oversikt over institusjoner, forskningsressurser og personale." I: Wiig, Ole (red.): Institutter for anvendt samfunnsforskning. Statistikk-rammebetingelser. Oslo: NORAS, 1991, s. 9-37. (The Social Science Institute Sector - Units, Financial Resources and Personnel)

Maus, Kirsten Wille: (red.): Vitenskaps- og teknologiindikatorer for Norden - En artikkelsamling. Oslo: Nordisk Industrifond, Informasjon nr. 3/1992. (Nordic Scientific and Technology Indicators - a Collection of Articles)

Wiig, Ole & Britt Bruaas: "Den samfunnsvitenskapelige instituttsektoren. En oversikt over institusjoner og forskningsressurser." I: Olsen, Terje Bruen (red.): Institutter for anvendt samfunnsforskning. Kvalitet-relevans-publiseringsstatistikk. Oslo: Norges forskningsråd, 1993. (The Social Science Institute Sector - Units, Financial Resources and Personnel)

Wiig, Ole: "Den samfunnsvitenskapelige instituttsektoren i internasjonalt samarbeid." I: Olsen, Terje Bruen (red.): Institutter for anvendt samfunnsforskning. Kvalitet-relevans-publiseringsstatistikk. Oslo: Norges forskningsråd, 1993. (The Social Science Institute Sector and International Orientation)

II Recruitment to Research

1991-1993

Tvede, Olaf: "De nye doktorgradene - fungerer de?" I: Hans Skoie og Per O. Aamodt (red.): Søkelys på høyere utdanning i Norge. NAVF-U, Rapport 3/91, s.103-111. (The New Doctoral Degrees in Norway - Do They Function?)

Kyvik, Svein: "Graduate Research Training in the Nordic countries." In "Postgraduate Research Training Today: Emerging structures for a changing Europe". The Hague: Ministry of Education and Science, 1991, p.93-116.

Skodvin, Ole-Jacob: Forskerrekruttering til det medisinske fagområdet. Status og perspektiver mot år 2010. NAVF-U, Rapport 6/91. (Research Recruitment to Medicine. Status and perspectives towards the year 2010)

Lippe, Anna von der, Olaf Tvede & Mari Teigen: "Forskeren: En myte om menn? Dr. psycol. kandidater ser på seg selv, sine medkandidater og sine seniormodeller." I: Tidsskrift for Norsk Psykologforening, 29/1992, s.834-843. (The Researcher: A myth about men? Psychology Dr. candidates look at themselves, their colleagues and their senior role models)

Skodvin, Ole-Jacob: "Vil medisinsk forskning få et rekrutteringsproblem?" I: Tidsskrift for Den norske lægeforsking, 112/1992, s.666-669. (Will Medical Research Have a Recruitment Problem?)

Skodvin, Ole-Jacob: Forskerrekruttering til det matematisk-naturvitenskapelige fagområdet. Status og perspektiver mot år 2010. NAVF-U, Rapport 4/92. (Research Recruitment to the Natural Sciences. Status and perspectives towards the year 2010)

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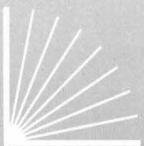
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Science Policy Studies in Norway

The main article in this report gives an overview of centers and groups working in what broadly might be called "science policy studies". The article also gives an account of significant developments in this area in the post-war period in Norway. In addition, the report includes a brief description of such activities at the Institute for Studies in Research and Higher Education, including a selected list of publications.



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