

NORWAY

1. General Policy Framework

Based on the parliamentary report of 1999 entitled “Research at the beginning of a new era” and the subsequent parliamentary debate in February 2000 there is general political agreement in Norway that research and development (R&D) should be a national priority, and that investment in research should be substantially increased in the coming years. A national objective is that Norwegian investment in R&D, calculated as percentage of gross domestic product (GDP), should be at least at the OECD level before the year 2005. This goal is to be reached by means of a considerable escalation in both public and private funding.

The OECD statistics show that Norwegian investment in research measured as a proportion of GDP lies significantly below the average in the OECD area. In 1997 Norway spent 1.7% of its GDP on R&D, while the average for the OECD-countries was 2.2%. This is largely due to the comparatively low investment in R&D in the private sector, because of a predominance of small and medium-sized enterprises in industries that traditionally finance and carry out little research. Publicly funded R&D, on the other hand, is on the same level as the OECD average.

The growth in *public funding* is to come partly through increased investment in the National Budget, and partly through the yield on the capital of a *fund for research and innovation* that was established in July 1999. The fund is a long-term funding mechanism and shall contribute to the realisation of government priorities in research policy and to safeguard long-term research and research that cuts across sectors. The fund is financed through the sale of state shares. The yield on the capital of the fund (amounting to 90 million NOK in 2000, and increasing to at least 170 million NOK in 2001) is distributed by the Research Council of Norway within the framework laid down by the Government and Parliament.

In March 2000 the Government committee chaired by Professor Arild Hervik submitted its report on *tax incentives* and other measures to stimulate research in Norwegian enterprises. The Government is considering future stimulus measures on the basis of this report. An R&D levy on the fishing and maricultural industry is to be introduced, and notice has been given of a levy on joint measures in forestry which will also be used for R&D purposes.

A main priority in the use of public funds in the years ahead is the strengthening of *long-term and fundamental research*. In addition priority is given to increased research commitment in the following areas:

- Marine research.
- Information and communication technology.
- Medical and health-care research.
- Research in the intersection between energy and the environment.

A central message in Norway's research policy is that *quality* shall be promoted and rewarded. Norwegian academic communities must maintain a level that makes it possible for them to benefit in full from the most outstanding foreign research in the area concerned. At the same time a number of research communities should be at the cutting edge of international research in their fields. Increased resources will be spent on measures designed to promote quality. Continuing Norwegian participation in the EU framework programme for research will contribute to the aims of increased funding and qualitative improvement, and to the strengthening of the priority areas.

2. Policies related to the recommendation of the TPJ report

a) *Reforms to and support of the science base*

Strengthening the science system – universities, colleges and institutes – and long-term research at these institutions, will be a main priority in the coming years.

The Ministry of Education, Research and Church Affairs is preparing a *new funding system for universities and colleges*. The aim is that their budgets are to a greater degree to be determined on a basis of research strategy and to a lesser degree decided according to the number of students. The new funding system will be used to strengthen research in universities and colleges and ensure that they receive stable research grants also if the number of students should decrease in the future.

As a main priority grants for *long-term fundamental research* to universities and colleges are to be increased in the course of the next few years.

The Government appointed commission on higher education, chaired by Professor Ole Danbolt Mjøs (the Mjøs Commission) will be submitting its report in May 2000 on reforms in higher education. The Commission has been given a wide mandate covering most aspects of higher education, including *i.a.* the need for changes as a consequence of internationalisation, recruitment to higher education, the degree structure, relations between higher education institutions and the labour market, rules and regulations regarding contract research in the institutions.

Quality is to be rewarded, and quality assessment is to be given greater weight as the basis for allocating public resources.

The *scientific equipment* in the institutions is to be updated and renewed.

Analyses show that *recruitment* to Norwegian research will become inadequate within the next few years. The problems are already considerable in fields such as medicine, information and communication technology and law. The number of recruitment posts for ph.d. students is to increase by at least 30% by the year 2005.

The work to achieve *equality of opportunity* in the research system is to be intensified. More women are to be recruited, particularly to mathematics, natural sciences and to top scientific positions in universities and colleges.

The Network Norway Council was appointed in April 1998. The Council is an advisory body to the Ministry of Education, Research and Church Affairs in matters relating to the long-term development of Norwegian higher education. The Council co-operates closely with the Norwegian Council of Universities and the Norwegian Council of State Colleges, which are the membership organisations of the institutions in the Network. The Council should give advice on issues in relation to Network institutions and has a national responsibility for quality assurance in Norwegian higher education.

To promote research quality the Research Council of Norway has been given the task of proposing how a Norwegian system of *Centres of Excellence* should be designed. The system is to build primarily on existing research environments.

The Norwegian Board of Technology was established in 1999 to increase the public understanding of research and the development of technology. The board will initiate studies on possibilities and consequences of new technologies, both for society at large and for the individual. The board should also stimulate public debate on technology related issues.

In January 2000 the Government appointed a committee chaired by Professor Jan Frithjof Bernt (the Bernt Committee) to consider amendments to statute law or regulations that are intended to contribute to *better commercial exploitation of the R&D results in universities and colleges*. The committee is to submit its report by 1 October 2000.

As a basis for the Government's work on the report to Parliament on research policy ("Research at the beginning of a new era") advice was given by the Research Council of Norway, and relevant groups in academia society were consulted about priorities and other relevant issues. The process has served as a focus for stakeholder involvement and has resulted, among other things, in an increased media attention to the need for higher investments in R&D and to the role of research in creating new industrial activity.

b) *Links between science and industry (covered by the TIP group)*

c) *Incentives and support for R&D*

As mentioned above, the Hervik Committee in March submitted its recommendations on measures to stimulate funding of research in Norwegian enterprises. The Government is now considering stimulus measures on the basis of this report.

At present the research and innovation fund, established in July 1999, has a capital of three thousand million NOK (approx. USD 360 million). The capital will be increased over the next five years and the yield used to realise government priorities and fund long-term research.

d) *Technology diffusion and networking*

As mention above, by 1st October 2000 the Bernt Committee will give its recommendations on better commercial exploitation of inventions made in universities and colleges.

Existing programmes like the FORNY-Programme II of 1999 (research-based innovation and entry of firms) to utilise the potential of value-creation in the university and college sector and in the institute sector with respect to new ideas and business concepts, will still be actively used.

With regard to the participation of service firms in R&D programmes, no new measures involving the traditional service sector are in place. In the area of knowledge-based services and research, the Mjøs Commission submitted a report in April 1999 (NOU 1999:18) on the framework for contract activity, including contract research at universities and colleges. The Commission's proposals are currently being considered by the Ministry of Education, Research and Church Affairs.

e) *Technology-based firms and growth areas*

Over the last few years several programmes have been introduced to strengthen the creation of high-tech firms based on research. Improved financial incentives have been an integral part of these programmes although the general tax situation for these companies has not been altered. However, the Hervik Committee's proposals that are currently being considered by the Government, may result in changes in this area.

Priority is being given to utilise the potential of value-creation in universities and colleges and in the institute sector. It is an important goal to stimulate commercialisation of R&D results from these institutions, cf. the Bernt Commission that has been appointed to present proposals with the aim of achieving this.

As pointed out above, the following thematic priority areas, which will receive increased public funding, have been identified for the next years:

- Marine research.
- Information and communication technology.
- Medical and health-care research.
- Research in the intersection between energy and the environment.
- Interdisciplinary perspectives are to be integrated in the thematic priority areas.

f) *Labour-related measures*

Norway's policy in recent years has been to stimulate the mobility of researchers from universities/research institutes to the private sector. A few programmes for this purpose have been launched (the Mobility-programme and SME-Competence, both under the responsibility of the Research Council of Norway). The SME-Competence programme for example is targeted to encourage new graduates to seek positions in SMEs and stay there for some years.

An important objective in Norwegian research policy is to increase the number of recruitment positions by at least 30% by the year 2005 (150 recruitment positions per year over the next two years and at least 200 positions per year over the following three years). This increase will come as a step in the investment in the science system and the thematic areas.

Varying from institution to institution mechanisms such as secondments, sabbatical periods, part-time professorships for industrialists have been used to varying degrees.

Rules concerning residence and work permit for foreign students that have received their training in Norway are being considered with the aim of liberalising today's regulations.

Personal professorships of limited duration for foreign researchers of special competence will be established.

g) *Globalisation*

Norwegian participation in international research co-operation has been significantly extended in recent years. Norway will continue to develop its participation in a number of international joint commitments, where research co-operation with the EU under the EEA Agreement is the most comprehensive. Norway has participated in the EU framework programmes for research since 1987 and has joined the Fifth framework programme. Benefits from co-operation with the EU are substantial but ought nevertheless to be further increased.

Norway wishes to strengthen co-operation and contacts between individual researchers and to further international research co-operation on Norwegian soil. Polar research co-operation with Svalbard as a starting point will be particular important.

Mechanisms to improve the support of Norwegian companies and research personnel are being developed and implemented by the Research Council of Norway to extend international co-operation, particularly with regard to the EU Fifth framework programme and EUREKA.

With regard to measures to enhance access of foreign firms to technology programmes, no new initiatives have been implemented. However, the criteria for supporting commercially oriented R&D are being revised. The intention is to increase the flexibility with regard to international participants, both with respect to companies and research institutions.

h) *Policy evaluation*

There will be an increase in the use of evaluations as a basis for decisions within the university and college sector and the institute sector. While the Network Norway Council has a national responsibility to ensure that all universities and colleges develop systems for quality assurance, and to evaluate these systems, the evaluation of research in these institutions is carried out by the Research Council of Norway.

3. *Assessments*

In 1999 the Ministry of Trade and Industry initiated an assessment of the Norwegian Industrial and Regional Development Fund (SND). The evaluation is to be carried out by September 2000 and provide input to a report on SND requested by Parliament.

A major assessment of the results of the structural reorganisation in 1993 of the five former research councils into one council – the Research Council of Norway – is now being initiated by the Ministry of Education, Research and Church Affairs. The evaluation is to serve as a basis for subsequent political treatment, where the need for any changes will be assessed.