

STI OUTLOOK 2006 – POLICY QUESTIONNAIRE

Section A: general framework and trends in STI policy

1. Please provide a brief overview of the main directions, objectives and elements of national policies for science, technology, and innovation.

The 2005 White Paper on Research – "Commitment to Research"

The Norwegian Government presented a new White Paper on research in 2005 – St. meld. nr. 20 (2004-2005) "Commitment to Research". There was general political agreement on the content of the White Paper. The White Paper was adopted by Parliament 16 June 2005, and outlines ambitious goals for Norwegian research. The vision is for Norway to occupy a leading position internationally in terms of new technology, skills and knowledge.

Norway has one of the world's highest gross domestic products per capita and a very high educational level. These factors provide the preconditions for becoming a leading research nation with regard to:

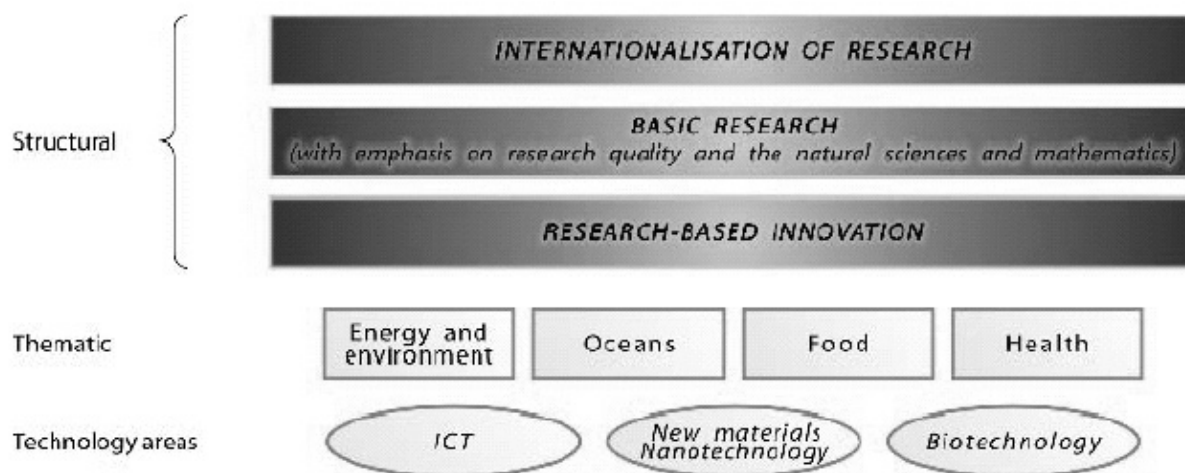
- Measurable research results, i.e. the number of scientific publications, citations and patents
- Success in the EU Framework Programmes
- The number of researchers per 1,000 employees
- The attractiveness of a research career for young talents
- The attractiveness of Norwegian research communities for top international researchers
- The research intensity of business and industry
- Society's ability to transfer and use research-based knowledge
- The population's knowledge of and interest in research.

Norwegian research performance is good with respect to several of the above indicators. However, efforts will be needed to maintain this position and to raise the level in areas where our performance is average or below average.

In order to realize the ambitions set for Norwegian research, total investment in research should equal three per cent of GDP by 2010, of which one third should come from public sources. The Norwegian ambition matches the EU 3% target for R&D expenditure.

The 2005 White Paper outlines priority areas in Norwegian research (cf. the classification of priority areas outlined in the 2003 OECD report "Governance of public research. Towards better practices"). Three structural areas will be given priority. Firstly, internationalisation is to constitute an overall perspective in

research policy. Secondly, basic research will remain a priority area. Emphasis will be given to quality enhancement rather than capacity building. Research in the field of mathematics, science and technology will be especially strengthened. Thirdly, the Government will invest in research-based innovation and business development. This will provide support for more knowledge intensive and research based business, industry and public service provision.



New priorities in Norwegian research policy

The Government proposes to strengthen research particularly within the thematic areas of energy and the environment (including petroleum research), food, oceans and health. These areas have been defined on the basis of national strengths and needs. The Norwegian Government will also intensify its investment in the three technological areas of information and communication technology (ICT), biotechnology, and materials and nanotechnology. These technologies are undergoing substantial development and have wide areas of application.

Promoting research in Norwegian industry is pivotal to reaching the 3%-target. Measures have been taken to promote better cooperation between industry and the university sector, and several schemes have been introduced to promote research in Norwegian companies, such as:

- Norwegian Centres of Expertise
- Centres for Research-based Innovation
- A tax deduction scheme for R&D expenses (Skattefunn)
- Programme for user driven innovation projects
- National and regional seed capital schemes
- Industry PhD schemes
- (See sections C and D for more information.)

The Norwegian White Paper on Research 2005 "Commitment to Research" (chapters 1-3): <http://odin.dep.no/filarkiv/271190/FM05English.pdf>

A new national government

Following the parliamentary election in 2005, a new national government took office 17 October. While the general research policy direction remains the same, the programme declaration of the new government identifies some areas to be given increased attention, such as research on energy and the environment. The new government also puts greater focus on research policy as a means to meet regional policy objectives. Introduction of new measures to strengthen university colleges and their regional functions is thus presently under discussion. Gender balance at all levels in research is another example of a topic that the new government has lifted higher up on the policy agenda.

The declaration of intent of the government that took office October 2005 (in Norwegian only): http://odin.dep.no/smk/norsk/regjeringen/om_regjeringen/001001-990342/hov001-bn.html

The Fund for Research and Innovation

In 1999, the Norwegian government established a Fund for Research and Innovation. The returns from the fund are used to finance long-term, basic research and innovation, and have contributed to growth and predictability in the public financing of research in Norway. The Fund was strengthened by NOK 14 billion in the 2006 National Budget, resulting in a total capital of NOK 50 billion (approximately EUR 6,2 billion). In 2006, the Fund is expected to yield approximately NOK 2,1 billion, which constitutes about 14% of public funding for research in Norway. The yield in 2007 will be higher due to the capital increase.

2. Please describe major shifts or changes in the priority given to different areas of science, technology, and innovation policy listed below or the policy instruments used to achieve them: i) strengthening the science system; ii) supporting business innovation; iii) linking science to innovation; iv) developing human resources for S&T; and v) establishing framework conditions that are conducive to innovation (e.g., IPR regimes).

Enhancing quality. Following the 1999 White Paper on Research, Norway introduced two schemes to promote excellence in research – the Centres of Excellence scheme and the Outstanding Young Investigators scheme. In addition, a Centres of Research-based Innovation scheme has been initiated recently (see Section C). Such initiatives to promote excellence will be continued, and supplemented and balanced by measures introduced to enhance quality in Norwegian research more broadly. Increased attention will be given to carrying out and following up on evaluations of disciplines and thematic areas within Norwegian research. The results of such evaluations will have an impact on how public funding is distributed through the Research Council of Norway, and the research institutions will be encouraged to follow up the evaluations. A new and more competitive funding mechanism for universities and university colleges is introduced (see section B). Internationalisation of Norwegian research is crucial for quality in research. Norway puts great emphasis on multi- and bilateral research cooperation.

Strengthening the funding for research. The Government proposes to raise the total R&D investment in Norway from the current 1.75 per cent to 3 per cent of the GDP by 2010. Public funding will be increased to one per cent of the GDP, while the private sector and other sources must provide the remaining two per cent. Based on GDP estimates for 2005 and prognoses up to 2010, this objective will necessitate an increase in public research funding of around NOK 5.8 billion, while the growth requirements for business and industry, international and other private sources amount to approximately NOK 23 billion. Reaching the target for research investments from private sources constitutes a particularly great challenge. The public funding for research is strengthened by the capital increase in the

Fund for Research and Innovation and by the measures introduced to promote increased private R&D investment (see text above and Section C).

Developing human resources for S&T. Approximately 50,000 persons in Norway work in R&D, either as researchers or with technical or administrative support for research activities. In 2003, they accounted for more than 28,000 manlabour years in R&D. Norway has a somewhat larger proportion of the workforce employed in R&D activities than the EU average, but a lower proportion than in the other Nordic countries. Of the R&D personnel, around 35,000 are researchers, while 15,000 provide technical and administrative support. Technical and administrative personnel constitutes a low proportion of R&D man-labour years in Norway compared with the rest of Europe.

The ambitions for stepping up research investment will lead to an increased need for recruitment of researchers. Norway confronts a threefold challenge related to the recruitment to research in Norway: the need for increased recruitment to mathematics, science and technology, improving the researcher training and the academic career path, and making research an attractive career option.

From 2002 to 2005, the Government provided funds to establish around 650 new PhD positions financed through the budget allocations to the universities and university colleges. The 2005 White Paper on Research sets a target of an annual increase in PhD positions of 350 in the period 2004-2007. In the national budget for 2006, funds were provided to establish 350 new PhD positions. The Government also aims to increase the number of post-doctoral positions.

A scheme whereby research training schools demonstrating high scientific quality can compete for status as national research training schools with accompanying financial support, is under creation. The introduction of schemes to promote research periods abroad among Norwegian researchers and to facilitate the repatriation of Norwegian researchers abroad is being assessed.

3. Please describe the primary challenges that are expected to be addressed in future science technology and innovation policy initiatives and/or that have been identified in forward-looking exercises, such as foresight and technology road mapping (i.e., in the 2007-08 timeframe).

A challenge in future science, technology and innovation policy is to realize the priorities outlined in the 2005 White Paper on Research (see figure above).

Reaching the goal of investing three per cent of the GDP in R&D activities by 2010 will require a substantial increase in the money spent on R&D in the public and, especially, the private sector (cf. point 2 above). This challenge will be addressed in future science technology and innovation policy and budget allocations.

The Government's ambitions for stepping up research investment will increase the need for human resources in research and innovation activities, particularly within the prioritised areas of mathematics, science, technology and health. To meet this challenge, challenges related to the organisation of doctoral training and the research career path at universities and university colleges will be addressed. Moreover, it will be necessary to implement specific measures targeted at disciplines with special recruitment problems for research careers, such as medicine. Improving researcher mobility between sectors and countries and improving the gender balance in the research system are other human resource challenges.

Section B: Public sector research and public research organisations

1. Please describe major policy changes related to the financing of public R&D

Changes in overall levels of R&D funding for public research organisations during the last few years.

Public financing of R&D over the annual fiscal budgets 2003-2006. Not including commissioned research, exclusive of EU FP6 payments. NOK Mill. Not adjusted for inflation.

| Year | 2003 | 2004 | 2005 | 2006(forecast) | 2007(forecast) |
|-------------------------------------|-------|-------|-------|----------------|----------------|
| R&D funding (Unit: NOK Mill.) | 12282 | 13167 | 13491 | 14650 | No data |

The public financing of R&D has increased in the period, but still falls short of reaching 1% of Norway's GDP, which is the target set in the 2005 White Paper on Research.

- Shifts in the allocation of funding across the following areas (please provide quantitative information if available):

1) different types of public research organisations (*e.g.* universities vs. government research institutions)

Public financing of R&D over the annual fiscal budgets 2003-2006. Not including commissioned research, exclusive of EU FP6 payments. NOK Mill. Not adjusted for inflation.

| Primary recipient | 2003 | 2004 | 2005 | Change 2003-2005 |
|--------------------------------------|----------------|----------------|----------------|------------------|
| Universities and university colleges | 5053,3 | 5492,6 | 5697,1 | +12,7% |
| Other research institutions | 1306,8 | 1337,5 | 1389,5 | +6,3% |
| Research Council of Norway | 3750,3 | 4113,3 | 4046,6 | +7,9% |
| Others | 1418,7 | 1437,5 | 1514,0 | +6,7% |
| Abroad | 752,8 | 786,1 | 843,7 | +12,1% |
| Total | 12282,0 | 13167,0 | 13490,9 | +9,8% |

As can be seen from the data above, the relative size of the allocations to universities/university colleges, other research institutions and the Research Council has changed slightly in favour of direct funding of the universities and university colleges the period 2003-2005. This can be explained by a political will to prioritize long-term basic research. In the Norwegian research system, the universities have a particular responsibility for carrying out long-term basic research and for ensuring that the system maintains and develops an appropriate thematic scope. The funding mechanism for universities/university colleges has been made more competitive.

2) different socio-economic objectives (*e.g.* general advancement of knowledge, health, national security, environment, energy) AND

3) different fields of science and technology (*e.g.* information and communications technology, biotechnology, and nanotechnology.)

The 1999 White Paper on Research established long-term, basic research and quality enhancement as main aims in Norwegian research policy. In addition, priority was given to the four thematic areas of ICT, marine research, energy and the environment (including petroleum research), and medicine and health. These priorities have later been complemented by a national plan for functional genomics research and a research programme on new materials. The thematic priorities were followed up in the budgets of the Research Council of Norway. From 2000 to 2004, marine research and research on medicine and health have been strengthened by approximately 50% over these budgets. Research on energy and the environment had a growth of 33%, while ICT was strengthened by a modest 7,5% in this period.

As described in Section A, the 2005 White Paper outlines three structural priorities for Norwegian research (Internationalisation, Basic research with an emphasis on quality and the natural sciences and mathematics, and Research-based innovation), four thematic priorities (Energy and the environment, Oceans, Food, and Health) and three prioritised technology areas (ICT, New materials/nanotechnology and Biotechnology). In the main, this represents a continuation of the policy direction in the 1999 White Paper.

They were defined with the following in mind:

- The need for a long-term perspective in research
- The need both to preserve an appropriate scope in research and for targeted programmes in certain areas
- Utilising national advantages (including advantages related to our human resource situation, natural resource situation and industrial strengths)
- Strengthening areas where there is correspondence between national and global challenges
- The need to promote more R&D in the private sector and to ensure a shift to a more research-intensive and innovative business and industry
- Knowledge building in areas where international science is undergoing strong development
- Contribute to international knowledge development
- Utilising geographic advantages

It is too early to have any data that demonstrate the extent to which public allocation of research funding reflects the priorities in the 2005 White Paper.

The only data that show how *all* Norwegian public R&D funding is distributed between different fields are sorted according to the EU Nomenclature of the Analysis and Comparison of Science Programmes and Budgets (NABS):

Public financing of R&D over the annual fiscal budgets 2003-2006 sorted according to the EU Nomenclature of the Analysis and Comparison of Science Programmes and Budgets (NABS). Not including commissioned research, exclusive of EU FP6 payments. NOK Mill. Not adjusted for inflation.

| NABS Chapter 1993 | 2003 | 2004 | 2005 |
|--|-------------|-------------|-------------|
| 1. Exploration and Exploitation of the Earth | 243,4 | 250,6 | 255,6 |
| 2. Infrastructure and General Planning of Land-Use | 267,3 | 263,0 | 270,1 |
| 3. Control and Care of the Environment | 299,6 | 285,8 | 280,3 |
| 4. Protection and Improvement of Human Health | 920,5 | 987,1 | 1038,4 |

| | | | |
|--|----------------|----------------|----------------|
| 5. Production, Distribution and Rat. Utilisation of Energy | 281,6 | 310,9 | 400,7 |
| 6. Agricultural Production and Technology | 1150,5 | 1144,9 | 1157,8 |
| 7. Industrial Production and Technology | 943,9 | 1007,6 | 1057,9 |
| 8. Social Structures and Relationships | 834,8 | 848,0 | 873,8 |
| 9. Exploration and Exploitation of Space | 239,9 | 259,2 | 303,3 |
| 10. Research financed from GUF | 4632,9 | 5048,7 | 5226,2 |
| 11. Non-orientated Research | 1617,5 | 1896,3 | 1749,3 |
| 12. Other Civil Research | | | |
| 13. Defence | 850,0 | 865,0 | 877,4 |
| Total expenditure | 12282,0 | 13167,0 | 13490,9 |

- Changes in the use of different types of funding instruments for financing R&D or the balance among them, *e.g.* institutional funding (block grants) and project funding (contracts and grants), or public funding vs. private funding. To what extent have funding mechanisms become more competitive?

A larger proportion of the Norwegian public financing of research has become competitive. This trend can be observed both in universities and university colleges, hospitals and research institutes.

European funding is becoming increasingly more important. National competitive funding mechanisms also put greater emphasis on success in attracting international funding in their evaluations of projects. The Research Council of Norway offers supplementary funding to Norwegian research institutes when they receive project funding through the EU Framework Programme for Research (see Question 4 under Section E).

The objective in the 2005 White paper is to balance growth in funding for basic research between direct funding to institutions and funding channelled through the research council. The **Research Council of Norway** has shifted a greater proportion of its funding for basic research towards larger projects. This has been done to meet some of the challenges facing Norwegian research pointed out in evaluations (too small research groups, weak management etc). The shift towards larger projects is followed by strengthened strategic dialogue between the Research Council and the institutions.

The funding mechanisms for **universities and university colleges** have become more competitive. A new funding system implemented in 2002 provides the institutions with a basic funding of 60%, while 40% of their funding is dependent on results (a more detailed explanation of this system is included in the 2004 OECD Outlook). Since 2004, the number of peer-reviewed academic publications has been included as a component in the model. 2006 was the first year that Norwegian institutions were granted part of their funding based on academic publications. The Norwegian Association of Higher Education Institutions has coordinated a process by which journals are rated according to their impact. The new funding model appears to have worked according to its intentions of encouraging institutions to increase their research budgets and attaching higher priority to academic leadership and publishing strategies.

Norwegian universities are in a better position than the university colleges to score high on the research output component in the new funding model. Therefore an additional component measuring dissemination of knowledge is now under planning with the intention of strengthening the position of the university colleges in the competition for public funding. The new component will probably be implemented in 2007. The government is also looking into opportunities for strengthening research and development at university colleges, including research and innovation relevant to the business and industry in their region and research in the more practically oriented subjects, such as nursing. The latter type of research does often not result in publications in highly reputed journals, but it is of great practical value.

The state owned, **regional hospital trusts** have research as one of their key responsibilities. The university hospitals remain at the research frontier and provide research capacity and researcher training within their geographical area. The government aims to strengthen the research capacity of the hospital trusts. In 2004, part of the funding for the hospital trusts was made competitive. The regional hospital trusts now receive a 40% core funding for research, while 60% of their research funding is distributed according to results (number of articles in academic journals and completed PhDs).

The research institute sector in Norway was evaluated in connection with the 2005 White Paper on Research. The institute sector consists of a heterogeneous group of institutions. Together these conduct 23 per cent of the total R&D in Norway, corresponding to NOK 6.3 billion. The institute sector has not increased in size since the end of the 1980s and carries out an increasingly smaller proportion of the total R&D activity in Norway. The strategic role that the Research Council of Norway plays with respect to the institute sector will be strengthened. The Research Council is assigned the task of developing new guidelines for government funding of research institutes, including a new financing system and allocation regime for basic grants to the institutes. The basic grants for the environmental and technical/industrial research institutes have been relatively low. This funding for the environmental and technical/industrial institutes was strengthened by NOK 10 mill and 20 mill. respectively in the 2006 National Budget.

2. Please describe major initiatives to reform the organisation and governance of universities and other public research organisations to improve the quality of their R&D or their ability to contribute to economic growth and other social objectives:

The autonomy of **Norwegian higher education institutions** has significantly increased in the recent years (cf. the STI Outlook 2004). The detailed guidelines provided by the Ministry of Education and Research in the past have been replaced by an increased focus on the institutions' fulfilment of set targets. The targets are presented in the budget proposition from the Ministry of Education and Research and in annual letters from the Ministry to the institutions. The institutions are expected to identify concrete measures to fulfil their ambitions and profile, and to monitor their results. The sets of measures and the results achieved are included in their annual reports to the Ministry of Education and Research, and form the basis on which the institutions are evaluated by the Ministry. The institutions are asked to improve their quality managements by:

- Setting research priority areas.
- Follow-up the results of national evaluations conducted by the Research Council of Norway.
- Adopt quality measures for allocation of funding internally.
- Strengthen academic leadership.
- Developing internal procedures for the handling of cases regarding ethics in research.

3. Please identify major shifts or changes in priority among the approaches for strengthening public sector research, including efforts to: i) increase levels of funding; ii) alter the structure of funding (e.g., institutional vs. project-based funding; public vs. private-sector funding); iii) reform the governance of public research organisations; iv) implement new structures for performing research (e.g., centres of excellence, multi-disciplinary centres); v) changing guidelines for ownership and management of IPR; and vi) implementing new evaluation procedures).

The Government will set up a scheme where **private donations for research** of at least NOK 5 million are matched with a state contribution corresponding to 25 per cent of the amount of the donation.

The donation must come from private individuals or companies, and must be given through one of the universities, the state colleges with the right to grant PhDs, the Norwegian Academy of Science and Letters, or the Research Council of Norway. From 2007, the scheme will also include gifts from non-profit organizations and trusts.

The level of **public funding for research** over the National Budget has increased by 25% in real terms from 2001 to 2006. An important measure for increasing the level and predictability of public funding of research, and thereby contributing towards the 3% target, has been to increase the capital in the Fund for Research and Innovation, described above.

A revision of the **University and University Colleges Act**, which has been in force since the 1st of April 2005, demands that the institutions actively seek to obtain third party funding. The Act has also become more explicit regarding the institutions' responsibility to promote and conduct innovation activities.

Norway introduced a **Centres of Excellence scheme** in 2002. After the first call for applications, 13 research centres were granted status as Centres of Excellence. The centres will be devoted to long-term, basic research. The centres were selected on the basis of scientific merit as well as degree of international cooperation after a rigorous international evaluation process. Disciplinary diversity and a prudent balance between basic research and thematic initiatives were other considerations taken into account in the selection process. In 2005, the Research Council of Norway announced a new call for proposals for the scheme with the view of establishing 5-10 new Centres of Excellence in 2007. A midway evaluation of the centres will be carried out in 2006.

Norway has established an **Outstanding Young Investigators scheme**. 26 researchers have been granted funding under this scheme for up to 5 years, starting in 2004. The purpose of the scheme is to give young, talented researchers within different fields excellent conditions for doing research in order for them to reach a top level internationally. A second call for applications will be announced in 2006.

The R&D tax deduction scheme (Skattefunn) and the establishment of the **Norwegian Centres of Expertise** and the **Centres for Research-based Innovation** are all initiatives to further the increase of private sector funding for research (see description below).

From 2004, the Norwegian **technology transfer offices (TTOs)** have become operational at the universities. This has led to increased competence and awareness at universities regarding IPR.

4. Please describe any new or recent changes in policies adopted by government, public research funding bodies or public research institutions to improve access to data resulting from publicly funded research.

Norway participates in the OECD Data Access Survey.

At the institutional level, the Norwegian Association of Higher Education Institutions works to raise awareness on issues related to open access. In January 2005, the Association recommended its member institutions to publish in peer reviewed, open access journals. The organisation also advised its members to adopt an Open Access policy and develop institutional repositories with free availability of peer reviewed articles and other academic material. During 2005, universities and an increasing number of university colleges had established institutional repositories or were planning to do so. The four largest universities and five university colleges in Norway have collaborated to establish the project NORA – Norwegian Open Research Archives. The project harvests metadata from Norwegian institutions' open repositories, facilitates their collaboration and use, makes them searchable and thereby makes the full texts freely available.

The Norwegian Institute of Public Health maintains a public access database- and presentation programme through which they make key health indicators for the Norwegian population available to a general public (Norhealth; www.norges-helsa.no). The data sets cover health related behaviour (eg. smoking, inactivity, education), health care (e.g. prescription medicine use, hospital admissions, abortions) and health outcomes (e.g. morbidity, self-reported health, mortality).

Another ongoing project at the Norwegian Institute of Public Health aims to improve researchers' access to their databases by making the application process for data access more streamlined and predictable.

The Norwegian Social Science Data Services (NSD) is a national resource centre servicing the research community. Its main objective is to secure easy access for the Norwegian research community to data and to provide various services. NSD is a partner in European Social Survey.

Section C: Government support for private-sector R&D and innovation

1. Please describe major policy changes in the instruments used to support private sector R&D and innovation:

The focus on industrial research has been strengthened in Norwegian research policy, and the concept of user-directed projects has been brought to the forefront. New policy instruments include:

Norwegian Centres of Expertise (NCE), which have been established to maintain the regional focus on developing top competence by supporting and developing existing industry clusters in their innovation and internationalisation efforts. Their main focus is to promote networking between companies, academia and regional authorities. The programme had a budget of NOK 34,5 mill. in 2006, which will finance the initiation of six regional NCE-projects. More information: http://www.invanor.no/templates/TjenestePage_58393.aspx (in Norwegian only).

Centres for Research-based Innovation (CRI), which have as their main objective to enhance the capability of the business sector to innovate by focusing on long-term research based on building close alliances between research-intensive enterprises and prominent research groups. The Research Council of Norway introduced this scheme during 2005, and the first grants are expected early in 2006. The aim is to establish at least ten such centres.

- Tax treatment of business R&D (e.g. tax credits for R&D expenditure, changes in corporate tax regimes that could affect business R&D activities):

The Research Council of Norway has evaluated its business oriented instruments. As a result, the Council has moved its focus away from instruments targeted at specific sectors over to general instruments. The main elements in the new model are:

- The tax deduction scheme Skattefunn, which is a broad and general instrument that covers every sector and all companies
- Programme for user driven innovation projects
- Specific programmes directed towards specific sectors supplementing the more general instruments.

The so-called **Skattefunn**-scheme came into effect in 2002. The scheme gives Norwegian enterprises tax relieves on investment in research, and is administered by the Research Council of Norway. It has been estimated that Skattefunn generated tax relief for research in Norwegian companies amounting to NOK 1.8 billion in 2004. Skattefunn was expanded in 2005 to also cover unpaid work in R&D projects. An hourly rate of NOK 500 is used to impute the value of unpaid work. The EFTA Surveillance Authority (ESA) has to be notified about this new type of public support in the tax code, and the expansion has therefore not yet entered into force. The amendments will have effect on projects dating back to 2002. Participation in the Skattefunn scheme grew strongly from 2002 to 2004, after which the demand stabilized. Skattefunn is currently subject to an external evaluation process to be finalised in 2007. It will then be determined whether the scheme is to be continued. http://jaguar.intrapoint.no/skattefunn_v2/index.php?kat=English

Programme for user driven innovation projects. As of 2006, the Norwegian Research Council has merged several smaller industrial R&D programmes into a larger, general programme – Programme for user driven innovation projects. The aim is to reduce administrative costs and to make it easier for the applicants to apply for R&D grants. Grants from this new programme are allotted on the basis of potential for value creation and R&D content in the projects, regardless of industrial sector.

The **large-scale programmes of the Research Council of Norway** are an important mechanism to realize the priorities in Norwegian research policy, including the aim of promoting innovation and increased value creation. In the coming years, the Research Council will increase its focus on large-scale programmes across traditional disciplinary boundaries, as well as on wide-ranging projects of major scientific and strategic significance. Basic research, applied research and innovation are linked through the strategically directed financing mechanisms of the large-scale programmes. The programmes will as a rule have a budget of at least 100 million NOK yearly and a time span of 5-10 years. They include Petromaks (for the optimal management of petroleum resources), Nanomat (Nanotechnology and new materials), Renergi (clean energy), Havbruk (aquaculture), Norklima (Climate changes and consequences for Norway), Verdikt (ICT Core Competence and Growth), and Fuge (for research in functional genomics).

Innovation Norway launched the initiative **MARUT** in 2005 to contribute to increased development and innovation within the maritime industries in Norway. NOK 20 million was granted to this program in 2006. No grants can be allocated to specific projects before the EFTA surveillance authority (ESA) has approved the scheme.

- *Public procurement policies, new contractual guidelines, more competitive selection processes, etc:*

The upper limit for public procurements that have to be put out for public bids was raised from NOK 200.000 to NOK 500.000 in September 2005. This means that public bodies now may commission research projects of less than NOK 500.000 directly from the researcher of their choice without announcing a general call for proposals.

Norway is in process to incorporate the two new EC directives regarding public procurement into Norwegian regulation (directive 2004/17 and 2004/18). It is also proposed to implement sanctions (administrative fines) against illegal direct procurement. Both will be effective approx medio 2006.

- *Changes in IPR regimes to create additional incentives for business investments in innovation, such as via new or revised guidelines for specific types of inventions (e.g. genetic, software, business methods), or new or strengthened mechanisms for enforcement of IPR (e.g. specialised courts):*

The EU bio-patent directive entered into force in Norwegian law from 1st February 2004, further harmonizing Norwegian legislation in this field with that of the EU.

- *Other forms of public support for innovation (e.g. consulting services and extension programmes):*

The instruments mentioned above (Question C1) may be relevant.

2. Please describe policy changes in programmes to support R&D and innovation in SMEs and new technology-based firms, e.g., via efforts to:

- *Establish and develop venture capital funds and/or second-stage financing for the support of new technology-based firms or spin-offs from public research organisations:*

Two seed capital schemes have been set up to support R&D and innovation in SMEs and new technology-based firms. They await approval in the EFTA surveillance authority (ESA) before they can take effect. The two schemes are:

Nationwide seed capital scheme. The scheme is established to increase the supply of seed capital to projects in Norway by stimulating investors through state incentives and to increase commercialisation of research-based projects from the universities. The state provides NOK 667 million in total in subordinated loans to investment companies. The investment companies will be located in the university cities of Oslo, Bergen, Trondheim and Stavanger. Up to NOK 167 million (25%) will be converted to grants through a fund for potential losses. The state demands an interest rate of average 12 month NIBOR + 2 percentage points. There are no geographical restrictions on where in Norway the investment companies may invest.

Regional seed capital scheme for assisted areas in Norway. The primary objective of the scheme is to increase supply of seed capital by stimulating investors and trigger development in lagging regions. The Norwegian state has allocated NOK 700 million in total in subordinated loans to the scheme. Up to NOK 175 million (25%) will be converted to grants through a loss-fund. Furthermore, the state demands an interest rate of average 12 month NIBOR + 0,5 percentage point. The state will also cover parts of the administrative costs for the fund.

- *Provide additional R&D funding targeted to SMEs and new technology-based firms*

The Programme for user driven innovation projects described above may be relevant.

- *Encourage entrepreneurship through training, information services, or other means:*

The Young Enterprise Norway (YE) programme offers entrepreneurship courses at all levels in the education system. The organisation was founded in 1997. Since then there has been a rapid increase in the number of students that is participating in its activities. In addition to activities for pupils and students, the organisation develops material, arranges courses for teachers, and promotes contact between educational institutions and the business sector.

The Norwegian Government has increased its funding of YE in 2006. The funding from the Ministry of Trade and Industry was increased from NOK 4 million in 2005 to 10 million in 2006.

In its strategy for 2006-2009, YE presented plans to increase its activities rapidly in the future. In upper secondary school, 9000 students participated in 1600 enterprises during the school year 2004/2005, an increase of 12.5 per cent compared to the previous year. A research report released in 2005 shows that 17 per cent of the young people who participated in YE's activities went on to found a company. The average rate in Norway is about 7.5 per cent.

3. Please identify major shifts or changes in the mix of instruments used to provide public support for private sector R&D and innovation, to include: i) direct financing of R&D, ii) R&D tax incentives, iii) support to entrepreneurship and SMEs and iv) IPR protection and other framework conditions. What shifts in the policy mix are anticipated in coming years?

Following the 2005 White Paper on research (St.meld. nr. 20 (2004 – 2005) “Commitment to Research”), the focus on industrial research has been further strengthened and the concept of user-directed projects has been brought to the forefront. The new government has underlined the need to stimulate and strengthen research within areas of national industrial importance and excellence, such as energy and the environment, and the marine and maritime sectors.

i) Direct financing of R&D

See the programme for user driven innovation projects mentioned above.

ii) R&D tax incentives:

No major policy changes apart from "Skattefunn" mentioned above.

iii) Support to entrepreneurship and SMEs:

iv) Intellectual Property Rights and other financial conditions:

From 2004, the Norwegian **technology transfer offices** (TTOs) have become operational at the universities. This has led to increased competence and awareness at universities regarding IPR.

Capital Access – seed capital funds: In order to reduce risk and improve access to capital for start-up companies two new seed capital schemes are introduced, cf. text above.

Cooperation between the government agencies supporting R&D and innovation: The three major government agencies for business and research support, the Research Council of Norway, Innovation Norway and the Industrial Development Corporation of Norway (SIVA). These have entered into a cooperation agreement for the period 2005-2007. The cooperation aims to improve the coordination of innovation efforts, and provide a better overall service to the business sector.

A new Competition Act: A new Competition Act entered into force in Norway on 1 May 2004. The purpose of the Act is to promote competition, and thereby contribute to the efficient utilisation of the society's resources. The Norwegian Competition Act is now partly harmonized with EU competition rules, and includes prohibitions against cartels and the abuse of market dominance. The new act is aimed to promote the interests of consumers, and make it easier for innovative SMEs to operate in established markets.

Simplifying Norway: Favourable framework conditions for business provide a good basis for innovation and wealth creation. Simplifying laws and regulations is therefore a focal area in Norwegian industrial and innovation policies. The ongoing governmental “Simplifying Norway” effort aims to reduce the administrative costs incurred by trade and industry in complying with regulatory frameworks by 25 % by the end of 2012. The purpose is to minimise compliance resources required by Norwegian regulatory frameworks, and make these into a competitive advantage to businesses based in Norway. A new Simplifying Norway Action Plan 2005–2009 was launched in 2005.

Gender balance: Human and social diversity is considered an important prerequisite for new ideas and innovations, within organisations and societies. In December 2003 the Parliament adopted a law on

gender representation to be imposed on all publicly owned enterprises (state-owned limited liability and public limited companies, state-owned enterprises, companies incorporated by special legislation and inter-municipal companies) and all public limited companies in the private sector. The rules applying to state-owned companies entered into force on 1 January 2004, and the rules applying to public limited liability companies came into force from 1 January 2006. Norway is the first country in the world that has demanded gender balance within the boards of public limited companies. The Government is also developing a national action plan for female entrepreneurs.

Innovation policy orientation: The orientation of Norwegian innovation policy is changing. A predominantly research-oriented linear model is being replaced by a broad systemic model, where innovation policy is integrated into all policy areas relevant for innovation performance. This is an ongoing process, outlined in the 2003 “From Idea to Value: The Government’s Plan for a Comprehensive Innovation Policy”, and followed up through a status report in 2005.

Useful websites:

- The Research Council of Norway: <http://www.rcn.no/>
- Innovation Norway: <http://www.invanor.no/>
- SIVA: <http://www.siva.no/>

4. Looking to the future, what are the main issues that policy makers will need to address regarding support to the business innovation system? Please describe any efforts that have been taken to identify or address them.

Two of the main issues:

- To increase the private sector expenditure on R&D activities to reach the 3%-target for R&D spending, cf. section A. Addressed by the introduction of government schemes to promote private R&D investment, cf. Section C.
- To raise the number of science and technology university graduates and the number of researchers, especially within maths and sciences. Addressed by schemes to raise the interest for sciences in the population in general, schemes to improve the maths and science education at all levels, including teacher training, and budgetary allocations to create more positions at PhD and post-doctoral level, cf. Section F

Section D: *Enhancing collaboration and networking among innovating and research organisations*

1. Please describe major initiatives to promote collaboration and networking among innovating firms, e.g. via joint R&D programmes, regional innovative clusters, international co-operation (attracting research labs of foreign firms or supporting access of domestic firms to foreign programmes).

Response:

Recent policy changes aims for a closer co-operation between the three main public actors in research and innovation policy – the Research Council of Norway, Innovation Norway and SIVA (the Industrial Development Corporation of Norway). It is also an aim to strengthen SIVA, which is supposed to facilitate

the creation of networks between regional, national and international R&D environments, especially knowledge-sharing networks.

There is a continued focus on establishing and developing Norwegian Centres of Expertise (NCE) to support existing regional industry clusters' focus on developing top competence. The NCE initiative has recently been strengthened and co-financed by the Ministry of Local Government and Regional Development and the Ministry of Trade and Industry through SIVA and Innovation Norway.

Initiatives also include the creation of national Centres of Excellence in Research and Centres for Research-based Innovation (see section C, point 1).

2. Please describe major policy initiatives to promote stronger industry-science relationships, such as efforts to:

- *Enhance collaborative research (e.g., through changes in regulations governing the types of agreements negotiated between public research organisations and businesses and their implications for access to and exploitation of research results);*

There is an increased focus on the so-called Manufacturing and Public Research and Development Contracts (OFU/IFU), to link public and private interest. User-directed projects are central in the national research strategy, cf. the 2005 White Paper on Research.

The funding of the technical/industrial research institutes will be strengthened through an increase in their basic grants. This will improve their long-term competence building, and strengthen strategic industrial research and the institutes' international competitive ability.

- *Increase the mobility of human resources between public and private sectors (e.g. by revising employment and financial rules governing public-sector researchers to allow them to more easily collaborate with industry, move between the public and private sectors, participate in the creation of spin-offs, take equity positions in technology-based firms emerging out of public research, etc.);*

Participate in the creation of spin-offs: Efforts to commercialise research results are reinforced by a substantial increase in the so-called FORNY-program. A new scheme introduced through the program is providing scholarships for researchers who want to commercialise their research results by setting up new businesses.

- *Set up new modes of public/private partnerships for research and innovation:*

The increased focus on research-based development is a driver for long-term contractual partnership between industry and universities and research institutes and the new Centres for Research-based Innovation (CRI). The Research Council of Norway announced the first call for applications in 2005, and the centres are expected to be appointed in early 2006. The aim is to establish at least ten such centres.

3. How has policy shifted in recent years in its support for different channels of industry-science linkages (e.g., collaboration, licensing, spin-outs, public/private partnerships). Please describe any anticipated shifts or changes in policy for strengthening industry-science linkages.

See text about the scheme for doctoral training in a formalised cooperation between universities and business and industry under Section F, Question 1.

See text about the Centres for Research-based Innovation under Section C, Question 1.

Section E: Globalisation

1. Please describe the most important policy issues and objectives with respect to the process of internationalisation of R&D:

The Research Council of Norway will intensify its efforts to promote coherence between national and international activities with a view to gradually opening national research programmes. All large-scale projects and programmes should be assessed in relation to international activities in the area in question.

2. Please identify and describe changes in policies to attract R&D through foreign direct investment. This may concern:

- Direct financial support
- Fiscal incentives (tax breaks, R&D tax credits ...)
- Administrative support
- Provision of infrastructure
- Public procurement
- Active recruitment of foreign firms
- Advertising
- Other measures:

Please check the boxes above to indicate the types of policies used and provide more detail information here:

Norway aims to maintain a good general research infrastructure and a competent workforce to make it attractive for foreign firms to locate their activities here.

The Norwegian Centres for Research-based Innovation scheme aims to make it attractive for enterprises that work on the international arena to establish R&D activities in Norway (see question 5 in this section).

The Research Council of Norway and Innovation Norway are producing a report where they review potential measures to attract foreign R&D investments, including those that go beyond the scope of research policy, such as tax incentives. The report should include a cost-benefit analysis of the proposed measures. A final draft of the report – entitled "Invent in Norway" – is expected to be ready Spring 2006.

3. Please describe any changes in the principles concerning the treatment of foreign firms (both non-domiciled firms and foreign-owned subsidiaries) or foreign research institutions in national R&D programmes (e.g, access to national R&D funding programmes, rules for co-operation with domestic public research institutions, rules for co-operation in public private partnerships, public procurement, etc.)

There have been no changes in these principles as compared to earlier reports. To qualify/be eligible as main contractor in a RTD-project, companies have to be registered as a limited company in Norway (organised according to Norwegian laws). Foreign companies and other participants from foreign research institutions may, however, be sub-contractors to Norwegian project holders.

The tax incentive scheme (Skattefunn) also applies to R&D procurement from foreign research institutions. For more information about public procurements, see question 1 in section C.

4. Please describe specific measures to support the internationalisation of domestic public research institutions (e.g., such as additional funding for projects with international partners, co-funding for project partners not located in-country, support for setting-up affiliates abroad).

Internationalisation of domestic public research institutions has a high priority in Norway.

The Research Council of Norway (RCN) provides additional funding for projects in several ways, for instance:

- projects approved by the European Commission within the EU Framework Programme (including ERA-Nets)
- additional support to foreign scientists for inbound mobility by application through Norwegian institutions
- co-financing of RTD projects within the frameworks of:
 - NORDFORSK (see text below)
 - The North American Agreement within Agriculture and Fisheries
 - European Science Foundation – ESF (cooperation within EUROCOREs)
 - EUREKA.

Support is given for the application phase/positioning phase

- for project within European programmes (EUREKA, EU Framework Programme, the Norwegian EFTA/EEA financial mechanisms)
- to stimulate new contacts for establishing bilateral RTD-projects. Priority is given to US, Canada, South Africa, Japan and China.

In 01.01.2004, the Research Council of Norway introduced a financing instrument to encourage Norwegian research institutes to participate in projects financed through the EU Framework Programme. Research institutes that are granted funding through the EU instruments "Integrated Projects" and "Specific Targeted Research Projects" may have up to 25% of the project expenses covered by a Research Council grant. The EU and Research Council grants together cannot exceed 75% of the total project costs.

NordForsk was established January 1 2005. It is an independent institution operating under the Nordic Council of Ministers for Education and Research. NordForsk is responsible for cooperation in research and research training in the Nordic and Baltic countries and North-West Russia. In 2006, NordForsk support these activities with approximately NOK 70 million. NordForsk also handles cooperation and coordination with Nordic InnovationsCenter, NICE. NordForsk replaced the Nordic Science Policy Council and Nordic Academy for Advanced Study, NorFA. Central players in NordForsk are the national research councils, other research-funding agencies and the universities.

In 2004, the Norwegian Ministry of Education and Research presented a "Strategy for Scientific and Technological Cooperation with North America". The objective of this strategy is to promote an increase in scientific and technological cooperation with the USA and Canada. The Research Council of Norway is charged with its implementation. In 2005, the Council launched the Leif Eiriksson mobility programme to

increase transatlantic mobility and research cooperation. Norwegian institutions may apply for mobility grants for scientific staff and PhD-students for research stays of three to ten months' duration. Both outbound and inbound mobility is supported. The Research Council of Norway set aside NOK 4.5 Mill for this purpose in 2005. Norway entered into a bilateral agreement on science and technology with the United States in 2005. The agreement is expected to act as a door opener for Norwegian research interests in the U.S., for instance when it comes to access to research facilities. It also states the rights of the parties involved in cooperation projects with regard to Intellectual Property. The Strategy for Scientific and Technological Cooperation with North America: <http://odin.dep.no/kd/english/doc/plans/045041-990022/dok-bn.html>. The bilateral agreement with the United States: http://odin.dep.no/filarkiv/265864/Agreement_NORGE-USA.pdf

Internationalisation is encouraged through Norwegian membership in large international laboratories and through membership fees and grant schemes to make use of the facilities these organisations offer (e.g. CERN, EMBL, ESRF, ESA).

Several measures have been adopted to support internationalisation of universities and university colleges:

- The higher education institutions have been given greater responsibility for promoting internationalisation. The Research Council of Norway has closed down programmes to fund international exchange of individual researchers. Instead, the universities and university colleges have been given increased funding to finance international travel and exchange for their own researchers.
- International exchange of academic staff is reported to the ministry, and is discussed in meetings with the institutions. Student exchange is rewarded through the funding system.
- The funding system for universities and university colleges awards publications in the best international journals, which stimulates international publication and cooperation.
- Higher education institutions are requested to announce all vacant positions through the European researcher mobility portal established in 2005.
- The scheme for research training schools, which are scheduled for 2007, has international collaboration and exchange as important elements (see section F, question 1).

In general, the universities have been better able to take advantage of the opportunities for internationalisation than the university colleges. The Research Council of Norway is introducing initiatives directed at helping university colleges and research institutes to internationalize. The Council will hold six regional meetings with research institutions in February and March 2006 to prepare the establishment of regional centres that will offer advice on internationalisation of research.

5. Please describe measures to link domestic firms, in particular SMEs, to foreign sources of research and innovation, including international co-operation in R&D (e.g., additional/preferential funding for projects with international partners; co-funding for project partners not located in the country; and support to find international partners, etc.).

The Norwegian Centres for Research-based Innovation Scheme was initiated in 2005. Its main objective is to enhance the innovation capacity of the business sector by focusing on long-term research based on forging close alliances between research-intensive enterprises and prominent research groups. Through the scheme, the Research Council of Norway aims to encourage internationally oriented

enterprises to establish R&D activities in Norway. The applicants for the scheme are assessed based on scientific quality and potential for innovation and value creation. International cooperation is one of the indicators chosen for assessing scientific quality.

Section F: Human resources

1. Please identify and describe recent efforts to improve supplies of university graduates with science and engineering degrees (both quantity and quality), in particular as relate to the following areas:

- Raising interest in and awareness of science among youth;
- Revising academic curricula to make science and technology more attractive to students, such as by expanding interdisciplinary training in S&E education;
- Improving teaching in mathematics and science, including through the use of ICT in teaching content and delivery;
- Reducing gender and ethnic minority gaps in science and technology education
- Enhancing financing opportunities for PhD study and post-doctorate training (such as through fellowships, funded research opportunities, *etc.*)
- Improving the quality of secondary university research laboratories/infrastructure
- Demand-side policies to increase the attractiveness of employment in public research organisations, make public sector employment more flexible, or improve provision of information to students regarding job opportunities in the public and private sectors.
- Others:

Please check the boxes above to indicate the types of policies used and provide more detail information here:

In the years to come, a large proportion of Norwegian researchers will reach retirement age. This, coupled with a need to increase research activity in general and especially within the natural sciences and in the private sector, makes the recruitment of new researchers a pertinent issue in Norwegian research policy.

In 2002, the Ministry of Education and Research developed a five-year strategy plan for raising the competence level in math, science and technology – “Math, Science and Technology – naturally!”. The strategy concerns all levels of education, including teacher training. In 2006, a European conference on the communication of science and technology will be held in Tromsø. The conference is a continuation of a national conference series on the same topic. The overall aim of the conference is to increase recruitment to science, mathematics and technology at all levels by changing the attitudes towards science and technology in society in general and among young people in particular. The conference will be a place for dialogue between educators, industry, media representatives and policy makers, and gives opportunities for exchanging best practices. More info: <http://uit.no/cst/>

The universities are autonomous institutions with regards to academic curricula . The university colleges are free to decide the curricula in most studies on lower level. As a result of the Quality Reform in Higher Education, the institutions had to reform their study programmes to the new Bachelor and Master

system. Many institutions also revised many study programmes in S&E to make them more attractive to students and introduced more interdisciplinary training. Interdisciplinary training is one of the topics brought up during the annual meetings between the institutions and the Ministry of Education and Research. However, the fact that many of the university colleges are located far apart makes it more difficult to achieve interdisciplinary training. The Quality Reform will be evaluated in 2006.

The educational and research institutions and the National Centre for Recruitment to MST (RENATE) make efforts to improve recruitment to the MST studies. RENATE also has a special responsibility for recruiting women to these fields (http://www.renatesenteret.no/Mandat_english.pdf).

A national plan to increase the number of PhD students in Norway was adopted in 2002. The plan has been followed up by raising the number of positions for PhD-students with 350 a year. This policy was confirmed in the 2005 White Paper on Research. The White Paper announces several new measures to strengthen the PhD education:

- A scheme of national research training schools is currently considered by the Research Council of Norway. The scheme is planned to support the development of excellent research training milieus primarily based on cooperation between institutions. Internationalisation and exchange of lecturers and students will be important components.
- A scheme for doctoral training in a formalised cooperation between universities and business and industry is considered by the Research Council Norway. The means of this scheme is to stimulate business and industry to invest more in research, but also to provide PhD candidates with a training program relevant for business and industry.

A fast-track scheme was established in the Immigration Office in 2002, easing foreign experts' access to the Norwegian labour market. In 2005, there was a slight relaxation of the rules related to how long researchers who stay in Norway through this scheme can spend abroad. In 2005, around 1200 persons were granted a stay in Norway through this quota. A maximum of 5000 persons a year may enter Norway on this scheme.

2. Please describe recent policy changes to enhance the international mobility of scientific and high-skilled personnel, including programmes to attract foreign (and expatriate) talent and encourage students/workers to gain international experience.

The 2005 White Paper on Research confirms that internationalisation is assigned high priority in Norwegian research policy. International research cooperation is of vital importance if the quality of Norwegian research is to be enhanced and its renewal ensured. It also provides opportunities for Norwegian scientists, research institutions and industry to take advantage of knowledge and technology developed abroad. The Government places particular emphasis on active participation in European research cooperation, strengthened bilateral research cooperation (particularly in relation to countries in Asia and North America), and better utilisation of national assets to attract researchers and research funding from abroad.

In 2005, Norway established a virtual mobility portal to promote outbound and inbound researcher mobility. The portal is part of a European network of national researcher's mobility portals. Norwegian universities and university colleges are obliged to publish information about all vacant academic positions at the portal. In addition, the Research Council of Norway has opened a mobility centre which helps foreign researchers plan their stay in Norway and facilitate their arrival. <http://www.eracareers.no/>

Internationalisation have been brought to the forefront in the evaluation of applications to most of the schemes administered by the Research Council of Norway, including the newly introduced schemes to promote excellence in research and innovation, where links with foreign researchers and institutions are required.

See also the text on the Leif Eiriksson mobility programme under section E, question 4.

3. Please describe recent policy efforts to foster development of specific skills other than S&T skills needed to foster innovation in a knowledge-based economy (e.g., management, communication, legal), notably as relates to the service sector.

No change. A continued focus on equal treatment of domestic and foreign firms.

4. Please describe any major shifts or changes in the priorities and mix of instruments used for developing human resources for innovation, e.g., between development of domestic talent versus attraction of foreign talent; between development of S&T skills and non-S&T skills; between stimulation of demand and development of supplies; between support for teaching and support for research; etc.

The new government has ambitious goals for the recruitment of women within research in general and within science and technology in particular. Currently 30% of researchers are women, while the share of women among professors is 17%. There are great variations across disciplines, with technology having the smallest proportion of women and the humanities the highest. The higher education institutions are expected to develop their own plans for gender equality. The Ministry encourages the higher education and research institutions to make use of the opportunity provided by the high retirement rates in the coming years, and adopt measures to recruit more women to research. In January 2004, the Ministry of Education and Research established the "Committee for Mainstreaming – Women in Science" to support the integration of women in research (<http://kvinneriforskning.no/english/>).

5. Looking to the future, what are the main changes anticipated in the supply and demand for human resources, and what are the main policy challenges that policy makers will need to address? Please describe any efforts being made to identify future challenges or develop future policy directions.

The international mobility of researchers is increasing, and Norwegian policy makers and research institutions will have to adapt to these new circumstances.

Norway is committed to participate in the EU Framework Programmes. This stimulates Norway to put focus on the coordination of national research programmes with those of other European countries, and the opening up of Norwegian programmes to foreign applicants.

Section G: Policy evaluation

1. Please describe recent changes in policies regarding ex-ante or ex-post evaluation of innovation policies and programmes, including new legislation or regulations, methodologies employed, criteria considered and the organisations/institutions that perform the evaluations.

There is a continued focus on evaluation in Norway, with a balance between ex ante, concurrent and ex post evaluations.

2. Please describe recent changes in policies regarding the evaluation of public research organisations, including legislation or regulations requiring evaluation, methodologies employed, criteria considered and the organisations/institutions that perform the evaluations.

3. Please outline any significant changes in the priority given to evaluation in innovation policy, including the motivations for such changes and anticipated effects. Please include information about additional resources being invested in evaluation and approaches used to ensure that results of evaluation feed-back into policy making.

Evaluation studies continue to have a high priority in Norwegian innovation policy.

4. Please provide information or web-links, if available, about the outcomes of recent major evaluations of R&D or innovation policies.

Møre Research has produced annual evaluation reports on the user-oriented project portfolio of the Research Council of Norway since the mid-1990s. The main findings of this analysis is that most projects have a positive net present value, and that the long-term corporate returns on a few projects are very high. The projects have contributed significantly to creating new knowledge, and have generated externalities in the form of doctorates, scientific publications and cooperative relationships. The report is can be downloaded from <http://www.mfm.no/db/5/2144.pdf> (in Norwegian only),

The current Norwegian seed capital schemes were evaluated in the autumn of 2003, with a particular focus on their organisation and the general terms applicable to central government loans. The evaluation showed that the scheme has generated a considerable infusion of private capital into new businesses. Each krone invested by the public sector in the form of subordinated loans has triggered 4.8 kroner in private investor capital. The scheme has worked satisfactorily in terms of the objective of transferring competence to newly established enterprises. The evaluation also concludes that "the investment made by the seed capital funds has to a large extent been of absolutely decisive importance to these businesses, including those in major urban areas like Oslo and Trondheim". The report can be downloaded from <http://odin.dep.no/filarkiv/193953/Sakor033.pdf> (in Norwegian only).

In connection with the 2005 White Paper on Research, the Ministry of Education and Research asked the Research Council of Norway to review the Norwegian research institute sector and propose a new system for the core funding for these institutes. The new funding system will strengthen the strategic responsibility the Research Council has for the institute sector. The proposal for a new funding system will be presented to the Government in June 2006.

The Ministry of Education and Research has also asked the Research Council of Norway to review those research institutes that focus on foreign policy and social policy respectively. The quality, customer satisfaction and international competitiveness of these institutes will be assessed with the aim of proposing areas for improvement. The review will be presented to the Government in September 2006.