

**Resolution of**  
**The Science and Technology Policy Council**  
**ICELAND**

**June 8, 2004**



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At a meeting on June 8, 2004, the Science and Technology Policy Council reviewed the implementation of policy and progress of actions agreed upon at its meeting on December 18, 2003. As a result, the Council agreed to the following resolution concerning the work ahead.

## **1. Strengthening Competitive Funds**

The Science and Technology Policy Council has assigned the Science Committee, the Technology Committee and the boards of competitive funds the tasks of coordinating the preconditions for public grants and clarifying their objectives and criteria to better conform to the Council's policy. At the next meeting of the Science and Technology Policy Council, these bodies will present a report on the results of their efforts to coordinate.

The boards of competitive funds will report annually to the Science and Technology Policy Council to explain how grants from the funds have contributed to the realization of the Science and Technology Policy Council's objectives.

The Science and Technology Policy Council assigns its working committees the task of submitting to the Council's next meeting a joint proposal for a new five-year programme for the development of knowledge and facilities in fields of research (scientific and technological) that are expected to be of significance to the Icelandic people in coming years. The committees will consult the scientific community and industry for ideas that meet the prerequisites specified by the Science and Technology Committees. The committees will do so with the assistance of RANNÍS (Icelandic Centre for Research) and in consultation with the Ministry of Education, Science and Culture and the Ministry of Industry and Commerce.

## **2. Strengthening University Research**

The Science and Technology Policy Council suggests that the Ministry of Education, Science and Culture consult with the Science Committee to define policy concerning the requirements and qualifications for doctoral programmes in Iceland comparable with those in neighbouring countries and to review the regulations that govern The Fund for Graduate Research Training in that context.

The Science and Technology Policy Council encourages universities to define research policy that takes into account the Council's policy and to work towards increased flexibility in the division of university teachers' working time amongst research, teaching and administration.

The Science and Technology Policy Council emphasizes that all universities where research is conducted undergo evaluations and must fully meet basic requirements for both scientific quality and social relevance.

## **3. Redefinition of the Structure and Procedures of Public Research Institutions**

The Science and Technology Policy Council accepts the recommendations of the Prime Minister's working group concerning the redefinition of the organization of procedures in public research institutes and assigns to the

respective Ministers the task of acting upon the working group's recommendations.

#### **4. Other Policy Items**

##### **a. International Cooperation**

The Science and Technology Policy Council strongly encourages Icelanders to play as great a role as possible in the preparation of the next EU framework programme and in maintaining the initiative for projects.

The Science and Technology Policy Council proposes that Iceland take an active role in reorganizing Nordic research cooperation and in strengthening support for innovation with the objective that the Nordic countries may take a leading role in these fields and assert themselves as attractive partners in an international context. At the same time, Icelanders should seek to strengthen scientific links with other nations in the circumpolar North.

The Science and Technology Policy Council encourages the competitive funds to be receptive to applications for grants that relate to the preparation of international collaborations.

##### **b. Continuity of Funding for Research and Innovation**

The Science and Technology Policy Council attaches great importance to the continuity of funding of research and innovation and the development of closer ties and improved cooperation between the Research Fund, the Technical Development Fund, the Added Value for Seafood (AVS) Fund and the New Business Venture Fund, as well as other funds that operate in this sector.

##### **c. Support Network for Innovation**

The Science and Technology Policy Council proposes that the Innovation Centre (Impra) be assigned the task of establishing formal cooperation between organizations that provide support for economic development in Iceland, and for linking them to the public support system for scientific research, technological development and innovation.

##### **d. Equality Issues**

The Science and Technology Policy Council proposes that the Minister of Education, Science and Culture reappoint a national committee for women in science to monitor the conclusions of the EU management committee on women in science, among other duties. The committee will supervise the Women in Science project (which is part of the government's Equal Opportunities Strategy 2004–2008), collect statistical overview data, etc.

##### **e. Increasing the Number of Students in Science and Technology Subjects**

The Science and Technology Policy Council proposes that the Minister of Education, Science and Culture form a working group to explore ways to raise the level of interest among primary and secondary school students in courses and employment in the fields of science and technology.

## **Notes on the Resolution of The Science and Technology Policy Council,**

The Science and Technology Policy Council finds that the introduction of legislation at the beginning of 2003 concerning the sponsorship of scientific research had an immediate and widespread effect on this field. It is the Council's view that many initiatives have advanced significantly. The Council has decided to expand competitive funds, and work has begun to further define grant policies in order to boost research activities in Iceland. The Council welcomes the efforts that have been set in motion to improve cooperation between research performers as well as moves towards consolidation into fewer research units. The Council emphasizes the need for better coordination between the individual actors in the new system, as well as more effective publicity and clearer visibility for the new system. RANNÍS will provide the needed services for the actors involved.

### **Progress on the Principal Policy Issues:**

#### **1. Enlargement of Competitive Funds**

The Government intends to more than double the budget of public competitive funds by 2007. Two new funds have been brought into operation. The Research Fund has assumed the roles of the earlier Science Fund and Technical Fund. The Technical Development Fund, however, has no predecessor in the old system; its role is the advancement of technological development, innovation and related research in the interests of the nation's economic and competitive capabilities. The inception of these funds and the work of the New Business Venture Fund have brought about a continuity in the financing of innovation, which is a prerequisite for economic regeneration and growth. In addition, a new programme of action has been created to increase the value of marine harvests: the so-called AVS Plan.

The Science and Technology Policy Council emphasizes that the grant policies of the competitive funds must take into account the Council's policy as of December 18, 2003. Grants from public competitive funds for research purposes must be based on clear objectives and quality criteria that comply with the general policy of the Science and Technology Policy Council. The grant regulations of the three funds must be transparent and must give a clear indication of the criteria that will be applied in the evaluation of applications and in the assessment of project progress. These criteria include those of the scientific community as applied in peer reviews along with expectations of economic and social benefits. These methods will ensure that public money goes to those who will produce the best results. It must be emphasized that regulations concerning the division of tasks between the funds' fields of coverage must be coordinated. At the same time the regulations must ensure continuity in the financing of research, development work and innovation so that companies, institutions and universities are able to compete with project ideas that might be centred on varying scientific and/or socio-economic goals. It is thus necessary to take into account the possibilities for utilizing projects' results, their contribution to increased economic competitiveness and the strengthening of ties between the scientific community and industry. This is a task for the Council's working committees and boards of the funds as defined in the new legislation that gives mandate to the Science and Technology Policy Council. In their annual reports to the Science and Technology Policy Council, the boards of funds must give an account of how

grants from the funds have contributed to the realization of the Council's policy objectives.

Strategic research programmes are an appropriate means to meet the needs of society for research and innovation in areas of knowledge that can have significant impact. The Science and Technology Policy Council urges the preparation of new strategic programmes to replace the now expiring research programme on information technology and environmental research. A new programme should promote the building up of knowledge and facilities in areas that have clear potential for improving the lives of Icelanders in coming years. The scientific community and the industrial sector will be invited to present ideas that meet the prerequisites specified by the Science and Technology Committees, with the assistance of RANNÍS and in consultation with the Ministry of Education, Science and Culture and the Ministry of Industry and Commerce. The two committees under the Council select the fields and make more specific requirements about objectives and priorities before inviting tenders for the programme's resources. Applications should involve leading-edge scientific and technological ideas and also involve proposals for the close cooperation and involvement of existing teams and start-up units from institutions and companies in this field. The development of shared infrastructure facilities will be an important part of the research programme. There may be interaction with the Instrument Fund and other competitive funds, as appropriate. The two committees shall present their proposals at the autumn (2004) meeting of the Science and Technology Policy Council.

## **2. Strengthening University Research**

Strengthening university research is by its nature a long-term undertaking. It involves decisions about contributions to research and equally important decisions about strengthening infrastructure and improving communication both internally and with other research institutions and companies. The recent merger of the Nordic Vulcanological Institute and the Geology and Geophysics Department of the University of Iceland Science Institute to form the Institute of Earth Sciences, which occurred with the support of the Minister of Education, Science and Culture, has set a precedent. It demonstrates how joining forces presents new opportunities. It is natural to look for further areas for structural rationalization, such as through the reorganization and redefinition of work practices of research institutions according to the proposals of the working group appointed by the Prime Minister.

The Science and Technology Policy Council encourages the universities to outline a clear policy that is in accordance with the Council's general policy. The Ministry of Education, Science and Culture is working on criteria for specifying basic appropriations to university research. The cost of research is variable. All research projects require a firm foundation in order to apply to a competitive fund. Flexibility in the division of university teachers' working time amongst research, teaching and administration is desired. Public sector universities are working towards increased flexibility in this matter, especially when making new appointments and establishing new branches or departments. It is now possible to use research contributions other than salaries in a variety of ways within departments, institutions and research establishments in the education system. This development has led to an increase in the output and quality of research within the universities.

Postgraduate courses at universities have increased markedly during the last decade. The increase has occurred in both traditional theoretical studies and research-based training in which research projects play a major role. There is a broad consensus that the research-based training is now one of the main pillars of research and development work in Iceland and a desirable area for collaboration amongst universities, companies and institutions. The regulation of doctoral programmes needs to be examined and their requirements and qualifications must be made comparable with those of neighbouring countries. The role of the Fund for Graduate Research Training must be reviewed in light of this.

The Ministry of Education, Science and Culture has decided to evaluate the status of research at the University of Iceland. At the same time, in consultation with the Science Committee, the Ministry will make efforts to define and select benchmarks both for the quality and output of research and for broader contributions by the universities to the development of Icelandic society. The Science and Technology Policy Council stresses that all universities where research is conducted must undergo evaluations. It is important that discussions take place concerning the criteria for evaluation, which should include traditional academic criteria and scientific standards and also account for the universities' contribution to socio-economic progress.

The Minister of Agriculture has initiated the reorganization of agricultural research within the new agricultural university formed by the merger of the Agricultural University, Hvanneyri, RALA and the Icelandic Horticultural College. In this context, the new university is seeking closer cooperation and collaboration with the University of Iceland regarding foundation courses in biology. The Minister of Agriculture should investigate possibilities for further integration or mergers of other research work that would benefit the agricultural sector and improve contact with other university-level educational establishments.

### **3. Redefinition of the Structure and Work Practices of Public Research Institutions**

The Prime Minister appointed a working group nominated by various Ministries and the Science Committee and the Technology Committees to consider this matter. The group has delivered a preliminary report. Its principal recommendations are to increase the resources available to Icelandic research units, improve the results of their work and ensure that manpower and assets are utilized in the best possible manner. The working group is approaching its task by focusing on the subject matter based on its scientific and technical content and not the vested interest of individual institutions or ministries. The working group recommended merging or integrating similar operations between institutions where it is possible to achieve synergy and rationalization through reorganization. Universities and public research institutions are encouraged to visibly formalize their initiatives. The working group recommends that grants from public competitive funds should be used to encourage public research institutions to consolidate their resources, combine their energies and improve their contacts with universities and industry in Iceland.

### **4. Other Business**

#### **a) International Cooperation**

A proposal has been put forward to increase the resources of the EU's Seventh Framework Programme to twice that of the Sixth Framework Programme. Many participating countries have put forward comments urging better assurance that smaller research units can participate in the framework. Iceland subscribes to this view. Information concerning the content of the Seventh Framework Programme is not yet available, but it is important that Icelanders work diligently to exert influence on the formation of the Framework Programme. The Sixth Framework Programme, which includes Integrated Projects and Networks of Excellence, places new demands on Icelanders. Now is the time to examine Iceland's participation in this initiative in light of its experience and give particular consideration to strengthening the support system for research applicants. It is important to take an active role in the formation of the next Framework Programme and to continue taking the initiative for projects in appropriate areas, while accepting subordinate roles in other areas. Further policy decisions must be made in this area in cooperation with neighbouring countries with comparable views, particularly other Nordic countries.

Proposals have been put forward to reorganize the Nordic framework for research cooperation and to strengthen the support for innovation, with the idea that Nordic countries would take a leading role in this field on the international stage. The objective of the proposals is to strengthen the position of the Nordic countries in international competition and increase their visibility, making them more attractive as partners in the international arena. Consultancy amongst countries to support innovation is expected to increase dramatically.

Iceland holds the chairmanship of a number of Nordic ministerial committees and institutions and thus bears heavy responsibility to act on current and future proposals laid before ministerial committees in the Ministry of Education, Science and Culture and the Ministry of Industry and Commerce. The proposals include the establishment of closer links between the support institutions for research and innovation in individual countries and Nordic institutions based on national priorities.

The Ministry of Education, Science and Culture proposes that permanent contributions to international programmes in the fields of research, development and innovation be paid by direct budget appropriations through the respective ministries. However, the competitive funds need to be open to grant applications to facilitate strategic preparations for international collaborations. The funds' boards should establish appropriate directives for the distribution of such grants.

## **b) Continuity of Funding for Research and Innovation**

The introduction of the Technical Development Fund and the improved financial standing of the New Business Venture Fund have improved the opportunities for financing innovation and related research. The New Business Venture Fund is authorized to establish new venture funding agreements in association with other investors who wish to acquire interests in young, growing companies. This authorization opens the way for joint initiatives that involve both Icelandic and foreign investors. It is expected that Icelandic pension funds will be prepared to take part in such ventures. It is also expected that partnerships will be established with foreign investment funds; such partnerships would thus benefit Icelandic companies looking for

investment abroad as well as foreign companies seeking investment in Iceland.

It is important that closer and increased cooperation is achieved amongst the Research Fund, the Technical Development Fund, the AVS Fund, the New Business Venture Fund and other funds in the same field. Steps in this direction have already been made with formal consultancy meetings involving the New Business Venture Fund, the Regional Development Agency, the Agricultural Productivity Fund, the Agricultural Loan Fund and the Campaign for the Creation of Employment.

### **c) Support Network for Innovation**

The Innovation Centre (Impra) has the role of coordinating actions for supporting technological development and industrial innovation. The centre has information and contacts with the industrial sector, both innovators and companies. It is appropriate that the Innovation Centre (Impra) assumes the role of initiating contact with the actors mentioned under b) above.

Closely related to the coordination of an extensive technical support network for economic development is the coordination of financial investment for economic and regional development. In addition to the Innovation Centre (Impra), the Regional Development Agency and the Investments Office under the auspices of the Ministry of Industry and Commerce provide assistance to foreign investors in Iceland. Employment development agencies and employment consultancies operate on behalf of local authorities (e.g. in connection with the tourism industry); similar schemes associated with agriculture are also widespread. The Trade Council of Iceland serves the overall interests of Icelandic industry and commerce in looking for foreign markets.

### **d) Equality Issues**

When building a robust scientific community, it is vital to ensure that women play an active role in research work. Iceland aims to develop a social structure in which human resources are the driving force behind economic advancement. The development of a research environment in which gender equality is of high importance serves both justice and science.

The Helsinki Group is an EU standing committee concerned with women in science. Committee members are appointed by EU member countries and other countries that take part in the scientific and technological Framework Programmes. The committee's objective is to work towards the increased involvement of women in science and to act in an advisory capacity concerning the position of women in research and scientific services. Member countries also have national committees responsible for applying the conclusions of the Helsinki Group in their respective countries and collecting statistical data about women in science.

The Minister of Education, Science and Culture has decided to appoint a national committee for Iceland. In addition to the normal work of a national committee, the work of Iceland's national committee will include the implementation of the Women in Science project, which is part of the government's Equal Opportunities Strategy 2004-2008; the collection of internationally comparable statistical information for Iceland; and its inclusion in the EU report "Women in Industrial Research", which proposes the objective to double the number of women in industrial research before the year 2010. The committee will also oversee the analysis of statistical data among other duties.



#### **e) Increasing the Number of Students in Science and Engineering Programmes**

The Science and Technology Policy Council's policy notes that education and achievement in the field of scientific research and innovation weigh heavily in the evaluation of a country's competitive standing. The number of man-years spent on research in Iceland is proportionally high compared to other countries and that number is growing. In order to maintain the trend, it is essential to ensure that industry always has access to a well-educated workforce with an adequate level of specialist knowledge to conduct research of world-class quality. To this end, it is crucial to increase young people's interest in pursuing courses and careers in engineering, science and technology.

The Minister of Education, Science and Culture has therefore decided to appoint a working group whose role will include proposing ways to stimulate interest among primary and secondary school students in university courses that involve research; looking for ways to increase the diversity and quality of science teaching material in primary and secondary schools; and evaluating the quality of curricula, teaching methods and facilities for science teaching in primary and secondary schools.