

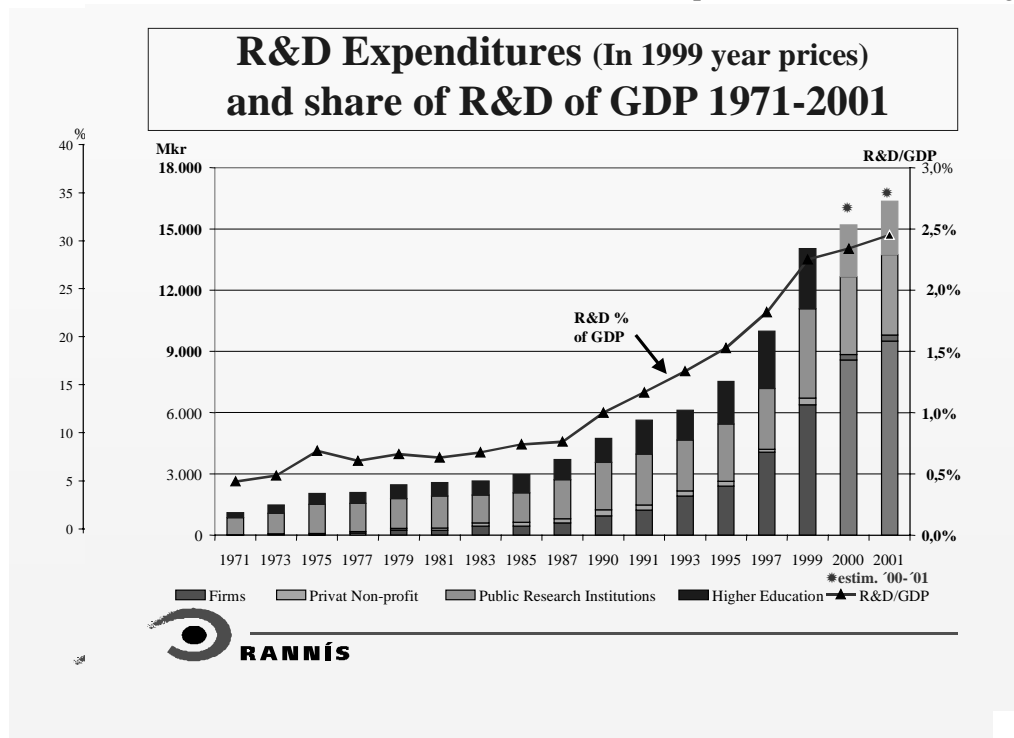
STI OUTLOOK 2002 – COUNTRY RESPONSE TO POLICY QUESTIONNAIRE

ICELAND

1. General framework and trends in science, technology, and industry policy

Over the last year (2001) the major developments are as follows:

- The role of science and technology as an instrument of socio-economic development was explicitly recognised in the National Economic Plan presented with the government budget proposal for 2002 at the beginning of the fall 2001 session of the Althing. The budget proposal included increased resources for the university sector and a relative shift in favour of university research.
- Despite the economic downturn in 2001 and 2002 it is expected that Icelandic companies will continue to increase their R&D efforts substantially. In particular heavy investments in genomics related research is ongoing, including the construction of major research facilities. Thus it is likely that overall national expenditure for R&D will increase both in real terms and relative to GDP. The estimate for 2001 will be at least 2.5% possibly reaching as high as 2.8%.
- The shift towards increasing participation of the private sector in R&D as well as a shift in research objectives from traditional industries to health sector and high-tech R&D investments are continuing as can be seen below.
- The Government of Iceland has announced its intention to present a bill to the Althing for the



establishment of a **ministerial level science and technology policy council** headed by the Prime Minister. This is to replace the existing Icelandic Research Council. The new science and technology council will in addition to the Prime Minister include the Minister of Education, Science and Culture, the Minister of Industry and Commerce as well as the Minister of Finance. In addition 14 representatives of the science community will be nominated as follows:

- 4 by the Co-ordinating Committee of the Universities in Iceland.
- 4 by the main labour market organisations, employers and labour (two each).
- 6 by ministers with a science and research component in their portfolio, one each the Ministers of:
 - Education and Science.
 - Industry and Commerce.
 - Fisheries.
 - Agriculture.
 - Health and Social Security.
 - Environment.

The new science and technology (policy) council is to elect from among the 14 non-ministerial members a seven (7) man science board, reporting to the Ministry of Education, Science and Culture and a seven (7) man technology board reporting to the Ministry of Industry and Commerce. Both of these boards are however to be linked to or incorporated under the science and technology policy council to secure close co-ordination. The chairmen and vice-chairmen of these boards are to be appointed respectively by the Minister of Education, Science and Culture and the Minister of Industry and Commerce.

A separate but linked bill of law presented by the Minister of Education, Science and Culture calls for the merger of the existing Science Fund and the Technology Fund (under the present Icelandic Research Council) into a single Research Fund. This fund will operate under an autonomous grants-board, nominated by the science board and appointed by the Minister of Education, Science and Culture. The grants board will be assisted by discipline oriented advisory committees for evaluating applications. The chairman of the science board will chair the grants-board of the Research Fund.

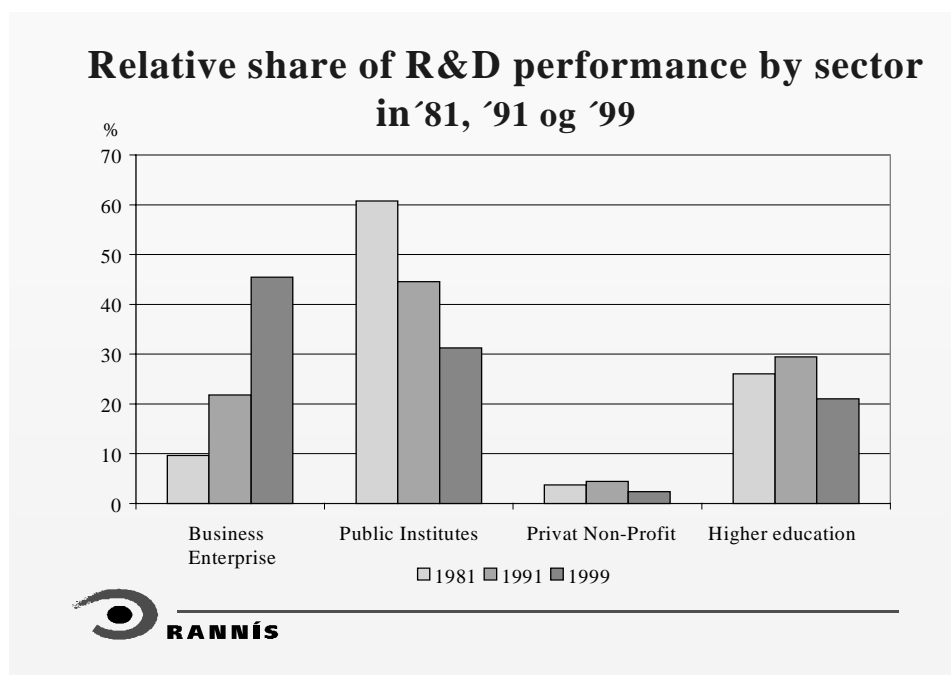
Similarly a separate but linked bill is presented by the Minister of Industry and Commerce calls for the founding of a new Technology Development Fund under an autonomous grants board appointed by the Minister of Industry and Commerce. The chairman of the technology board will also chair the grants-board of this new Technology Development Fund.

These three proposals will likely be debated in the spring session of the Althing, 2002, and are scheduled to take effect in the latter part of 2002 if accepted. It might be noted that the OECD Review of Science Technology and Innovation Policy in Iceland in 1992 recommended the establishment of an inter-ministerial council on STI policy. The interest in such a council has been increasing in recent years, i.e. as a result of increasing familiarity with Finnish experience in this area after a high level Icelandic delegation visit to Finland at the beginning of year 2000.

The Government introduced a major tax reform bill to the Althing in the fall of 2001. The bill was passed before Christmas and provides i.a. for lowering of the general income tax on companies from 30% to 18%.

It is expected that this measure may be very important to retain the domicile of successful high-tech companies in Iceland and possibly attracting foreign investment in technology based industries. It may also further strengthen the interest in R&D and high-tech based spin-offs and growth companies.

2. Public sector research and public research organisations



The relative share of public sector research has reduced with rapidly advancing private sector performance of R&D as shown in the figure below. Other recent trends are as follows:

The developments described under section 1 above reflect a policy to strengthen the role of the university sector in underpinning the “knowledge based society” while holding constant and reducing relatively the public support to public laboratories performing research relating to traditional economic sectors. The exception is that funds are increased towards research in the marine environment and fisheries management related research, reflecting concern over the sustainability of marine fisheries. The overall outcome of the financial appropriations under the financial law 2002 compared to previous years are shown below.

R&D expenditures by type of research unit from 1998 to 2002 by final budget and appropriations (in MIKR)

Fixed price 2001	Govt. accounts			Budg. Appropriat.		Increase in % '01-'02
	1998	1999	2000	2001	2002	
International organisations	255,7	285,4	340,0	292,5	280,0	-4,27%
Programmes and projects	131,0	331,0	378,5	505,3	510,5	1,03%
Higher education	2.604,9	3.039,4	3.390,6	2.644,3	2.853,9	7,93%
Public research (incl. health)	1.167,6	1.910,7	2.010,9	1.817,1	1.866,4	2,71%
Funds and organisations	1.138,2	912,5	716,3	622,9	614,5	-1,35%
Applied Research institutes	2.770,2	3.259,1	3.436,0	2.094,5	2.261,5	7,97%
Total	8.067,5	9.738,1	10.272,4	7.976,5	8.386,7	5,14%

A government decision was taken early in 2001 to award additional 100 MIKR per annum for the next three years to strengthen research in the university sector. A pilot framework agreement between the University of Iceland and the ministry of education on performance-based support to research was signed at the end of 2001 and is to be implemented during this three-year period. Performance is *i.e.* to be measured through publication output, research training output and performance in attracting competitive research funding from other sources.

Simultaneously a decision was made to award additional 50 MIKR for the next three years to the Science Fund and the Graduate Training Fund under the Icelandic Research Council. Out of these 10 MIKR will go to the Graduate Education Fund. This reflects a policy to give higher priority to basic research and graduate training meeting the strong interest of the university sector to expand in this direction.

Performance based management of public sector institutions is being introduced and promoted under the leadership of the Ministry of Finance. Contractual arrangements for goal-based financing are built into service contracts between public institutions and their respective ministries. Awards for outstanding performance are given based on institutional profile evaluations. Currently the results of these efforts are being evaluated.

The Icelandic Research Council commissioned an independent opinion survey among the science community and representatives of industry and government sector organisations and parliamentarian. This was the second such survey since the Council's establishment in 1994 designed to evaluate its own performance. The Council received recognition for its qualified work in promoting science and technology and the credit for the success in promoting a high level of participation of Icelandic researchers in international co-operation. However, there were complaints over the small resources and stringent procedures in awarding much too small grants to scientific research projects.

The Council has taken this criticism into consideration in designing its grants policies for 2002 by creating a new scheme of a limited number of substantially larger **grants for excellence** from its Science Fund on the basis of scientific teams and matching institutional funding. This type of funding is partly intended to match other international schemes to support Centres and Networks of Excellence. At the same time the council decided on simpler procedures for fixed level small grants for individual researchers. The average size of grants will increase and the number of grants will be reduced as a result given the constant resources of the Science Fund. The procedures under the Technology Fund supporting applied R&D will remain unchanged.

The University of Iceland has come forth with a proposal to create a science and technology park on its main campus south of the city centre of Reykjavik. A design proposal for 55.000 sq. meters of laboratory and office space with common social and meeting facilities is to be offered to industry and research institutes willing to share the buildings. The University is looking for private financing for the project.

The reorganisation of the National Hospital –University Hospital (NH-UH) system after the merger of the City Hospital of Reykjavik with the National Hospital two years ago continues. This will substantially strengthen the basis for health related research including the field of medical genomics. A regulatory framework has been created to allow the NH-UH to enter contracts with private sector firms to support research and transfer research results from clinical and health research to industry.

The arrangements for creating the Centralised National Health Database (CNHD) have been completed and the conflicts between the contracted operator, Decode Genetics Inc and the Icelandic Medical Associations

over its procedures for securing the rights of patients to opt out has been settled. This clears the way for developing the CNHD which will take some time before becoming operative.

A formal health sector cluster organisation was set up in year 2000 to promote the growth of health-related start-ups and existing enterprises entering global markets.

The public laboratories involved with various aspects of exploring and researching the natural resources and features of Iceland have joined forces to establish a GIS-based national database. A similar effort is ongoing on a national cultural and archaeological database. This work is financed in part by the information and environmental technology programme of the Icelandic Research Council and the government ITC initiative. This may have important implications for future international exchange of scientific data.

At a the millennial commemorative session of the Althing in Thingvellir in July 2000 a bill was accepted establishing new fund to support research and scholarly projects on Icelandic religious and cultural history. This was to celebrate the thousand years anniversary of the parliamentary decision in year 1000 to convert from Nordic heathendom to Christianity. The bill provides some 100 MIKR annually for the coming 5 years. The first awards from this fund were given in year 2001.

3. Government support for private-sector R&D and innovation

The Icelandic government has not introduced any direct measures to subsidise R&D in Industry through the tax system or direct grants other than those offered through the Technology Fund of The Icelandic Research Council, RANNÍS. The New Business Venture Fund, however, offers some room for early stage financing of high risk projects as described below. The reduction in general corporate income tax from 30% to 18% taking effect in 2002 will probably have a positive effect on willingness to invest in technology based industrial projects and even in R&D activities. It will also encourage foreign investment and the retention of domicile in Iceland of those companies that are operating globally. A slight elevation of a flat salary tax passed under the same law may have some counter effect. New technology based firms are usually not burdened by income tax due to low net income but taxes based on salaries can lead to higher tax burden than in previous system. The tax reduction is also an important countermeasure at a time when economic slowdown is reducing the availability and access to private risk capital.

The only direct funding of business R&D activities are the grants from the Research Council, mainly from the Technology fund.

Available funds for R&D grants from RANNIS in 1991 - 2001 MISK in fixed prices 1999

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001			
Technology fund	143,0			138,6	209,3	217,9	219,3	227,6	212,8	204,7	203,0	193,6	187,2	
Science fund	161,7	158,3		156,9	161,4	190,4	162,2	184,1	171,7	174,8	163,0	199,4		
Building and equipment fund				77,5	56,1	60,9	68,3	46,7	84,5	77,4	87,2	80,9	73,8	71,8
Graduate Training Fund				0,0	0,0	9,0	27,0	26,7	20,9	17,0	25,1	30,0	28,8	37,3
Information and Environm. Progr.				0,0	0,0	0,0	0,0	0,0	0,0	0,0	35,2	65,0	81,5	88,5

A fraction of the support from the New Business Venture Fund (NBVF) is allocated to projects in field of R&D, but this is not the main function of the NBVF. The laws governing the New Business Venture Fund allow for the allocation of up to 15% of the Fund's disposable funds for the financing of projects through high risk loans convertible to grants and equity. In addition to this amount is a contribution from the Product Development and Marketing Division mainly in support of in collaborative efforts with other

agencies supporting Icelandic business. This includes collaboration with the Technological Institute of Iceland (Ice Tec), the Trade Council of Iceland, the Regional Development Agency, the Icelandic Research Council (RANNIS), and various institutes within the cultural and educational system.

The NBVF has signed two co-operative agreements contracts for stimulating R&D and Innovation, one with RANNIS and the other with the Ice Tec. The latter contract, with a budget of 60 MISK, has the main objective to increase innovation and support new innovative firms. The main performer of the contract is IMPRA service centre for innovation at Ice Tech.

The contract between NBVF and RANNIS has the main objective to increase access to R&D funding of high risk projects. The contract makes it possible to undertake larger and more expensive and risky projects. It is also ensured that project ideas will get qualified professional evaluation to reduce risk and pave the way to stronger equity financing inputs. This is an attempt to link research grants to risk financing and thus provide continuity in the process for financing of promising projects.

Other forms of public support could be mentioned. For example the project of the Research Liason Office of the University of Iceland and NBVF, - "Off the Shelves Program" - where the main objective is to encourage personnel from higher education and public research institutions to bring forward their R&D results for further exploitation in the industry.

In 1999 a special programme of support to R&D in Information Technology and Environment. Science and Technology was launched under the administration of RANNIS. The total budget for the period will be 580 MISK in the period 1999-2004. The programme is designed to take into consideration the relevance of these fields for the development of Icelandic society. A special effort is made to monitor progress in this programme against goals. Special emphasis is also placed on the participation of young people in science and technology and interdisciplinary co-operation across fields of science and co-operation with users is given priority. Special effort is made to take account of government policy on information technology and environment in designing the programme calls. An early assessment of this programme conducted in year 2000 indicated satisfactory progress and the programme continues on schedule.

Support for Entrepreneurs and SMEs

IMPRA is a Service Centre for Entrepreneurs and SMEs at IceTec. The role of IMPRA is to assist entrepreneurs in evaluating business ideas, provide counselling for start-up, growth, and management of companies, and act as a link between individuals, companies and public agencies. IMPRA also advises small and medium sized enterprises (SMEs) on how to improve their business productivity, encourage innovation and assists in export planning, for example by facilitating co-operation in R&D and technology transfer with foreign businesses. IMPRA places particular emphasis on support initiatives for women entrepreneurs and women working on business ideas and start-ups. IMPRA takes part in, and initiates European, Nordic and national projects in the field of innovation, networking, benchmarking and the development of effective support measures for SMEs.

IMPRA operates an Incubator for innovative business ideas. The incubator can house 15 companies that are founded on innovation and competitive advantage. Companies can be housed at the incubator for up to five years, and one of IMPRA's staff is assigned to the companies to support and facilitate their business development.

IMPRA operates an Innovation Relay Centre within a co-operative network of 68 European centres that operate under the auspices of the European Commission. Their objective is to promote Trans-national Technology Transfer, facilitate co-operation among European SMEs in the field of R&D and provide

information and support on European Commission Framework Programmes for Research and Development.

In 1998 IceTec and the Agricultural Research Institute merged their food research units to form a joint centre for food technology conducting R&D and providing consulting services and training in the field of food technology.

In 2001 a contract was signed for the establishment of the Northern Coast Innovation Centre (NCIC). Organisations signing the contract were some local Innovation Service Centres in Northern Iceland, IceTec, NBVF, University of Akureyri and the Ministry of Industry and Trade and few companies. A close co-operation is maintained with IMPRA the IceTec Innovation Centre. Among the activities of NCIC is to recruit a team of experienced executives to spread experience in the area and sit on the board of new companies or projects. It is anticipated that if the operation of NCIC will be successful this form will be used in other regions.

4. Enhancing collaboration and networking among innovating organisations

While informal networks are common it cannot be said that a formal collaboration and networking is a common form of co-operation in Iceland. However two example technological fora or clusters for collaboration can be named:

The Health Technology Forum is a co-operative cluster project was established in the Year 2000 by initiative from RANNIS to strengthen the collaboration between public institutions and private sector companies in the diverse field of health technology. Both institutions and companies take part in the forum. The Health Technology Forum could play an important role in supporting development and progress in the health technology industry. The main objective of the Forum is to strengthen development efforts and the marketing of health technology products solutions based on Icelandic clinical work and medico-technical R&D. At the same time the objective is to meet the growing needs of the public health system for more efficient and better solutions to improve the quality of service and survival rate of patients.

The main players of the forum are:

- Ministry of Health and Social Security.
- Federation of Icelandic Industries.
- RANNIS -The Icelandic Research Council.
- New Business Venture Fund.
- The Icelandic Society for Biomedical Engineering.
- Ministries of Industry and Commerce.

(Home Page <www.htv.is>)

Another example is The **Forum of Fisheries and Industries**. The main objectives of this forum is to establish co-operation between companies in fisheries and industry to enhance development of equipment, which increases the added value from catching and processing of fish. The forum acts as a facilitator for co-operation between the users and the producers of new technical solutions in this field and it

intermediates with government organisation for the promotion of development and innovation in this field. It also provides firms with professional and financial assistance to facilitate the development process.

The participants are:

- The Federation of Icelandic Industry.
- The Icelandic Trawlers Association.
- The Association Fish Processors.
- The Ministry of Industry and Trade.
- The Ministry for Fisheries.
- The New Business Venture Fund.

(Home Page <www.vettvangur.nas.is>)

The Research Council and Icelandic Trade Council have since 1994 organised an annual Innovation Conference and given an Innovation Award to young innovative companies recognising outstanding success based on technological development and marketing effort. The next Conference to be held on March 14, 2002 will deal with the theme “Clusters and Networks” benefiting from the OECD work in this area. This event is intended to reinforce the commitment to this type of co-operation between public and private partners and act as a catalyst for expanded work in this area.

Another scheme to promote innovation is the Presidential Innovation Award given each year, to young scientists or engineers for outstanding projects relevant to innovation in the market place. The President of the Republic hands out these awards at a ceremonial reception at the Presidential Reception house at Bessastadir. This is in conjunction with a European Innovation price.

Among the provisions of the contract between the University of Iceland (UI) and the Ministry of Culture and Education, signed on December 22nd 2001, it is stated that the UI will increase its R&D co-operation with other higher education institutions, public research institutions and companies. There will be established clear working rules regarding property rights and ownership of research results and rules regarding spin-off from the UI. Only IceTec has established clear rules regarding ownership of research results and now the UI has taken this into its agenda.

In light of the contract between the University of Iceland (UI) and the Ministry of Culture and Education an additional support for R&D will be granted. The total amount is 240 MISK, to be paid in three years. An amount of 80 MISK will be allocated in 2001, 55 MISK in 2002 and 105 MISK in 2003.

In Iceland the Research council, Federation of Icelandic Industries, IceTec and UI have established a co-ordinated structure for assisting companies and institutions to participate in the EU Framework programme. The structure has two forms i.e. the Innovation Relay Centre for transfer of technology and National Contact Point for raising awareness of co-operation within the EU Framework programme. This co-ordinated effort has proved highly successful and Iceland has had a high rate of success in competing for grants within the EU framework programme as compared to other participating countries.

The Regional Development Institute in Iceland has established a network of local Innovation Service Centres. These centres act as intermediaries between industry and the public sector and as local interest organisations supporting innovation and job creation.

There are no established rules or procedures to increase public sector co-operation with industry in field of technology transfer or spin-off. It should be noted however that a number of spin-offs have been formed, especially from UI. Researchers are allowed to use the facilities of the UI to process their innovative ideas, but on the other hand they do have to carry on their own the risk associated with commercialising their ideas. It is however mentioned in the recently signed contract between the University of Iceland (UI) and the Ministry of Culture and Education that the UI will have to build up some procedure regarding spin-offs in the future.

5. S&T human resources

There are no direct studies supporting the common perception that a severe shortage of scientists within the fields of natural sciences and engineering is emerging as a result of the rapid growth in the new high tech sectors in Iceland. Statistics show, however, that Iceland has relatively fewer natural scientists and engineers in its active workforce. This has led to increased emphasis on encouraging students at elementary and secondary school level to seek to take interest in science and later embark on scientific careers. A special effort has been made to increase number of women in engineering through information and promotion campaigns. This effort is beginning to show promising results. It should be noted that strong recruitment efforts by Icelandic high growth companies has resulted in considerable influx of highly trained Icelanders from abroad as well as expatriate scientists accepting job offers in the rapidly expanding biomedical sector.

The recently signed contract between the University of Iceland (UI) and the Ministry of Culture and Education stipulates stronger commitments to co-operation between the UI on one hand and public institutions and companies. It does not specifically target movement of human resources. This is however likely to become an important element of its implementation

In the same contract it is stated that number of students finishing MS and PhD degrees from the UI is a measure of performance and a subject to a special financing.

6. International co-operation and globalisation

Iceland gives high priority to international co-operation in education, science and technology. A very high portion of Icelandic students receive a part of their education abroad. Most doctorates are earned at foreign universities, nearly half in the US. Icelandic scientist and engineers are increasingly active participants in the various Nordic and European research co-operation fora and successfully compete for project financing under the EU Framework Programme. The International Arctic research co-operation is also of high national interest to Iceland in particular as it relates to environmental and global change research. Iceland became a founding member of the Global Bio-information Facility in 2001.

In September 2000 the former secretary of foreign affairs Ms Madeleine Albright on behalf of NSF and Ministers of education and culture and foreign affairs on behalf of the Icelandic Research Council signed a formal contract of co-operation between US and Iceland in field of science and technology. The MoU provides a framework for co-operation intended to follow up on the long standing and extensive co-operation in higher education between the two countries. A series of activities are foreseen, including workshops and awareness campaigns to promote the generation of joint projects.

While there have been no attempts at explicitly opening up national programs and funding schemes to foreign participation there are no explicit barriers against foreign scientists seeking funds from these sources provided they can meet both the quality and relevance criteria established by these funds. However the relatively limited share of research funding coming from free and uncommitted sources open for competitive applications severely limits the flexibility to open up programmes in an international context.

7. Industry-related policies

In early 2001 The Ministry of Industry and Commerce made public its overall policy objectives and corresponding measures for the coming four years as follows:

- Increasing diversity in Icelandic industries and improving its competitiveness.
- Strengthening the Regional Economic Development.
- Increasing the use of domestic energy sources.
- Encouraging competition and strengthening consumer protection.

As an example of how these policy objectives are to be pursued the following activities are outlined for Objective 1:

Objective 1

Increasing diversity in Icelandic industries and improving its competitiveness.

There have been major changes in Icelandic industries in recent years. Innovation has been stimulated primarily by a more liberal business climate and rapid progress in science and technology, particularly in information and communications technologies. This has provided Icelandic industry with numerous opportunities to create a variety of jobs in new and demanding areas and enabled it to play an active and profitable role in international trade.

The exploitation of scientific knowledge is becoming steadily more important as a catalyst to economic growth and a prerequisite for improving the competitiveness of business and industry. It is essential that the necessary framework conditions are provided that allow the market forces to deliver their best results. This involves devoting special attention to transmitting knowledge, promoting innovation in all areas, and encouraging the creation of start up enterprises.

The Minister of Industry and Commerce has defined the following measures for achieving the objective of increasing diversity and improving the competitiveness of the Icelandic economy:

- New areas of knowledge, such as the biotechnology industry, will be given special encouragement, in order to develop profitable enterprises in this sector.
- The dissemination of specialised knowledge will be strengthened. This will include measures to improve competitiveness by exploring ways to increase productivity and improve companies' internal structures.

- Public funds will be used to attract financing from private investors for major research projects.
- Studies will be undertaken on ways to improve the tax position of enterprises, including their operations abroad. There will also be investigation of the possibility of using tax incentives to encourage research and development, and of waiving taxes and charges if they damage companies' competitive position.
- A survey will be done of the competitiveness of the Icelandic financial market with a view to strengthening its position in an international context.
- The Icelandic Government will withdraw from its involvement in the banking and insurance sectors that compete with private enterprise.
- Co-operative societies and savings and loan associations will be assisted in transforming themselves into limited companies, and they will be given the opportunity to issue listed shares so that they can compete on an equal footing with other enterprises in today's capital markets.
- The activities of IMPRA (Service Centre for Entrepreneurs and SMEs) will be strengthened by setting up service centres for entrepreneurs and companies in areas outside the capital.
- There will be greater efforts dedicated to providing information on the importance of protecting intellectual property rights in the industrial area.
- There will be a review of legislation concerning intellectual property rights in industry, including the provisions applying to design rights, utility certificates, and employees' inventions.
- Industries based on intellectual property, such as the film and music sectors, will be encouraged. A development fund will be established for the music industry, the main objective being to increase the export value of Icelandic music.
- The Ministry will encourage expansion in the information technology sector by giving companies the opportunity to co-operate on solutions that relate to government services.
- There will be consideration of ways to encourage innovation in business and industry by co-ordinating and combining research activities conducted by government agencies, improving their efficiency, making them more effective, and increasing their success rate.
- Foreign investment will be encouraged, among other things, by providing a favourable legal environment through review and simplification of legislation applying to this area.
- Marketing efforts for foreign investment will be strengthened, placing special emphasis on investment opportunities outside the capital area.
- There will be a concerted effort to increase the number of bilateral investment agreements.

Objective 2

Providing employment opportunities outside the capital area:

Traditional forms of production in rural areas will continue to play an important role in the Icelandic economy, even though their percentage of the gross national product will diminish as new industries expand. These sectors will not be able to meet the need for new jobs directly, but can probably promote employment in an indirect manner by serving as a basis for new technologies, especially in the area of biotechnology. To this end, the Minister of Industry and Commerce intends to support efforts in the areas of plant and marine biotechnology as a basis for regional development.

Information and telecommunications technology will heavily influence population developments in areas outside the capital. It will support new enterprise and play an important role in promoting equal employment opportunities and living standards throughout the country.

The Minister of Industry and Commerce has defined the following methods of achieving the aims of promoting new industry and supporting regional development:

- The Institute of Regional Development will take the lead in establishing new enterprise in rural areas by implementing a progressive regional development policy. The Institute will employ men and women with broad experience and knowledge of business, industrial innovation, and the development of new employment opportunities.
- In developing new regional development plans, special attention will be given to measures that must acquire the force of law in order to ensure their implementation.
- Measures to support new employment options will be assessed on the basis of the overall benefits they provide during an extended period of time.
- The relocation of government activities in centres outside the capital will continue, with the objective of providing incentives for further economic development in these areas.
- In co-operation with other parties, the Institute of Regional Development will initiate and support regional initiatives for industrial innovation, knowledge transfer and employment opportunities in accordance with government policy at any given time.
- The Institute of Regional Development will play a leading role in establishing and reinforcing research centres outside the capital area, which will co-operate with universities, government research centres and industry.
- The Institute will take the lead in ensuring that government advisory services serving regional industries are co-ordinated and merged as far as possible.
- Service centres for individuals and companies with innovative ideas will be established in three locations outside the capital.
- A centre for industrial innovation specialising in biotechnology will be established in Akureyri, where emphasis will be placed on the implementation of genetic research on marine resources.

- Another centre will be established in Hvanneyri to work with opportunities that result from genetic research on agricultural resources.
- A competition will be launched for local government authorities involving experimental projects to promote an electronic society.

Objective 3

Increasing the use of domestic power sources

Iceland possesses extensive sources of renewable energy that have been exploited only to a limited degree. However, they are more intensively utilised here than anywhere else in the world. Approximately 2/3 of primary power use in the country comes from renewable resources, and their share of electric power production is 99%.

The production and export of aluminium, along with other energy-intensive industry, are actually exports of renewable Icelandic energy. Economic growth in recent years can be attributed largely to foreign investment in renewable energy sources, and experience has shown that industry based on these resources can play a role in halting migration from rural areas.

The Minister of Industry and Commerce considers it essential to increase the utilisation of domestic renewable energy resources in order to encourage diversification in industry, create a basis for foreign investment, increase the number of well-paid jobs, and support business and population development in rural areas.

There must be competition in the production and sale of electricity. At the same time, there must be continuing research and development on new sources of energy/means of transmitting energy, to replace dependence on fossil fuels. Environmental concerns must also be taken into account in exploiting domestic energy sources, and there must be attempts to reconcile interests in utilising and conserving natural resources.

The Minister of Industry and Commerce has defined the following means of achieving the aims of increasing use of domestic sources of energy and promoting competition in the energy sector:

- Sufficient basic research should always be available concerning the possibilities of exploiting sources of hydroelectric and geothermal power.
- Location, environmental, and planning studies for potential industrial areas will be done in accordance with plans for energy use.
- Proposals by the Resources Committee for licensing fees for exploiting energy sources will be assessed in view of potential implementation.
- A regulatory framework will be established concerning repayment of government research costs in power development areas.
- Energy will be utilised as close as possible to its point of origin.

- Negotiations for energy-intensive industrial projects will also include discussion of possibilities for further processing of primary products in Iceland.
- A permanent basis will be established for research on and development of new sources of energy and methods of energy transmission, including those associated with wind energy, hydrogen, and methane gas.
- The role of the National Energy Authority as an advisory and public administrative body will be strengthened, and the division of labour between the Ministry and the Authority will be subjected to review. The Authority's organisational structure will also be reassessed, among other things, in view of competitive operation of the research department.
- The first stage of a comprehensive plan for the utilisation of hydropower and geothermal power will be concluded before the end of the year 2002 (See *Appendix I*). Preliminary conclusions will be utilised, if decisions on exploiting energy sources have to be taken before the plan is complete.
- Environmental concerns will be taken into account and thoroughly considered in the Ministry's examination of energy development plans. The broadest possible public support will be secured for development projects.
- When reviewing energy sector legislation, there will be emphasis on encouraging competition in the production and sale of electric power as well as greater efficiency and security of energy supplies.
- The legal position of energy companies and their customers will be clarified.
- Price equalisation, subsidy payments, and other social welfare measures associated with electric power distribution in Iceland will be made more transparent and kept separate from competitive operations.
- Energy companies will be permitted to form subsidiaries and acquire shares in other companies whose primary activities include producing, transmitting, distributing or selling energy, as well as exploit the expertise and equipment they possess for research and development in the areas of energy and energy projects in this country and abroad.
- The regulatory framework for electricity producers and district heating companies will be co-ordinated and simplified. Monitoring of their rate schedules will be transferred to the National Energy Authority.
- Contacts will be initiated with foreign firms regarding research on the Icelandic continental shelf on the basis of upcoming legislation concerning the exploration, research, and extraction of fossil fuels.

Objective 4

Encouraging competition and strengthening consumer protection

A competitive environment is essential for modern business, and consumer protection must be assured in every respect. Business performance and a country's standard of living are dependent on the existence of healthy competition, good services, a wide selection of goods, and reasonable prices. It is essential that business be provided with rules of the game that stimulate competition as well as promote efficiency and innovation.

The competitive ability of the financial markets must be improved as much as possible in order to protect the interests of investment company clients. Consumers must also be fully cognizant of their rights.

Government can make an important contribution toward improving service to individuals and companies by initiating electronic business and administration. Both will improve the country's competitive position, and it is essential to provide the proper legal environment for these matters. It is also important to increase public access to official information and promote transparency in government administration.

The Minister of Industry and Commerce has defined the following means of achieving the objectives of promoting competition and improving consumer protection:

- The activities of the Competition Authority will be strengthened, so that it can effectively monitor obstacles to competition, unfair business practices, and market transparency.
- The Ministry will mount an extensive information campaign on consumer legislation in order to inform consumers of their rights.
- The Ministry will promote the dissemination of information for consumers, among other things, via the Internet.
- The public will be informed about the arbitration committees that handle relations between consumers and enterprises so that these bodies can better serve their purpose.
- The legal framework for business will be consolidated through new legislation. The laws governing interest and depreciation will be reviewed and a special securities act passed.
- Legislation concerning the financial markets will be simplified and better adapted to new market conditions, among other things, through the addition of legislation concerning investment companies, unit trusts, and insurance contracts.
- The Financial Supervisory Authority will be given the necessary powers to fulfil its monitoring function.
- The legal environment for electronic commerce will be simplified. Special regulations for this sector will be kept to a minimum, and they will be adapted as far as possible to the legal framework of traditional business.
- In its areas of activity, the Ministry will make every effort to adopt electronic administration in order to improve service to the public, thereby reinforcing public confidence in Icelandic governance and strengthening democracy.

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- Information technology will be employed in all contacts with the public, with the aim of expanding service and improving efficiency, as well as lowering costs.
- It will be possible to receive 24-hour electronic service via the Ministry's home page to the extent permitted by the most advanced technology available at any given time.
- The public will be assured access to official information on the principle that knowledge acquired by government institutions is public property and should therefore be accessible to the public without charge in open databases.

(Source: Websites of the Ministry of Industry and Commerce and the Ministry of Finance)

APPENDIX I

Concept for a Master Plan for Hydro and Geothermal Energy Resources in Iceland

Background

Iceland has been blessed with extensive resources of renewable hydro and geothermal energy. However, only portions of these energy resources have as yet been harnessed. No doubt further development of energy production in Iceland will be a challenging task, as user interests other than those concerned solely with energy, will have to be taken into account.

Policy decisions as to land use can have a significant/profound and prolonged impact on Nature, regional development, employment and on society at large. Carefully thought-out decision-making will minimise the risk of mistakes and enhance co-operation of all partners affected by the decisions being taken. Consequently, the Government of Iceland has decided to initiate a process with the aim of developing a Master Plan for Hydro and Geothermal Energy Resources. The process will be scientifically based and open for democratic public involvement.

In the preparatory process of the Master Plan, a large number of proposed power projects will be evaluated and categorised on the basis of efficiency and economic profitability, as well as how they will benefit the economy as a whole. Also considered will be the implications for employment and regional development, in addition to the impact on the environment, nature and wildlife, landscape, cultural heritage and ancient monuments, grazing and other traditional land use, out-door life, fishing and hunting.

Scientifically based and open to public opinion. The Master Plan will be based on the best available scientific information. Furthermore, in order to establish confidence in the process by the public at large, the public and NGOs will be informed as to the findings of the experts at all stages of the evaluation process. In order to facilitate public participation, the Government has assigned Landvernd, the National Association for the Protection of the Icelandic Environment, a non Government Organisation, with the task of establishing a forum for discussion and information exchange. This forum is based on an interactive homepage, open meetings and workshops, and co-operation with the media.

Responsibility for the project. The Ministry of Industry, in co-operation with the Ministry of the Environment, has established a special Steering Committee for the project. The Committee, comprised of 16 members, has been mandated to develop a proposal for a Master Plan for the use of hydro and geothermal energy resources. In its function about 50 experts working in four different working groups will support the Steering Committee.

Working Group I will evaluate what impact proposed power projects will have on Nature, landscape, geological formations, vegetative cover, flora and fauna, as well as cultural heritage and ancient monuments.

Working Group II will evaluate the impact on outdoor life, agriculture, re-vegetation, fishing in rivers and lakes, and hunting.

Working Group III will evaluate the impact proposed power projects can have on economic activity, employment and regional development.

Working Group IV will identify potential power projects, both hydro and geothermal, and carry out technical as well as economic evaluation of the projects.

Procedure

The National Energy Institute and/or power companies will compile reports on project proposals they wish to have evaluated by the Steering Committee. These reports will be made public and as a first step of the process, the public and interested organisations will have an opportunity to review the reports and offer comments. Subsequently, the reports will be evaluated and graded by the four working groups of experts. The findings of the working groups will then be compiled by the Steering Committee and all projects graded on the basis of their feasibility. Finally, the Steering Committee will categorise the projects' proposals identifying, on the one hand, proposals that appear to be feasible both in terms of economic implications and environmental consequences; and, on other hand, proposals that for economic reasons and /or environmental consequences, should not be carried out. The result of this work will be a proposed Master Plan for the utilisation of hydro and geothermal energy resources.

An open process.

All reports will be made public in order to make it possible for the public, interested parties and associations to participate actively in the process. Both the Steering Committee and the Working Groups will receive comments and information from the public during the process. Minutes from the meetings of the Steering Committee will be made public. Reports on individual projects will be presented in open meetings and made accessible on the homepage for the Master Plan.

It is expected that about 100 project proposals will be evaluated. The Steering Committee was established in April 1999 and the Working Groups in February 2000. The Steering Committee expects to finalise the evaluation of the first 25 project proposals by the end of the year 2002.

(Source: website of the programme)

Useful websites for further reference:

Ministry of Culture and Education (<http://brunnur.stjr.is/interpro/mrn/mrn-eng.nsf/pages/frontpage>)

Ministry of Industry and Trade (<http://brunnur.stjr.is/interpro/ivr/ivr.nsf/pages/forsida>)

Prime Minister' Office (http://brunnur.stjr.is/interpro/for/for.nsf/pages/raduneytid_ensk.html)

Icelandic Research Council (<http://www.rannis.is/english/index.html>)

Icelandic Technology Institute (<http://um.margmidlun.is/domino/iti/vefsidur.nsf/index/0.4.9>)

University of Iceland (<http://www.hi.is>)

Chamber of commerce (<http://www.chamber.is/english/>)

Export council (<http://www.utflutningsrad.is/english/default.htm>)

The Institute of Regional Development, (<http://www.bygg.is/english/Index.html>)

The New Business Venture fund (<http://www.nsa.is/user/home/>)