ARCHIMEDES FOUNDATION
EU INNOVATION CENTRE

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Enwise valorisation Conference:

Enlarging Europe with/for Women Scientists

9–10 September 2004, Tallinn, Estonia

Estonia

Location: Southern coast of Finnish Gulf

Population: 1.36 million

Area: 43431 km^2

GDP per capita, in 2003 in PPS:
48% of EU25 average

Gross Domestic Expenditure on R&D (GERD) in 2002: 0.75 % of GDP

GERD as aim for 2006
in Estonian R&D strategy: 1,5 % of GDP

Number of researchers per 1000 workforce: 4.7

Workforce with a higher education 20% of total

SCIENCE and SOCIETY

Dear Reader,

This is a special issue of our regular research newsletter, marking the important event of the Enwise Conference: Enlarging Europe with/for Women Scientists, being held in Tallinn on September 9-10, 2004. In this issue, we hope to give you some background information on the situation in Estonia – not just on women scientists, but also on the fields of research and gender issues in general.

I am very pleased to be able to welcome everyone to the picturesque capital of Estonia, and I am especially pleased that the topic of women scientists in the post-communist countries is being debated in my homeland.

As the chairperson of the Enwise expert group which prepared the report that is the basis for this conference, I admit to being surprised by the results of our research. During communist times, we used to think that men and women were equal, because we had been formally given the same rights. But was this really the case? Many scientists in our countries, myself included, had never thought about gender issues as a problem. It seems that we had buried this question at the very back of our minds.

After careful examination, however, we can see that in our countries we are facing similar problems as in the old EU member states: men dominate the higher academic and research positions. But because of our specific history, at least one difference can be highlighted: there is still a long way to go before formal legal equality is implemented in practical terms. In our countries, legal changes in favour of gender equality are still often met with high resistance.

I sincerely hope that the Enwise report and this valorisation conference will work as an impetus to accelerate the progress of women scientists, not only in the new enlarged European Union in general, but specifically in Estonia.

Welcome to Estonia!

Ene Ergma
Speaker of the Parliament
Vice-President of the Estonian Academy of Sciences
Chairman of the Enwise Expert Group
Chairman of the Conference Steering Group
01.09.2004

This conference is supported by the European Commission and organised by the Estonian Ministry of Education and Research and the Archimedes Foundation.

research in estonia

R&D in Estonia

Jüri Engelbrecht

All EU countries have accepted the Lisbon and Barcelona documents as guidelines for their R&D activities. The ideas of a knowledge-based society are indeed important but the conditions differ from one country to another. Differences in history, economy, culture, etc., lead to various roads and various speeds in moving towards these aims.

Estonia is a small country with limited resources and manpower, and that is why all the activities should be properly designed. The important steps have been taken since reinstating our independence in 1991. The legal basis for R&D exists, the funding of research is based on peer-review, young people are supported, centres of excellence have been selected, international co-operation is an active part of research, regular international evaluation of R&D has been introduced, etc. The R&D strategy Knowledge-based Estonia, 2002 – 2006 was approved by the Parliament in 2001. In this document, the strategic objectives of R&D and innovation have been set: updating the knowledge pool and increasing the competitiveness of enterprises. In general terms, the strategy indicates the main principles for further developments, states three key areas of R&D based on existing scientific potential (user-friendly information technologies, biomedicine, materials technologies) and formulates the financing strategy for R&D in 2002 – 2006. According to this, the total expenditure on R&D should be 1.5% of GDP in 2006.

The present situation can briefly be characterized as follows. There are many excellent results, for example in astronomy, solid-state physics, molecular biology, etc. There are many high-level technical applications as in testing digital systems, materials technology, speech synthesis, cryptography (digital signatures), etc. Our unique position in linguistics and folklore studies is a good example of a well-documented and researched national heritage. Many other fields of research are also progressing well. (For a more detailed description, see the forthcoming publication "Centres of Excellence of Estonian Science", Tallinn, 2004). Enterprise Estonia enhances innovation through grants and special programmes. The number of spin-offs is growing.

Networking with other countries within the ERA is certainly important. Estonia takes active part in EC Framework Programmes, is a member of the European Science Foundation and many other European institutions. Regional co-operation, especially with Nordic countries, is developing fast. For example, the Universities of Technology in Tallinn and Helsinki envisage close co-operation in teaching and research.

However, the shortcomings are also clear. The infrastructure of R&D needs essential improvement, contacts between industry and academia are still weak, only few programmes have been launched, there is a shortage of manpower, especially of researchers with PhDs, and - last but not least – overall R&D funding is still small compared with the EU level.

The present Government has indicated its will to enhance R&D as a cornerstone for the knowledge-based society. The funding is to be increased, following the targets of the R&D strategy, paying a special attention to more support from the private sector. The instruments of the EU are to be used for technology transfer and improving infrastructure. This is consistent with EU policy, especially in the context of using structural funds. A long-term Development Plan (Estonia 2014) is being prepared by the Government, while the Ministry of Education and Research has started preparing a new R&D strategy for the coming years (2007 – 2010). The funding schemes will be improved in order to give more impetus to all research institutions.

Whatever the official documents, society and the research community are the most important actors, and education should be a focal point. We are clear witness to the high level of studies in centres of excellence in research, we also see many good applications. What we need, in general terms, is the visibility and the positive image of research, both locally in Estonia and globally, especially in the EU. Mobility schemes are welcome but not only for educating young Estonian researchers abroad. Visiting researchers and scholars should also find their way to Estonia.

It seems that in a rapidlyt developing society like Estonia today the main problem is to synchronize activities within the limited human capacities. Estonia cannot build up huge R&D structures, therefore excellence in research, networking, and flexibility should be supported. In order to fulfil their mission and satisfy societal expectations, universities and research institutions should be strong. Then their impact on the economy, social problems, education and culture will be at a maximum. This also means a better basis for innovation. Since the key factor in all the activities mentioned above is the community, public awareness of R&D should be improved. For this a special programme is being designed. Beside local sources, Estonia could benefit considerably in terms of EU budgetary allocations. The challenge is to use those benefits that depend largely on management ability.

Prof Jüri Engelbrecht
President of the Estonian Academy of Sciences

survey

Women in Science About Themselves

Anu Laas, University of Tartu

Women in science is a poorly studied area

Women in Science

Women in science are not missing, invisible or silent actors, in spite of the fact that the share of women is smaller compared with men. Women are important contributors to national development. Women's role in Estonian development must not be undervalued, women's role in scientific innovation and technology should be studied and assessed.

In Estonia, in 1996-2003, the share of female researchers has increased in the government and higher education sectors (GOV and HES), but has declined in the business enterprise sector (BES)(Table 1). Estonia has a common pattern with other new EU Member States, where the majority of researchers (73%) belong to the HES. HES has the highest allocated proportion of research and development (R&D) expenditure in Estonia (51% in 2001)(SOE Database; Götzfried 2004).

Table 1. Share of female researchers by sector in Estonia, in 1996-2003

	Researchers*						Researchers*	
	Higher education sector (HES)		Government sector (GOV)		Private non-profit sector (PNOS)		Business enterprise sector (BES)	
	Total	% of women	Total	% of women	Total	% of women	Total	% of women
1996	2794	39.1	1564	46.0	23	39.1	..	..
1997	3294	39.9	893	49.4	21	33.3	..	..
1998	3210	40.7	765	51.4	15	33.3	468	31.0
1999	3134	41.4	758	50.5	20	35.0	651	35.6
2000	3347	42.8	675	51.7	41	53.7	507	32.3
2001	3469	43.3	610	59.2	48	52.1	676	28.1
2002	3707	43.4	605	60.0	52	53.8	725	23.4
2003	3762	45.1	637	59.5	72	54.2		

*Headcount, not FTE (full-time equivalents)

Economic data indicate that the HES sector is flourishing (She Figures 2003). The total expenditure on R&D in the HES for the Candidate Countries has increased, and the share of women is high compared with some old EU Member States. Why are these blossoms not seen in national science and everyday life in Estonia? What is behind these flowers and what does the high proportion of women in HES actually mean?

Importance of data

Gender sensitive statistics provide valuable information for the policy debate and help to identify the most critical areas of concern. The Statistical Office of Estonia (SOE) provides, in a public database, general data about R&D, and it also describes the situation in R&D by economic sectors. In GOV and HES, sex segregated data on R&D personnel is provided only for researchers. Data about BES R&D personnel is available for researchers as well as technicians and support staff. There is very little knowledge about women in industrial research (WIR) in Estonia, and data are not collected. Gender analysis of Estonian women in R&D is not seen as an important topic to study in Estonia. The implementation of the *Gender Equality Act* also stresses the importance of collecting gender sensitive data on the national level.

More and better quantitative and qualitative data is needed for gendered implications of national policies. Lack of data means poor knowledge about the real situation and the problems, and deepens the inability to set policies and priorities. In Estonia, gender analysis is widely ignored and gender mainstreaming (GM) is an almost unknown concept, and people who are expected to 'mainstream gender' (to integrate the gender aspect into policies and action plans) feel quite lonely in their intention and activities (Laas 2003; Klefeld 2004).

Research on women

The position of women in science in Estonia has been briefly studied for international reports. In Estonia, gender assessment and analysis in different areas of life is a new field of study and a new topic for national agencies. Estonia has become a member of various international networks, where women are in the focus. Estonian experts participate in the work of the Helsinki Group on Women and Science (formed in 1999) and WiTEC (Women in Science, Engineering and Technology in European Countries).

In 2001, the Helsinki Group had five broad policy concerns: how many (1), horizontal segregation (2), vertical segregation (3), pay gap (4) and fairness and success rates (5). Relevant data were available from most of the countries except on the gender pay gap (She Figures 2003: 18).

WiTEC is a European network of universities, businesses and individuals working together in order to motivate, develop and support women taking up studies and careers in Science, Engineering and Technology (SET). Estonian WiTEC (EWiTEC, Estonian Women in Science and Technology) was formed in 2000 by enthusiast Madli Krispin from Tallinn Technical University. During the last 4 years, EWiTEC activities have been project based. Due to participation in ERASMUS, LEONARDO, VISBY and other international projects, the WiTEC ideas, aims and goals have found support and interest in Estonian partner universities, SME-s and other community organisations.

In the report on R&D in Estonia in 1996-1999, the words '*female*' and '*woman*' are missing (Kaarli and Laasberg 2001: 44-45). The word '*women*' occurs once in connection with introducing the concept of the European Research Area (ERA), where one of the objectives is to increase the share of women in R&D. The words '*gender*', '*woman*' and '*women*' do not occur in the Estonian Research and Development

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Strategy 2002-2006 (Knowledge based…2002). In connection with the development of human capital, one of the strategic aims is to motivate young researchers and to ensure their academic careers.

The ENWISE (**En**large **W**omen **I**n **S**cience in the **E**ast) expert group and its chairperson Ene Ergma have slightly increased awareness about gendered society. The European Research Commissioner Philippe Busquin has stated in connection with the Enwise report that women scientists of the Enwise countries must be given the chance to play their part in the European Research Area (Wasted… 2004). The Number of female higher education students exceed the males, but young female specialists stay behind their male colleagues in R&D and also in many other sectors.

What do women in science say about their satisfaction, career possibilities and constraints, and the perceived differences between male and female scientists? Do they feel that their talent is poorly used or do they see that there are many wasted talents around them?

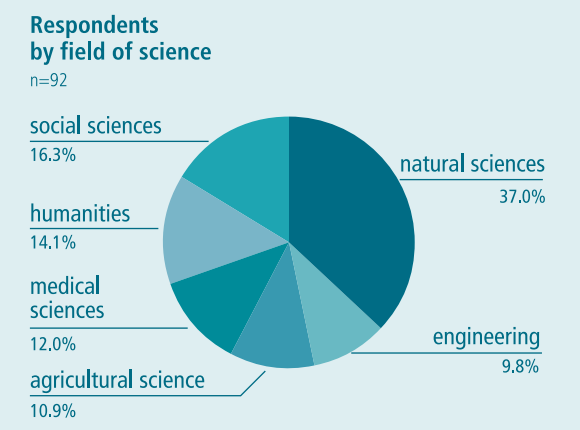

Figure 1.

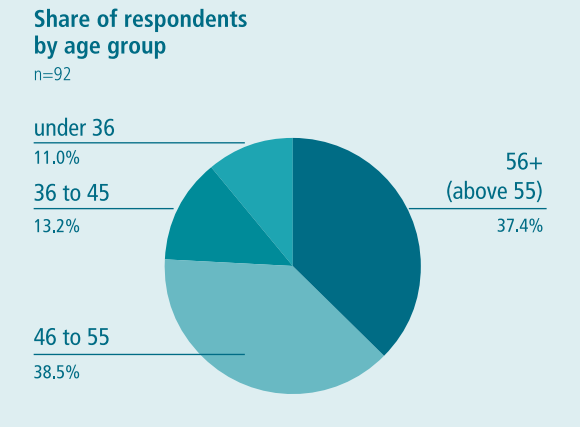

Figure 2.

Women in science about themselves

Survey method and data

Tiia Raudma and Reesi Lepa from the Ministry of Education and Research carried out a survey on women in science in Estonia. They prepared a questionnaire which interviewed 92 female researchers in HES. Tiia Raudma belongs to the Helsinki Group. Tiia Raudma made the initial analysis of the data and called for further study.

In Figure 1 the share of respondents by the field of research can be seen, and the majority group (37%) is from the natural sciences. Academic attainment is high among respondents. 70 respondents have a doctorate, and of these 7 have two doctoral degrees. Out of 92 respondents, 19 have one child, 40 have two children, 16 have three children and four respondents have four children. 11 did not have children. 6 respondents over 45 have no children; one of them said that lack of children is due to dedication to her work. Every fourth respondent is less than 46-years old; three quarters of the respondents are over 45 (Figure 2). Only every tenth respondent was 'a young researcher'.

The questionnaire asked opinions about women's share in science, career constraints, and possible obstacles (discrimination, family, discredit); ideas and proposals on how to increase the number of female professors; what have been the main obstacles (if any) for personal development in science and the career ladder; has one felt discrimination and is it harder to be a woman in science compared with a man. Open-ended questions were used in mapping the position of women in science. The qualitative data produced were also analysed statistically by argumentation. Personal data were asked about the research field, degrees, current position, age and number of children. Answers were mailed (mostly e-mailed) to the Ministry.

As low pay and monetary constraints were mentioned in many interviews, data from the Tartu University Wage Survey (TUWS) from 2004 is also used. In WSUT 2004 connection with pay was studied in many aspects; among respondents there were 388 researchers, which is a representative sample size to speak about HES.

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Survey results

Proof of women

A woman, no matter how gifted, has to 'prove' herself. *'A woman in research must constantly prove she is good, a man in research only occasionally.'* Every fourth respondent said that women should be doubly good compared with men to achieve a goal (position, recognition). *'It's always been the case that a woman has to be substantially better than a man.'*

Very few interviewees said that there was no problem – most of them said that promotions were a problem. They said that women had to be better than men to get the same recognition. In many cases men get a higher salary and higher position despite a lower degree.

'In our society we are used to accepting a man as boss even when he says stupid things. Men can say simply that it was my problem with misunderstanding. If a woman said the same thing then she's just stupid.'

'I wonder how men's self-confidence and their high opinion of themselves could be reduced!'

In fairy tales it is mostly men that have to prove their abilities and knowledge to achieve a goal (a sleeping, unfairly poor or just a nice-looking heroine). In the modern world it is mostly men who have a key to the tower and it is the women who have to fulfil tricky exercises. Who is the storyteller today, whose version of the story is 'true' and whose perspective do the decision makers hear? (Male) decision makers are unable to see a woman as an equal competitor and doer.

Lack of career ladder

In HES, the hierarchical structure of titles/ranks (bottom to top) offers some possibilities for career development: Teacher, Lecturer, Assistant Professor, Associate Professor (in Estonia, the title Docent is used) and Professor (the title Full Professor is not used). In BES and GOV the hierarchical structure is flat: Researcher and Senior Researcher (corresponding to the title Associate Professor and Professor on the University track).

The highest academic title/rank is Academician, i.e. a Member of the National Academy of Sciences. In Estonia the only woman among the academicians is Ene Ergma. Professor Ene Ergma, the Estonian Parliament's Speaker has called herself a 'Eurovictim' after agreeing to become a member of the Estonian Academy of Sciences, based on the European understanding that women should also be able to become members. *'Nobody had such an idea earlier'* she reported, i.e. before the Estonian preparations to join the European Union (Laas 2004). It seems then that shared practices as well as shared values within the European Union can be a positive motor for change for women.

Scientific career choices are limited by academic staff grades, and organization structure. The latter one is dependent on resources and investments into R&D. In Estonia there are many scientists with academic grades enabling holding a professorship, but due to poor resources the position is not available. Due to these hindrances the formal position gives a wrong picture about human resources in science.

It was said by many respondents that recognition is needed. If funding and institutional structures limit the possibilities for formal promotion, a positive attitude about researchers achievement should be expressed.

Obstacles

Women face obstacles to their scientific work simply because they are women, and as a result, are under-represented in the sciences and in the decision-making bodies concerned with scientific issues (Science and Society…). In Estonia, institutional arrangements that create and reinforce gender-based constraints, are not seen as a precondition for gender inequality. Different gender roles and a gender-segregated labour market are seen as the 'normal' gender system and not perceived as gender inequality. Socio-cultural attitudes determine women's and men's roles, responsibilities, and decision-making functions. At the same time socio-cultural attitudes reflect a persistent 'old-fashioned' gender and power system in Estonia today. In a rapidly changing society some stability is expected and welcome.

Gender was not stated as an obstacle in a personal career, but every second respondent stated that to be a woman in research is much harder compared with men. Every fourth respondent stressed that it is not harder to be a researcher for women compared with men. Nearly every third respondent had no idea about advantages and obstacles regarding gender in science.

The family as obstacle or a source of support

Two out of three respondents saw family as an obstacle for women's careers. Some interviewees said that the family is an obstacle on the one hand, but on the other, a great support for a successful career for women. Every tenth interviewee stated that family members have been very *'supportive and helped'* to build professional career. Every fifth has expressed the idea that support from family members is actually very important.

According to the interview data only women get children and have children. The spouse has a supporting and assisting role. In domestic work, men can assist, but in connection with family planning men were not mentioned. It was often mentioned that *'women have children'* and *'women must to take care of children'*. The caring role for women is seen as important (*'thank God women prefer their family to their career'*), women's family role was seen fatal, historic and *'given by nature'*.

Men in science were seen as dedicated to research and they were not seen as carers and supporters in their own family. In interviews it was said that men do not trust women in science, *'which is not a proper place for women'*, but there is no trust in men regarding the family.

Time constraints due to life course

Women have time constraints in everyday life and due to their life course. *'During a day (24-hours) women have to cope with more and time-consuming activities compared with men.'* It was said that *'women do not have time due to a broader range of obligations compared with men'*. Time management skills are very important for goal-oriented

survey

women. One respondent expressed the opinion that academically successful female researchers take domestic work *'not too seriously'* and *'do not overdo things'* in the upbringing of children.

In many interviews an idea was expressed that *'women get children and men get the advantage'*. It was said that *'all the most important events for women take place when they are between 25-40'*. In this period *'a basis for career should be built and children should be born'*. Women have to do very important and time consuming things in a *'shorter'* time in order to compete with their male colleagues of the same age. Staying home with children for some years means a loss in competence, which is dependent on the research field. Interviewees did not assume that male researchers *'should get children'* and *'should take care of the family'*.

Many respondents mentioned a *'magic'* age of 35, because in many programs the eligible candidate should be a young researcher under 35. It was said that postdoctoral programs often exclude women due to family responsibilities, and it was proposed that every child should give additional years above 35 compared with male competitors.

Discrimination

It was asked if the respondent has felt herself discriminated against. It was asked in connection with another question about women's 'more difficult position' in research. Every fifth (18) did not answer, which shows dubiousness in connection with the term 'discrimination', which is rather new in Estonian political rhetoric. Out of 74 responses every fourth (17) stated that they were discriminated against and three quarters said that they were not discriminated against. Many deniers said that *'I have not felt discrimination, **but** I had felt strong resistance in getting a higher position'*. Feelings about discrimination were more often experienced and sharply expressed by researchers in the age group 36-45 (every second).

There were two extreme stories. One respondent reported that being a woman was even positive in her career, because a male professor was so dull compared with her that it *'enabled to be a smart knower in the field'*. In spite of better competence this woman was in a lower position compared with the incompetent male colleague. Another extreme story told that of a nearly young female faculty member answering all the electronic correspondence and prepared teaching materials for *'the older professor'*. At the same time she has not felt discrimination.

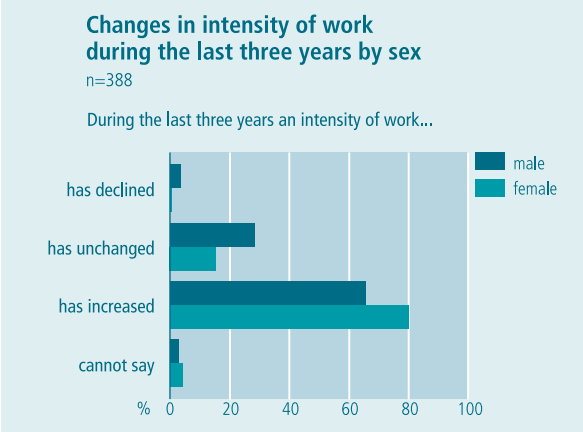
There were answers about age discrimination and discrimination of a research field. *'Estonian society likes young and successful people.'* An idea was expressed that Professor *Emeritus* should be available to retired researchers from universities and research institutions. The latter group is excluded from this position today.

Researchers from the humanities see current requirements for publications in international journals unfair and they feel that attitudes towards their research field are discriminative. Many researchers state that research results published in Estonian are actually more influential for Estonian society than some article in English.

It was asked about measures for increasing women's share in research. Quotas were slightly supported by 9 respondents and two-thirds of respondents rejected the idea about quotas. Positive discrimination was not mentioned. There are still answers that *'if somebody is gifted and wants to get a professorship, she'll get it'*. Some expressed the hope that there *'should be something done, but quotas are very unnatural and the wrong way'*. Nobody wants to be *'a quota-professor'*, in spite of many opinions that in the case of equal candidates mostly a man is selected, not a woman.

Low pay and gender pay gap

Many respondents stated the problem of low pay as an obstacle for fulfilling their potential. Poor funding was also expressed with ideas about *'small country as an obstacle'*. Smallness has a positive and negative impact. In cooperation, communication and governance, a positive side can be found. On the negative side, many respondents mentioned a 'young' and 'narrow' enterprise sector and a lack of resources and challenges in national R&D. Low motivation and ambition was seen to diminish women's human capital.



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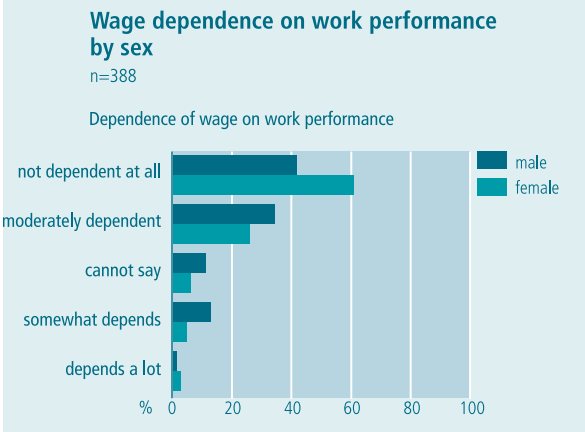

Figure 4.

Nedeva and Georghiou (2003) have studied RDTI (Research Development Technology and Innovation) funding in Estonia and found it insufficient and fragmented. They stated that poor funding is broadly associated with the image and visions of research. In relation to the public at large a certain loss of respect can be detected in the disinterestedness and the lack of general support for research. Probably the recruitment problems that research institutions are experiencing can be also, at least inpart, be

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attributed to the tarnished image of science and research (Nedeva and Georghiou 2003: 40). Minimal resources put under pressure budgeting, recruitment, and pay. The weaker an

It is hidden practice that men are paid more. The argumentation has the logic that male researchers should be paid more merely because *'men cannot manage with less'*. Data from the Tartu University Wage Survey (TUWS) in 1998, demonstrate a gender pay gapfor the same job in the same enterprise. Women's assessment of the wage level that enables *'a normal life'* was moderate compared with men. Among the group of professors, women's desired salary level was 30% lower than that of their male colleagues (Laas 2003: 409).

In TUWS 2004, four out of five female researchers and two out of three male researchers say that intensity of work has increased during the last three years (Figure 3). The sad side of the picture is the fact that every second researcher does not feel that work performance and contribution influences their wage. Men slightly more than women feel that wage is dependent on work performance (Figure 4). 37% of men and 26% of women state that their contribution has little impact on the wage.

Every third respondent does not know about the formation of their wage, women more than men are unaware about wage formation. By these data every third researcher is not satisfied with the possibilities for personal development in their workplace. 43% of women and 31 % of men are dissatisfied with their career prospects.

Conclusion

Almost all respondents were satisfied with their research field, in spite of the fact that different obligations (bureaucracy, teaching) are taking the majority of working hours. Many respondents have reconciled to the fact that research can be done in evenings, weekends and during vacations due to women's *'shorter time'*.

Women have to constantly prove that they are good and they have to be better than men to achieve the same position. Rigid gender roles are produced in daily practice and discursive practices. The educational system and media produce a stereotypical image of women and conservative gender roles.

Every fifth respondent has experienced discrimination. In many cases discrimination was denied, but cases of discrimination were retold in the same answer. Discrimination was not felt or perceived as a case of discrimination. Quotas were not seen as being possible measures to improve women's share in science.

Besides technical innovation, social innovation is also important. In Estonia rigid gender roles and gender values have to change and respond to new societal demand. One cannot achieve a competitive position alone, without support from loved ones and inspiring persons. Innovative personal practices and broader policies are needed to better balance professional and family life, industrial and social development. The overall purpose for action by the Estonian state is to enhance the quality of life for Estonia's population and to improve social well-being in society. Well-being in society means happy people. There is not too high a price to pay for the aim to build a caring society with caring and creative women and men.

Tiia Raudma has lived in Australia and came to Estonia in the early 1990s. She has said that this was a strange feeling of repeating history, because discussions on gender roles, power relations and gender sensitive policies are debated in Estonia today in a way as it was done thirty years ago in Australia. As in the late sixties. *'We do not have time to wait for thirty years,'* she said. It is true.

Acknowledgement

The author would like to thank Tiia Raudma and Reesi Lepa who had an active role in carrying out the survey and making the results visible.

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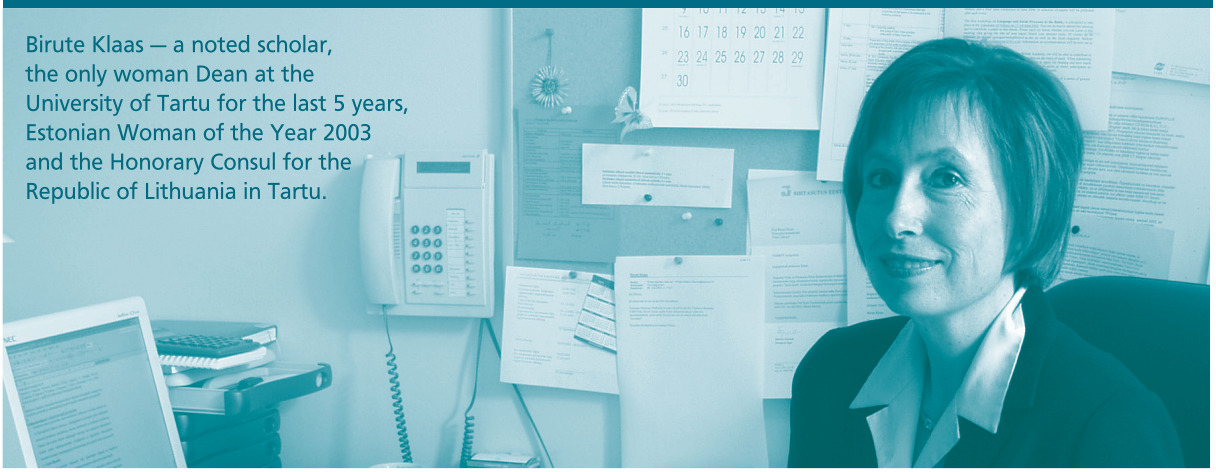
interview



Birute Klaas – a noted scholar, the only woman Dean at the University of Tartu for the last 5 years, Estonian Woman of the Year 2003 and the Honorary Consul for the Republic of Lithuania in Tartu.

An interview with Birute Klaas

Reesi Lepa, Ministry of Education and Research

What were your studies at the university like? What was the balance between men and women at the university at that time?

I began my studies at the University of Tartu in 1975, after having graduated from high school with a gold medal for excellent study results. I had difficulty in choosing my specific field of study at university, because I had had equally good results in humanities as well as, for instance, in mathematics. I eventually chose linguistics - Estonian philology, to be more precise. At that time, there was a joint study programme for those who wanted to study literature or folklore and for those whose interests lay in Finno-Ugric languages or linguistics. In fact, there are quite a lot of examples of successful linguists who have been good in sciences at high school. The majority of my fellow students were women, but as for the teaching staff, there was a clear majority of men among the lecturers, professors etc. Although there were also some women as associate professors, the professors were all men. Today, the situation has gradually begun to change – in post-graduate studies there are very many women students and there are also women professors in philology. The number of women professors will certainly grow substantially over the next 10 years.

How did you find your way to becoming a scientist?

In choosing my narrower field of study – language typology, I owe a debt of gratitude to my father, who was Lithuanian and who taught me the Lithuanian language. I grew up in a multilingual home speaking Estonian with my mother, Lithuanian with my father and the common language used in the family was Russian.

My supervisor at the university was professor Huno Rätsep and his guidance undoubtedly played a major role in shaping my scientific personality.

I also studied a year at the University of Vilnius and I defended my degree in 1988 on the comparison of sentence structures in Estonian and Lithuanian.

What impact has your family life had on your work and career?

I have been very happy in my life, for I have succeeded in combining a career in science and university with my family life. A good and harmonious family, a positive emotional charge from close relations with my husband, the joy that children offer – all this also helps me to progress more efficiently in professional life. I belong to the generation where marriage and the birth of a child in one's early 20s, hence during studies, was common. The same happened with me – my daughter Maarja was born in the spring of my last academic year, so I was completing my university diploma work with one hand while at the same time rocking the baby with my other hand, literally. My husband and mother also helped out when necessary. During my postgraduate studies the most difficult period began when my husband, who is an engineer, was sent to military service as an officer in the Soviet Army to the Far North in January 1984. I stayed in Tartu with two little children (our son Hannes was born in summer 1983) and an unfinished dissertation. There was no other way than to take time off for a couple of years. Fortunately, at that time it was already provided by law that young mothers could also take maternity leave for 3 years during their postgraduate studies. In retrospect this actually suited me and my family – the emotional closeness with the children, which emerged during those years, has lasted. I also needed time to become more mature as a scientist, which those years also gave me. In 1987 I eagerly started to work again and was ready to defend my dissertation already in 1988 – rather quickly for a 31 year-old mother of two children.

The other complicated and significant turn in my life took place in 1991 when I went to work at the University of Helsinki for 4 years as a lecturer of the Estonian language. I went to Finland together with the children, who started to attend Finnish school. The experiences that I got from Helsinki and from working in an excellent research university gave me, coming from a soviet university as it was then, an idea of a western university from the inside. Having an excellent working environment without any stress, as well as an abundance of libraries are goals still a long way off at the University of Tartu. In these four years, the children learned to speak good Finnish and also learned how to manage in a foreign environment. But my daughter's bonds with Helsinki have been so strong that she has now continued her studies in cultural anthropology at the University of Helsinki.

You were the only person who contested the present rector of the University of Tartu in the elections for becoming the new rector in 2003. This is a position no woman has ever occupied before.
How do you look back at that period?

I was nominatedas a candidate for rector not because I am a woman, but because of my professional and personal characteristics. However, it is true that before me no woman had ever even been a candidate for that position. But I had already managed to make history in "women issues" in Estonia and at the University of Tartu – I have been the only woman dean for already 5 years and the first woman dean in the Department of Philosophy since 1632. In debates during the university rector elections and in interviews to journalists I did not bring in the issue of gender on purpose, because I wanted the centre of the attention to remain on the subject of development of the university. However, the concentration of political power at the university almost entirely in the hands of men also hinders the university's development. There is too little empathy in relations inside the university as well as in relations outside the institution. In interviews following the election period I always emphasised that with my running for the rector's office I also wished to encourage other academic women to take positions of responsibility. With my example, I wished to demonstrate to these tens of thousands of women students in Estonia that the highest academic career is not only for men. Society and institutions consist of men and women. Why then should there be only men organising and directing the life of society and institutions? An Estonian academic woman is excellent in her specific field of study and profession, but is not yet accustomed to the idea of possibly also being a leader.

You were named the "Woman of the Year 2003" by the Association of Business and Professional Women of Estonia. How has it been for you as woman of the year?

The title "Woman of the Year" has been given out for 10 years now in Estonia. Every woman can be nominated as the „achiever of the year" only once. Nomination is organised by the Association of Business and Professional Women of Estonia and all individuals and organisations can nominate candidates. My candidacy was proposed by the BPW-Estonia Tartu office. The year 2003 has really offered me many achievements and a lot of recognition professionally. In spring 2003 I also received a very big recognition from my father's homeland – I was nominated as the Honorary Consul for the Republic of Lithuania in Tartu. Therefore, I have tried to be a bridge between Estonia and Lithuania primarily in the fields of culture and education. The title "Woman of the Year" has brought along many opportunities to speak in newspapers, radio as well as television, which I have been using quite eagerly, expressing my opinion in the matters of the role of the Estonian language as well as of women, above all academic women, in Estonia and in the new Europe.

Gender studies in Estonia

Tallinn Pedagogical University www.tpu.ee has been offering various gender studies subjects for some years now. In 2004, however, Gender Studies will be offered as a minor for the first time. This will be carried out as distance learning. Previous experience in teaching gender studies subjects has shown that interested students come from very many faculties and also from other Estonian universities and Open University, so a formal day course would not currently be feasible.

The Gender Studies minor comprises the following subjects:

Introduction to Gender Studies
Gender Perspective in Education and Psychology
Gender in Social Sciences
Gender Aspect in Literature, Linguistics and Art
Media and Gender
Violence Against Women and Human Rights
Through the Gender Perspective

University of Tartu www.ut.ee

also offers the following short courses for gender study:

Feminist Perspective in Sociology
Sociology on Gender
Gender and Economics
Social Construction of Gender (in English)
Classics in Feminism
Women in US and British Societies
Gender Aspect in Language
Feminist Perspective in Literature Study
Modernistic Women Writers
Media and Gender
Feminist Theory seminars (University of Tartu Ethics Centre)

Unit of Gender Studies www.zone.ee/sociology/est

Gender studies bibliography, ovewview about research and different projects. Main projects:

Enlargement, Gender and Governance (EGG), EU 5th FP, 2002-2005
The Insecure Perspectives of the Low Skilled in the Knowledge Society, EU 6th FP, 2004-2007
Gender and sexuality (2003, ongoing)
Construction of gender in Estonia (1999-2002)
Gender inequality in Estonia (1999-2002)
Research on men and fathers (1998-1999)
Women's employment and entrepreneurship (1997-2002)
Gender stereotypes in Estonia and Finland (1996-1998)
Career paths of university graduates of 1992 (1996)

Gender Studies Centre (ENUT) www.enut.ee

ENUT - acronym for Eesti Naisuurimus- ja Teabekeskus (The Estonian Women's Studies and Resource Centre) - is a grassroots, non-profit, non-governmental organization open to the public. It was registered in April, 1997. The Centre, located at the Tallinn Pedagogical University, is the first women's resource centre in Estonia and it includes a specialized library on women's and gender issues. ENUT provides services for policy makers, researchers and students, media, other NGOs, and the general public in the field of gender equality. Visiting scholars are also welcome to use the facilities.

The Centre also collects and disseminates information on gender issues, and raises gender awareness through seminars, conferences and publications. ENUT issues a regular newsletter and publishes (since 2000) an annual journal in book format called Ariadne's Clew. The journal is the main forum for Estonian gender researchers to publish in Estonian, and it is the first journal in Estonia to address academic feminism, and women's and men's studies.

creative innovation

QUIN-Estonia – network of creative and innovative women

Anne-Mari Rannamäe, NGO QUIN-Estonia

Creativity does not know age, sex or social position. The creativity and ideas of citizens offer a natural resource for the development of communities, societies. It is a human resource to be used. The creativity of women continues to be inadequately used for the benefit of societies and women themselves. It is reasonable to encourage women to come up with their ideas, to be more creative.

QUIN (Qvinnliga Uppfinnare I Norden = Innovative Women in the North) network was established in 1992 in Sweden. Today it connects about 800 innovative and inventive women in Sweden, Finland, Norway, Denmark, Island and Estonia. NGO QUIN-Estonia was registered in April 2001.

QUIN was established because:

- Associations of inventors do not attract women (there are very few women inventors)
- Men are not able to promote inventive activities for women (question of identity, lack of knowledge on women)
- Men do not understand women's affairs (lack of interest and pursuit)
- Many women do not consider themselves as inventors (even patent owners – question of identity)
- Role of an inventor is very untraditional for women

The main aim of the activities of QUIN-Estonia is:

Enhancing the participation of women in innovation and improving the realization of innovative ideas in female entrepreneurship in Estonia

How to best mobilize and support women:

- Supporting women entrepreneurs and innovation (local support system, EU support)
- Promoting female entrepreneurship at EU level and local level
- Good European and world practices in fostering women entrepreneurship
- Creating and developing an European Network for innovative female entrepreneurship
- Disseminating more information addressed to women only
- Mentoring of innovative activities and enterprises of women
- Raising finance for starting & growing business, based on innovation

How QUIN-Estonia fosters innovation:

- Activating women to create ideas (courses, lectures, etc.)
- Idea contests just for women, girls
- Seminars just for women (creativity, intellectual property, etc.)
- Exhibitions of female patented ideas, innovations
- Knowledge based developing of ideas into goods, realizing them into entrepreneurship (courses, seminars, support systems, network, etc.)
- Enhancing co-operation with universities, schools to mobilize young people to creative activities

QUIN-Estonia's partners are:

- QUIN (Finland, Sweden, Denmark, Island, Norway)
- Estonian Patent Office and Estonian Patent Library
- Tallinn Technical University
- Estonian Academy of Arts
- Junior Achievement Estonia
- Network of Estonian Entrepreneurial Women
- Co-operation Network of Estonian Women
- Global Women Inventor's and Innovator's Network (GWIIN)
- IFIA, etc.

QUIN Estonia has supported EU co-operation projects of Tallinn Technical University related to innovative approaches between universities and entrepreneurs.

Some of the current projects:

- **PREFACE www.eupreface.org**

Preparing Female Students for Academic Entrepreneurship. TTU, QUIN-ESTONIA, EWITEC, Junior Achievement Estonia.

To develop a European training programme especially targeted at female students in the SET field.

- **LOUPE www.loupesearchtool.net www.loupe.ee**

search tool for Useful cases in Problem Oriented Learning in Engineering curricula. UK SE NE DK EE (TTU, QUIN Estonia, Eesti Energia) IT ES.

To develop a methodology and a search tool for efficient identification and assessment of suitable (innovative and gender inclusive) cases and projects for the engineering curricula.

- **VISBY project**

WOMEN on WEB, financed by the SI.

Royal Institute of Technology, KTH, Sweden, St Petersburg State Polytechnic University, National Technical University of Ukraine, Turku Polytechnic, Finland, QUIN-Estonia and QUIN-Finland, Helsinki School of Economics.

Women use the Internet as entrepreneurial tool, they set up virtual women's studies, develop search engines and www pages for entrepreneurs. With their new business ideas they become independent in what is known as the New Economy. However, even more women could reap the benefits afforded by the Internet.

On September 23, QUIN Estonia, together with other partners, will be organising an exhibition of patented products by women during the Tallinn City Entrepreneurial Day, and also a roundtable dedicated to the issues and problems of women's entrepreneurial activities.

indicators

Some Estonian R&D Indicators

Aavo Heinlo

To reach the Lisbon 3% objective to increase R&D expenditures up to 3% of the gross domestic product, it is important to increase female participation in R&D activities. As educational attainment of women is higher than that of men, to act otherwise would be a waste of resources.

The so-called "scissors' diagram" developed by the Women and Science Unit at the European Commission shows the same features for Estonia as for the other European countries. The main one is the decrease in the share of women when moving up the career ladder in R&D. However, the special feature for Estonia is the very high feminisation rate of higher education.

When comparing the feminisation rate in different institutional sectors for chosen countries one can notice that Estonia is quite well-positioned with a feminisation rate higher than in most European countries. Unfortunately, the feminisation rate correlates with the country's R&D potential – the higher the potential the lower the feminisation rate. As to the dependence of this rate on the field of science the pattern is common for all countries – there exist feminine and masculine fields of science.

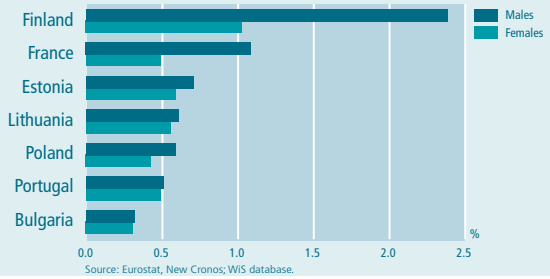
The five-year trend in the total feminisation rate of the R&D personnel and researchers shows that the situation has stabilised and there is no reason to expect significant changes in the nearest future.

The statistics on grant applicants and grant holders of the Estonian Science Foundation indicate that the share of women among them is noticeably lower than that among researchers (25% versus 45%). Also the success rate of female applicants is slightly lower than that of men. Could it be connected with the fact that among members of the Expert Commissions only 23% are females?

The participation of women in R&D can and must be raised. The main ways to achieve this objective would be: to increase the interest of young girls in science and technology by convincing them that science could be a rewarding career choice; to make the working environment and the working conditions more female-friendly, especially as regards the maternity period. At the same time, one should not forget that the five million years of evolution based on gender labour division have its genetic impact, which cannot be swept away by the hundred years of striving towards gender equality – the point, which is supported by the present-time neurophysiological research on gender differences.

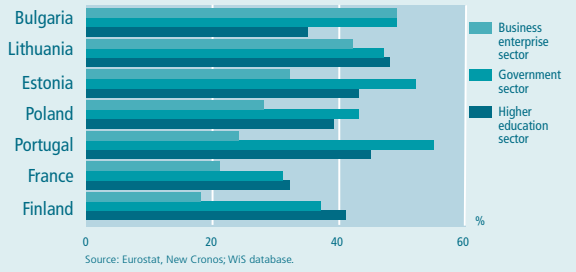
Here are also some tables, which illustrate women's participation in R&D in Estonia and also compared to other countries.

Share of researchers in labour force by gender
2000, excluding private non-profit sector



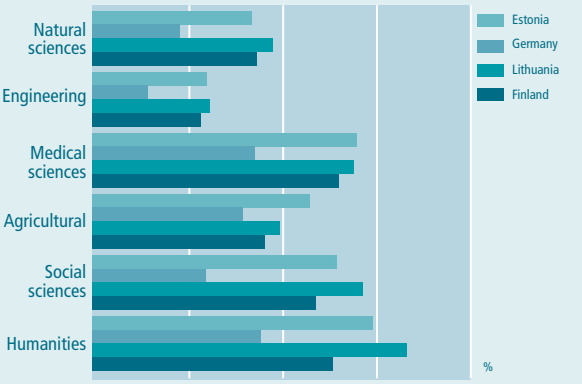
Source: Eurostat, New Cronos; WiS database.

Share of female researchers by institutional sectors
2000



Source: Eurostat, New Cronos; WiS database.

Share of female researchers by field of science in higher education sector
2000



Source: Eurostat, New Cronos; WiS database.

Average hourly gross wages and salaries of full-time and part-time employees by occupational group, related to R&D
October 2001

Occupational group	ISCO Code	Average hourly gross wages "of males" kroons	Average hourly gross wages "of female" kroons	Share of the females' average hourly gross wages in the males' average hourly "gross wages, %"
Legislators, senior officials and managers	1000	54.55	45.53	83.5
Professionals	2000	47.32	35.18	74.3
Technicians and associate professionals	3000	40.02	27.84	69.6
Clerks	4000	32.60	24.23	74.3
Service workers and shop and market sales workers	5000	22.09	16.12	73.0
Skilled agricultural and fishery workers	6000	18.50	16.94	91.6
Craft and related trades workers	7000	27.71	21.62	78.0
Plant and machine operators and assemblers	8000	26.44	22.43	84.8
Elementary occupations	9000	18.69	13.38	71.6
TOTAL		34.09	25.81	75.7

fp6 national contact points

LifeSciHealth NCP	Meelis Kadaja meelis@archimedes.ee	Archimedes Foundation, Innovation Centre Väike-Turu 8, 51013 Tartu	Tel +372 730 0333 Faks +372 730 0336
IST NCP	Tarmo Pihl tarmop@archimedes.ee	Archimedes Foundation, Innovation Centre Väike-Turu 8, 51013 Tartu	Tel +372 730 0329 Faks +372 730 0336
NMP NCP	Hillar Toomiste hillar.toomiste@archimedes.ee	Archimedes Foundation, Innovation Centre Väike-Turu 8, 51013 Tartu	Tel +372 730 0320 Faks +372 730 0336
Aerospace NCP	Hillar Toomiste hillar.toomiste@archimedes.ee	Archimedes Foundation, Innovation Centre Väike-Turu 8, 51013 Tartu	Tel +372 730 0320 Faks +372 730 0336
Food NCP	Meelis Sirendi meelis@etf.ee	Estonian Science Foundation Kohtu 6, 10130 Tallinn	Tel +372 699 6212 Faks +372 699 6211
Sustdev NCP	Maria Habicht mari@archimedes.ee	Archimedes Foundation, Innovation Centre Väike-Turu 8, 51013 Tartu	Tel +372 730 0327 Faks +372 730 0336
Knowledge Society NCP	Ülle Must ylle@archimedes.ee	Archimedes Foundation, Innovation Centre Väike-Turu 8, 51013 Tartu	Tel +372 730 0330 Faks +372 730 0336
Policy research NCP	Marek Tiits marek@archimedes.ee	Archimedes Foundation, Innovation Centre Väike-Turu 8, 51013 Tartu	Tel +372 730 0326 Faks +372 730 0336
NEST NCP	Hillar Toomiste hillar.toomiste@archimedes.ee	Archimedes Foundation, Innovation Centre Väike-Turu 8, 51013 Tartu	Tel +372 730 0320 Faks +372 730 0336
SME NCP	Argo Luik argo.luik@eas.ee	Enterprise Estonia Roosikrantsi 11, 10119 Tallinn	Tel +372 627 9705 Faks +372 627 9427
INCO NCP	Ülle Must ylle@archimedes.ee	Archimedes Foundation, Innovation Centre Väike-Turu 8, 51013 Tartu	Tel +372 730 0330 Faks +372 730 0336
Co-ordination NCP	Rein Kaarli rein.kaarli@hm.ee	Archimedes Foundation, Innovation Centre Väike-Turu 8, 51013 Tartu	Tel +372 735 0213 Faks +372 730 0336
Innovation NCP	Egert Valmra egert.valmra@eas.ee	Enterprise Estonia Roosikrantsi 11, 10119 Tallinn	Tel +372 627 9706 Faks +372 627 9427
Mobility NCP **Human resources & mobility**	Kristin Kraav kristin@archimedes.ee	Archimedes Foundation, Innovation Centre Väike-Turu 8, 51013 Tartu	Tel +372 730 0337 Faks +372 730 0336
Mobility NCP **Research infrastructures**	Marika Meltsas marika@archimedes.ee	Archimedes Foundation, Innovation Centre Väike-Turu 8, 51013 Tartu	Tel +372 730 0323 Faks +372 730 0336
Science and Society NCP	Terje Tuisk Terje@archimedes.ee	Archimedes Foundation, Innovation Centre Väike-Turu 8, 51013 Tartu	Tel +372 730 0333 Faks +372 730 0336
National Co-ordinator	Rein Kaarli rein.kaarli@hm.ee	Ministry of Education Munga 18, 50088 Tartu	Tel +372 735 0213

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EU Innovation Centre
Archimedes Foundation
Väike-Turu 8, Tartu 51013, Estonia
Tel +372 730 0324
Fax +372 730 0336
E-mail irc@irc.ee
http:// www.irc.ee/

Editor: Rein Kaarli
rein.kaarli@hm.ee

This issue has been compiled by Reesi Lepa and Tiia Raudma.

Important links:

Archimedes Foundation, Innovation Centre
www.irc.ee

Estonian Ministry of Education and Research
www.hm.ee

Estonian Research Information System
www.eris.ee

More about Estonia at
www.ee/welcome.html

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