This report is related to the Report on the National Situation dated May 2000. Its contents are based on the requirements of the Technology Assessment Network „Women and Science“ group, submitted at a meeting in Brussels in autumn 2000. The recommended structure of the report has been preserved.

I. The national situation / background

I.1. General developmental trends of Czech research and development (R&D) with emphasis placed on its innovative potential in the field of the female labour force

The scientific system in the Czech Republic has undergone dramatic changes during the nineties, unparalleled in comparable systems of the EU countries. These changes, however, have destabilised it greatly as far as the functionality of the system is concerned. At present, the term „R&D system in the Czech Republic“ may only be considered a working title for a set of partial, mutually rather unconnected activities, which are included in the labour sphere in the West. The list mostly or completely fails to include activities related to the support of technological system innovations. Czech R&D has serious problems with:

- Applied research support
- Evaluation of the labour efficiency of new research centres
- Creation of strong non-state funds for research program financing
- Targeted, long-term co-ordination of similarly oriented departments active in the commercial, private non-profit, governmental and higher education sector
- Failure to manage problems related to the selection of research priorities
- Failure to adopt binding ethical principles and codex
- Deepening of demographic instability
- Non-functioning, mutually disconnected education of research talents
- Certain other items necessary for the creation of new human resources in this sphere

The destabilising processes were generated partially by endogenous factors as the result of problems related to the directive control of research before 1989. In part, they were also due to the efforts of state bodies to adapt on an administrative level to the R&D standards in developed Western countries.

From the point of view of R&D, development in the CR throughout the nineties can therefore be evaluated as a phase of arduous (and rather non-transparent as far as real causes are concerned) clashes, which resulted in an effort to ensure the survival of R&D structures required for the further development of Czech society. Only in the second half of the nineties, activities oriented on the creation and maintenance of at least a minimum number of competitive R&D structures were launched – that is, activities focused on creating a situation that would enable further development of Czech R&D in a market environment. Several new programs related, for example, to the establishment of excellence centres attest to these efforts. Their success has not been verified yet.

I.2. New structuring of the research & development structure

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1 The general state of human resources was the subject of a very critical reflection in the basic materials for the creation of the National R&D policy in the Czech Republic (See Sborník …1999, Chapter 2.1. etc.).

2 The results of certain analyses executed in the 80s (in accordance with the Frascati manual classification) signalled that the data and output then recorded in relation to Czech R&D were greatly overestimated (at least doubled).
In the stead of the then research-development base\textsuperscript{3}, a new research & development structure was created, divided in accordance with the OECD classification into the four following sectors (defined according to the conduct of research and development and financial resources):

- **Corporate** includes any and all companies, organisations and institutions, the main activity of which is the production of goods or services (other than in the field of higher education) for sale to the general public at an economically significant price. Furthermore, it includes private non-profit organisations.

- **Governmental** consists of state administration bodies on all levels, with the exception of publicly controlled higher education institutes with a wide range of activities, including non-profit organisations and entities, such as the Academy of Sciences of the Czech Republic. They are financed and controlled by the government, with the exception of higher education.

- **Higher education** includes tertiary education institutions, including research institutions, development departments and hospitals working under the direct management or control of higher education, or associated with higher education organisations.

- **Private non-profit** includes private or semi-private organisations that were not established in order to generate profits. This group also includes individuals and households related to civil leisure time associations, foundations, religious societies, private schools etc.\textsuperscript{4}

In view of the subsistence problems and financial deficits which Czech sciences have been battling throughout the nineties, the issue of empowering women in science or the issue of gender democracy in science seem to be secondary, with marginal importance in view of the hierarchy of priorities.

II. Policy framework for women and science

From the gender point of view, the Czech society is distinctive for a specific discrepancy, the two aspects of which are an inheritance of the former communist regime. On the one hand, there was a centrally enforced support of women’s penetration into the public labour system and public institutions, and on the other there was the prohibition of association and congregation for forty years, which meant that women did not have the chance to interfere with and publicly discuss the state policies that concerned them. As a result, the educational and professional status of women today is higher but at the same time the traditional division of labour between the sexes has been preserved. This division of labour is typical for its understanding of housework and childcare as an almost exclusively female role\textsuperscript{5}. This situation has been preserved both in the public and private spheres where it is reflected in the gender-segregated division of labour, work positions and the enforcement of mechanisms which devaluate female work in a number of segments and structures.

Obviously, this also had an effect on the creation of a very specific understanding and self-perception of career-oriented women who usually do not give up having children (she has two on average), nor their creative work, but usually do not strive to achieve maximum career promotion.

\textsuperscript{3} Including, in addition to colleges and universities, and various institutes of the Academy of Sciences of the Czech Republic (hereinafter „AV CR“), a large sector research and development network.

\textsuperscript{4} It remains a fact that, compared to the OECD standards, there have been some changes following from the fact, for example, that AV CR, as part of the governmental sector, contributes substantially to the pedagogical activities of colleges and universities, and these in turn (classified in a separate sector) are to participate in R&D although we may doubt, with regard to a number of institutions in this sector, whether they have any R&D activities.

\textsuperscript{5} For example, women at present amount to 15% of the Chamber of Deputies of the Parliament of the Czech Republic without any active policy and 22% in the regional politics bodies.
In the public rhetoric of these women – scientists, politicians and managers – we still perceive a veiling or denial of their career ambitions and an emphasis on their maternal roles. One of the consequences of this is that women with career aspirations perceive the lower status of women in the hierarchy to be a result of a free life choice and not discrimination due to environment. The phenomenon of discrimination under these circumstances is hard to prove and to enforce as a theoretical and practical issue.

The above-mentioned pattern slows down changes in cultural understanding of the issue of gender. In Czech society, there is still a very low awareness of gender as an organising principle of all spheres of society, not just by the general public but also the intellectual elite. Not only this: the absence of gender awareness is just as typical for social scientists among whom gender studies or gender perspectives are finding their way only slowly and with great difficulty. That means that sources initiating a change of social consciousness and cultural attitudes, with expert arguments at their disposal, are very weak.\(^6\)

If we were to summarise the issue of potential actors (agencies) to enforce the articulation of the position of women in science, thus putting pressure on the active policy of female empowerment, the situation is as follows:

- **Female scientists** themselves have not opened gender issues yet. On the contrary, the higher the position of women in science and its structures, the stronger their refusal of such an articulation.\(^7\) This situation is generational, since the generation of middle-aged women, i.e., mostly those who are already active in science, see individual success in conflict with gender awareness. We believe, however, that this situation is starting to change among the youngest generation of women and it is likely that in the future, active networking will occur among these women.

- Thus far, the cultural pressure of women’s activism is very weak. Its activities have become more pronounced only recently and, thus far, mostly in relation to violence against women. The issues of women’s leadership generally remain on the margin of interest of these groups, and it is, all in all, quite understandably expected that these are women who can fight for their own rights themselves.

- In the academic sphere, there are very few **gender scholars**. Nonetheless, there is an effort to research the issue of women in science and the issue of women’s leadership in general. Publications of these professionals and their activities at universities thus far mostly substitute for voluntary activities of the women’s movement and the non-profit sector. A comprehensive research of the position of women in science and leadership is, however, one of the neglected activities of the research community. There are neither even any historically oriented works mapping the development of women’s penetration of Czech science, nor a sociological analysis of the existing situation.

- The most important impetus leading to a social articulation of gender issues under these circumstances comes from the **European Union**, the pressure of which creates, among other things, the need to establish and educate **state officers** who accept the agenda, identify with it and have an interest in its enforcement. Therefore, we can talk about a continuation of „state feminism“. Fortunately, in the case of the Czech Republic we can state that these officers cooperate efficiently with gender research scholars when implementing the equal opportunity policy.

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\(^6\) Thus far, a research project focusing on the position of women in Czech science has not been awarded a grant by the Grant Agency of the AV CR (since 1996 when such a project was submitted for the first time).

\(^7\) A similar pattern also applies to Czech women in high politics or in corporate structures.
The policy of the Czech government, however, has had certain priorities when adopting the European Union equal opportunity standards with regard to individual areas. The highest priority has been given, thus far, to the position of women on the labour market and the changes of the labour code, where a substantial progress has been achieved. The Ministry of Labour and Social Affairs has been charged with these tasks. The other ministries have also been charged to develop equal-opportunity agendas. The problem is, though, that no deadlines have been set. For example, the Ministry of Education, Youth and Physical Training was charged to create conditions for an anti-segregation climate in schools and for anti-sexist education, but this task is formulated only as „gradual“ without any binding deadline. As a result, although the relevant governmental resolution was adopted in 1998, there have been no steps toward equal opportunities in education thus far. As for the situation of women in science, which is also in the power of this ministry, the Helsinki Group plays a certain role, which will perhaps improve the legitimacy of research focused on women in science at least in respect to the decision-making bodies of the Academy of Sciences and perhaps make it possible to obtain financial support for the planned seminars for women in science, which could potentially become a cornerstone of female scientist networking.

III. The measures adopted to promote the role of women in science

The recently adopted Governmental Resolution No. 16 dated January 5, 2000 is related to issues pertaining to the position of women in the field of R&D only on a general level. In Paragraph 71, however, the government calls on the bodies responsible for the implementation of the science policy to gradually develop equal opportunity policies in all state supported programs and in all grant agencies distributing public funds in R&D. Furthermore, it expects the same from other institutions and organisations. It is clear that a certain breakthrough has occurred. The state, or rather the government, admits that there may be something in this area that does not correspond to the anti-discriminatory principles which the Czech Republic proclaimed earlier in its legal standards.

The essence of this „breakthrough“ of the status quo in the perception of the discrepancies which, to a greater or lesser extent, occur in Czech society in relation to the position of women in R&D is the decoding of a hidden mechanism, the workings of which make it possible for one

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8 Governmental Resolution No. 236/1998 „Priorities and Procedures of the Government during the Implementation of Equal Opportunities for Men and Women“. This document contains the following crucial statement: „strict suppression of discrimination of women in society presupposes its knowledge (research), systematic monitoring and evaluation of the development of its situation and intensity. Thus far, there has been no regular systematic evaluation of discriminatory occurrences in view of the enforceability of the equal opportunity principle in our society. An authorisation to require reports and data about the status of equal opportunity enforcement from the relevant ministries is the basic presupposition of the activities of the Ministry of Labour and Social Affairs as the co-ordinator of this agenda.“

9 Amendment to the Employment Act: Act No. 167/1999 Sb. amends several acts – it is based on the amendment to Act No. 1/1999 Sb. on Employment. Section 1: prohibition of discrimination in access to employment: this involves a citizen’s option to enforce his/her right to employment without any discriminatory restraints through court or labour offices. In compliance with the requirements of the European Union, the definition of discriminatory occurrences has been expanded, to include – among other things – sexual orientation, gender, marital and family status, and obligations toward a family. Amendment to the Labour Code. The goal of the proposed amendment is the change of Act No. 65/1995 Sb., the Labour Code. One of the key changes is the inclusion of directives of the EC Committee and other partial measures in the field of equal opportunities into the Czech labour law. The act should come into effect in 2001.

10 Governmental Resolution „On the National Research and Development Policy of the Czech Republic“ (No. 16/2000). The following reference is crucial in relation to equal opportunities: „The bodies responsible for the implementation of the Research and Development (R&D) policy shall strive to gradually develop equal opportunity procedures in all state supported R&D programs and in all grant agencies distributing public funds for R&D. The state expects that R&D institutions and organisations shall apply similar procedures in their concepts, statutes, rules of organisation and regular life“. 
group of employees (regardless of whether they are women, young people or foreigners working in R&D institutions) to be socially disadvantaged. **The basic principle of this mechanism is not the creation of unequal conditions for employees who have comparable personality traits and qualifications for working in this sphere but a tolerance of their existence.** This existence may be based on a custom, tradition, on various forms of hidden capital with which people enter the labour market and which are not related to their individual capabilities. On a general level, it involves the issue of the functioning elite, i.e., whether there are mechanisms enabling the best, the most able and most talented to reach positions corresponding to their qualities, or whether there are other mechanisms which prevent this, with the purpose of securing such positions for others. It is a sort of trade in privileges that functions, concurrently, as a discriminatory mechanism.

Generally, the key problem of each form of discrimination is its naming, its identification as discrimination. Since privileging is inherent in discrimination, one of the options for unveiling discrimination is to study privileged structures. The issue of privileges and discrimination by gender in the Czech Republic may be demonstrated, with respect to its hidden nature and a consequent difficulty to prove, in the workings of grant agencies distributing funds for R&D, for example. Here, as well, is a hidden mechanism ensuring advantages and privileges not only for men, but other groups as well. This situation has been and is subject of criticism\(^\text{11}\). It is crucial that this criticism has been accepted and one of these forms of discrimination, which has a long tradition in R&D, has been remedied. It took ,,only“ four years for the National Grant Agency (it started working in 1993) to start applying a sort of ,,affirmative action“ to the benefit of young scientists up to 35 years of age (grants for post-doctoral students) in the field of R&D. Thus, it was quietly admitted that inequalities existed, following from the fact that post-doctoral students as highly competitive category did not have any important say and thus also representation (as is true about women) in NGA committees that recommend individual projects. As a result, they could not participate, for example, in the selection of appropriate opponents to projects of their peers (again, based on a principle of age hegemony). The fact that women, as well, are not greatly represented in the committee of this agency or other agencies (estimated at 20%) as well as in the evaluation committees (which are not made public) signals the existence of a similar disadvantage, that is, the existence of a hidden mechanism of discriminations and privileges. None of the analyses of any GS indicates that equal opportunity policies would even be considered. And it is even less likely those concrete measures to destroy such a hidden system, which is at variance with legal and moral standards, have been adopted in this time period. In view of the absence of concrete measures adopted, therefore, we cannot evaluate their potential efficiency.

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\(^\text{11}\) It appears that such criticisms are based on experience acquired abroad. A number of influential (in grant agencies) and active Czech scientists who obtained knowledge with the functioning of R&D in other countries, including their grant programs, have realised the discrepancies in the first years of the National Grant Agency pertaining to the fact that there was no manner of „protecting“ young, active researchers respected abroad against the competition of influential but often ageing and inefficient prominent personages of Czech science. Another impetus may be the growing external „brain drain“ of these young researchers, stimulated by this very lack of protection of their activities, and maybe even the recommendations of foreign scholars to take over the successful practice of grants for post-doctoral students etc.
IV. Statistics presenting the situation in Czech Republic

IV.1. The availability of the data

Standard statistics reports pertaining to R&D in the Czech Republic are kept on two elementary levels: a) The Republic; b) Ministries.

Generally, this involves the collection and processing of statistical data for individual years. In some cases, these are files kept over time. For example, there is a population census every ten years. Its results make it possible, for example, to correct certain gaps and insufficiencies in the statistics pertaining to the structure of female employment in the regular annual statistical reports.

The most frequently used source of relevant statistical information about women in R&D is a set of materials processed and published by the Czech Statistics Office. The preparation for the accession to the OECD and now to the EU has included requirements of harmonising statistics in the CR with the standards in these organisations. This fully applied to the R&D area as well, where the formerly conducted surveys signalled great differences between the Czech statistics and the OECD Frascati manual classification. The transfer to the new standards has been conducted in a manner that makes it impossible without demanding recalculations (and sometimes precluding it altogether) to use data from previous years for a comparison with the newly defined statistical base.

These facts also pertain to the Statistical Yearbook of the Czech Republic 2000. For R&D data, Section 21 on research and development and Section 22 on education are the most important. With the exception of the differentiation of certain groups of students of high schools and colleges/universities and certain groups of pedagogues, the data pertaining to R&D and education are not differentiated by sex.


Sector statistics in individual sectors are also available, which contain selected data about individuals active in R&D (in a given sector) by sex. For example, Chapter F of the Education Statistical Yearbook 1999/2000 (Performance indices) contains some data about higher education, including the numbers of PhD. students by sex. Data about the gender structure of employees in the university sector, including certain hierarchically important positions (deans, professors and docents) are available only in internal databases of the publisher of the Yearbook (i.e., ÚIV – Institute for Information in Education, with MŠMT). Some important data pertaining to the age composition of individual groups of employees or recipients of internal R&D grants and individuals awarded for performance in R&D by gender are available in the annual reports of individual universities. These reports have been available to the public, based on the law, only since 1999 and do not have any common binding outline.

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12 The last census, using the declaratory method, occurred in 1991; a new one is being prepared to take place in 2001.
13 Individual R&D institutions (including universities, the AV CR, the Institute of Children and Youths of the Ministry of Education, Youth and Physical Training etc.) as well as some foundations supporting activities in science (e.g., Hávkova nadace) publish overviews of extraordinary awards in their annual reports or periodicals. In view of the specificity of Czech last names making it possible to differentiate by sex, we can count how many awards for
Many sector-oriented statistical yearbooks contain data about individuals active in R&D without the distinction of sex. In view of the above-mentioned specificity of the Czech language, it is possible to order additional statements based on an analysis of the relevant basic data from institutions that have these bases at their disposal. This makes it possible to ascertain the relevant data about the R&D activities of women in a given sector or sphere of activity. See, for example, the yearbooks published by the Industrial Property Office of the CR, which publishes, among other things, data pertaining to specific outputs from R&D activities (e.g., numbers of submitted and granted patents etc.)

IV.2. The educational classification used

Data pertaining to educational statistics in the CR are kept either directly in compliance with the International Standard Classification of Education (ISCED) or are furnished with a transformation table for the Czech educational system for this classification. Specialised publications are also available – both concerning methodology and individual topics. Sex segregated statistics, that is, a simpler classification, have been available in recent years directly in the publications. As for more complicated classification, it is possible to obtain sex segregated statistics in the form of a paid order.

IV. 3. The occupation classification used

Occupations are classified according to the national Classification of Occupations (CZ-ISCO-88), CSO, 2nd edition, 1996. This classification is compatible with the international standard ISCO-88. Status in employment is classified according to the national Classification of Status in Employment (CZ-ICSE), which is compatible with the international standard ISCE. The data are segregated by sex.

IV. 4. The industrial classification used

Data on the industrial branch of activity are broken down by the category of the Branch Classification of Economic Activities – OKEČ (national application of NACE, also referred to as CZ-NACE), which is continuously updated. This classification is compatible with the international standard ISIC Rev. 3. The data are segregated by sex.

IV. 5. Whether hierarchical sex segregation may be assessed

In view of the status of statistical reporting mentioned above, where there are numerous problems with keeping basic data about R&D activities and much more with differentiation by sex, the scope of the issue of hierarchical segregation in these databases cannot be assessed. Moreover, the entire issue is burdened with the impact of „traditional, specific national“ customs to award the title of docent and especially of professor at a very old age. If, for example, the average age of appointment for a new docent is approximately 48 years of age and that of a new professor has been for quite some time over 56 years of age, then this performance in science have been awarded to women, including the percentage. For example, in the AV CR, it is approximately 20% in various categories of awards; in the case of medals (awarded usually for merit, not for a specific performance), the ratio is 30: 1 for men.

14 In accordance with the law on access to information, which is available to authorities and which is not considered confidential and secret (or personal) data, the relevant authority is obligated to provide such data. The authorities, however, usually make this service contingent upon payment for the time spent by its employees collecting the required data and also do not guarantee fast processing of such requests, in view of the potential occupations of the relevant officers with other activities.
average age for professors almost exceeds women’s retirement age. It is typical that among the last 61 professors appointed in mid-2000, only one was a woman (the appointment usually occurs twice a year).

**IV.6. Whether the relationship between scientific qualifications and occupational outcomes may be assessed**

Relevant, publicly available information by gender concerns only the number of students accepted for PhD. study. The Institute for Information in Education is the controlling body for the processing of relevant data and has internal information resources at its disposal. It is possible to obtain information about the percentage of women in the number of PhD. graduates. For example, between 1993-8, the ratio was approximately 70:30. There are, however, no data related to the occupational outcomes acquired formally by obtaining a PhD. The only source of such information is research data, in the case that research thus focused has been conducted. Between 1998-9, the Ministry of Education, Youth and Physical Training of CR granted a research project titled „PhD. graduates between 1992 and 1995“, which included a national research of the occupational outcome of graduates from the beginning of the nineties when a new form of scientific education was implemented. The research results show that 61% of respondents among PhD. graduates continued their academic career and thus took advantage of their scientific qualifications.

Although there were more male graduates (in the set of respondents, they represented 65%), which corresponds to the fact that the number of male PhD. students is greater (70%), there were more women among graduates who found application in R&D (52% of all respondents who found application for their scientific qualifications in R&D). A substantial number of women who obtained a PhD. accepted a career in academic professions for which they were qualified by obtaining the academic education. On the contrary, a substantial number of male graduates opted for a different type of career where they had to „make do“ even with a preparation not oriented towards R&D work. Nonetheless, this finding can be used for a qualified estimate of the general situation in this field only partially because a very interesting paradoxical process occurred in the CR in the nineties, which requires a deeper interpretation. While the number of PhD. students almost tripled compared to the 80’s, the number of PhD. graduates in the nineties reaches on average 60% of the number of graduates in the 80’s. Therefore, with the generally low „outcome“ of PhD. study, even with a majority of women, we cannot expect any time soon such an exchange of employees with scientific qualifications in the Czech R&D, which could substantially change gender relations. As these groups of R&D workers are inevitably getting older (in the 80’s, the average age upon PhD. graduation was 40!), their qualifications will likely be substituted by other qualifications which do not require PhD. study – this, however, at the cost of lowering the qualifications and most likely the performance in R&D.

Another basic material available for the identification of the current situation or an estimate of potential trends in this area is statistic R&D data. From them it follows that there are a total of 52,716 employees, including 12,151 employees with scientific qualifications (Ph.D. and its equivalents) and 19,697 employees with an MA. Out of this number, 18,753 are women. Out of these, 2,604 women have scientific qualifications (21.4% of the given subset) and 6,040 have a university education (30.6% of the given subset). Since it is possible to estimate, based

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15 In the CR, women used to retire between 53-58 years of age, according to the number of children. The pension system reform has moved the limit up to 57-61 years of age. This situation has always been discriminatory for women working in R&D because it made it possible to pressure women to retire.
on other resources, only roughly how many women from both educational groups are employed in higher education and how many in AV CR (a great majority of women with scientific qualifications and a substantial number of female university graduates), it can be estimated that women with these qualifications working in other R&D sectors are few, or in the case of women with scientific qualifications the number is negligible (see the tables in the appendix). The data are available only in this structure. The primary data sources needed to execute further analysis are missing.

IV.7. Whether attrition could be assessed

If this term is to define, among other things, a relationship created among the female population working in R&D between its realised educational aspiration on the one hand, and the representation of women in the hierarchically organised structure of R&D on the other, we are able to monitor this indicator on a number of levels.

As for number of master’s program graduates, the numbers of female and male graduates have approximately equalised only recently. The formation of an educational structure of R&D employees is influenced by the ageing of the employees. According to the available statistics, the average age in higher education and in the AV CR is high, approximately 53 and 48 years of age, respectively. More detailed analyses of the age structures by sex signal a certain trend, which may lead to a slight empowerment of women in the R&D structures in the future.

In view of research and certain statistical data (see the tables in the Appendix), this trend seems to be the most pronounced in social sciences (here, 30.5% of women have scientific qualifications and 51.6% an MA), and the weakest in engineering and technologies (16.3% and 18.9%, respectively). Additional data may be obtained from internal databases of higher education or the AV CR, which already take into account the category of sex. For example, the latest data (for 1999) in the AV CR show that out of 3,400 employees, there are approximately 1,000 women working in categories of R&D professions, i.e., approximately 30%, while there are 115 women compared to 580 men (only 16%!) in leading positions. The situation in higher education is similar. There are approximately 15,704 employees (physical entities) active in activities that should be related to R&D. Out of this number, 5,204 are women (33.1%)17. The representation of women in the hierarchically most important position related to the title of a profession (approximately 1,447) and docent (approximately 2,974) is, however, only 7% (!) and 19.4%, respectively. These titles are usually related to higher positions in higher education (not only deans and rectors, but also their assistants and, first of all, heads of departments), and therefore the above-stated very low number most likely corresponds to the situation in this respect as well.

There is a strong correlation between the weak representation of women in hierarchically prominent positions with a low success rate when awarding grants in various grant agencies. In the databases of these agencies (e.g., the National Grant Agency, or some departmental GAs), it is possible to discover, using an additional survey (based on an identification of women’s names among grant awardees), the number of women among the total number of awardees. From a wider point of view, i.e., also including the comparison of the number of submitted projects, and not only those which were accepted, only one database is available –

16 In view of the generally high priority given by these employees to pedagogical activities, it is difficult to calculate their R&D potential without more detailed surveys, which are non-existent at present.
17 School statistics also use „recalculated work loads“. In this case, it involves 13,578 pedagogical and 856 scientific workers.
that of the grant agency of the AV CR. In 1999, women submitted 13.2% of approximately 159 submitted projects. The percentage of women among the 79 accepted projects was the same.

If the „attrition“ index should be understood more educationally, rather than from the point of view of success in employment in the field of R&D, its monitoring faces the problem of monitoring the development over time of one, concretely defined group of women in a specific period. In this respect, it is possible to use data from a longitudinal research of intellectually gifted young people from 1984-1994, granted by MŠMT. The research has lead to a finding that the penetration of a selected population among successful participating high-school students (one of the national competitions for gifted individuals) to universities was 93% (100% showed an interest; among the failures most were women, and the reason was usually the establishment of a family). The penetrability into the R&D sphere, related usually to obtaining a scientific qualification, was 17% (originally, one half of the set was oriented in this direction, i.e., work in R&D). The success rate of young women was comparable to that of men, which at that time was probably closely related to the general decreased appeal of working in R&D (lower earnings, other career options).

IV.8. Whether differences between the scientific and applied scientific disciplines, including computer sciences, may be ascertained.

In the two most numerous sectors of R&D (state and university), basic research seems to be – at least formally – preferred in view of goals. As no survey has been conducted recently with a focus on ascertaining the ratio between the basic, or active research to all activities, the data of the above-mentioned Czech Statistics Office apply to the representation of women in the state and university R&D sector. In accordance with the relevant table (see the tables in the Appendix), it is possible to distinguish between individual sectors by gender, where the representation of women is 43.9% and 39.5% respectively and the business sector (27.8%), without it being possible to further differentiate the women by qualification and education. Another – the private – sector is negligible in view of the absolute frequencies.

As an additional source of information, it is possible to use the basic materials for the formulation of the National R&D policy executed in 1999 in the Committee for Science and Research, which also contains the results of a partial questionnaire survey of the MŠMT pertaining to the representation of women among R&D employees in various R&D sectors. The results of this survey, however, are based on estimates which respondents of the survey (representing individual sectors and departments) provided to the MŠMT. This information confirms the expectation of major insufficiencies in the statistical reporting in this area, especially in the sphere of corporate research and the private sector.

As for this item of differentiation between individual scientific disciplines, the Czech Republic does not have at its disposal their differentiation by gender or their applicability (focus on use in practice). In the Czech Republic, there is no reliable differentiation and therefore no usable statistical materials of this kind in the governmental or higher education, much less corporate or private sectors of R&D.

IV.9. Whether differentials between women and men’s salaries may be measured.

The segregated market of „professions and positions“ does not provide a sufficient explanation for the wide salary differences between Czech men and women (see the tables in the Appendix).
The preferential treatment of men as regards income is one of the basic gender differences on the labour market. In the Czech Republic, it is not possible to show, under the given level of the investigation of wage differentiation, to what extent the discrimination of women is to blame for the difference in average salaries and to what extent it may be explained by the different professional and sector structure of female and male labour forces. Most authors believe that discrimination is likely but that it is difficult to prove. Generally comparable criteria and evaluation indices, which are used worldwide, have not been introduced in the Czech Republic (e.g., methodical instruments to ensure the same wage for work of the same value).

The growth dynamic of average monthly salaries of men between 1984 – 1997 fell after 1989 by approximately 6 percentage points to the benefit of women but has retained 135% of average women’s wage. In 1997, we even recorded a percentage increase to 136.2%. The ratio of „women/men“ that year amounted to 73.4%.

The income structure is also differentiated by the factor of education and leads to a greater salary for women if examined from the point of view of average women’s wage. The salary of a female university graduate with a scientific education is 173% of the average women’s wage and 299% compared to the average wage of a woman with an incomplete elementary education. When compared to men’s salaries, however, all educational categories lose – women with vocational training, women without education, and surprisingly also female university graduates (who, on average, get 68% of the salary of male university graduates) lose relatively the most.

An important factor is the comparison of the weight of education in the differentiation of salaries of men and women. According to Večerník [Zpráva....1998:119], „the weight of education in the differentiation of salaries of men has increased while in the case of women it has fallen. While individual explanations function independently in the case of men and, therefore, can be multiplied by one another, women’s wages are defined more strongly by the individual factors. That means that in the case of women it is not possible to replace a handicap (e.g., as concerns age) with an advantage (e.g., education).“ It also means that there is a greater discrepancy between men with a higher education and women with a higher education because these women achieve the lowest average salary effect compared to lower educational categories. If this trend were to be confirmed, it would lead to paradoxical conclusions: if women achieve a university education, their discrimination (or gender inequality) is greater because men with comparable characteristics get not only higher, but the highest salaries.

IV.10. Whether distinctions may be made between public sector and business sector employment

There are no available documents. One of the reasons is that the corporate sector in the R&D area has been greatly destabilised by the disruption of „ministerial research“, which is also reflected in the problems with its monitoring in statistical indices.

19 Average wages are given in units of Czech currency, i.e., CZK. The exchange rate has been fluctuating around CZK 35 per USD (1999). If we compare the average gross monthly salaries for all employees, 81% of men and 76% of women contribute more than 1,700 paid hours.
IV.11. Whether women scientists’ domestic situation and the relationship of this to their employment status may be ascertained

This issue has not been the subject of any survey yet, even statistical. There are data from researches pertaining to men and women on the labour market, the position of a female university graduate in the Czech society, conducted in the Institute of Sociology of AV CR between 1991 and 2000 with representative sets. In view of the relative frequency of female workers in R&D with scientific qualifications in the Czech population, there are very small groups. Knowledge based only on data, which in view of the wider focus of the research do not meet the principle of statistically significant indices for a given set, cannot substitute for the absence of a specialised research on this issue.

V. Active networks

There is no active networking among female scientists. Representatives of the Ministry of Education of the Czech Republic (hereinafter „MŠMT ČR“), however, participated in the first meeting of the Helsinki group in November 1999 and initiated the creation of a National Steering Committee titled „Women and Science“, which was established on February 28, 2000. In this working group, consisting purely of women, are representatives of the MŠMT, Academy of Sciences of CR, Charles University, the Czech Statistics Office, representatives of the national contact centre for the 5th General Program and one representative of the private sector. This group has an official mandate from the MŠMT ČR.

The working group established contact with the following institutions and organisations, with the goal of agreeing on mutual co-operation:

1. the Czech FEMIRCEM, national contact centre for the 5th General Program
2. the Academy of Sciences of the Czech Republic
3. other universities in the CR
4. the Association of Research Organisations
5. the Czech Statistics Office
6. the Institute for Information and Education with the MŠMT
7. the Parliamentary Committee for the Position of Women

Nonetheless, it must be stated that the development of co-operation with these organisations is at the very beginning and rather a question of the future.

VI. The involvement of the private sector in promoting women in science

As far as gender is concerned in the private sector, R&D is a completely uncharted area. Moreover, we do not have any reliable statistical databases concerning this sector at all. Furthermore, Governmental Resolution No. 16 dated January 5, 2000 (see above) supporting activities aimed at equalising the conditions of men and women does not relate to the private sector.

Based on certain signals we can surmise that this area is becoming active in the area of technology. We can, however, expect that this involves R&D, which has traditionally been a male-dominated domain as a result of the current distribution of relevant qualifications among the female population in the CR.

VII. Tools established to assess the impact of those measures
The above-mentioned resources, statistical or research information, assume three forms. The first is related to data that are representative in relation to the Czech female population working in R&D and which may be used immediately for further study, including comparative analysis etc. The second concerns information based on partial, selected statistical surveys or results from surveys which may be used for more or less qualified estimates of the general situation in a given area and subsequently for other activities connected to the processing of other basic materials. The third may be considered as an inspiration. It may initiate certain activities enabling the filling in of the missing data. Mostly, this concerns information pertaining to available fundamental bases, which may be further analysed in view of using the above-mentioned specificities of the national language. Using this procedure, it is possible to obtain various data about the Czech female population in R&D, which is not available in the traditional files. In general, we can state that the lack of information pertaining to women is closely related to the absence of a tradition not only of statistical records created through the prism of gender issues but research activities focused on women in sciences.20

VIII. The most significant case studies (success or unsuccess stories)
There are none.

IX. The future perspectives at the national and EU levels

The current activities concerning the problems of women in R&D in the Czech Republic were stimulated, at first, by the efforts of governmental structures to implement legal standards and binding recommendations on which the accession of the CR to the EU is contingent. The necessity to evaluate this situation from the point of view of the EU and the expected growth of relative and absolute numbers of women in R&D will likely be very important for the further development of female employment in R&D.21 The number of women in R&D seems to have started growing. There is an expectation that this will lead to the growth of interest in the study of the conditions under which women work in R&D and potentially in solving the problems stimulated by some traditional inequalities in the position of men and women on the labour market (and therefore also in R&D). Our optimism is also due to the fact that there is now an expert scientific department dealing with gender issues as well as the fact that there are legal standards and governmental resolutions defining new rules in this area.

In the near future, we can also expect changes stimulated by the return of women who left to study abroad, and female post-doctoral interns in foreign laboratories. If they have obtained a positive experience with the protection of their rights and interests, this experience may have a very interesting impact on the development of the situation of women employed in R&D in the CR. At

20 In the former Czechoslovakia, only two sociologically oriented research projects focused on women in science were conducted. Both departments were located, however, in Slovakia. In the CR, no similar research was conducted and we still can feel the shortage. Logically, there is therefore no initiative concerning the option of expanding the knowledge pertaining to this issue.

21 This situation has been suggested in a response to a poll conducted in autumn 1999, announced by the deputy chairman of the government and the chairman of the Council for Research and Development P. Mertlík on the issue: „The three largest problems and three greatest opportunities for development“. Experts were called to supplement and expand the already obtained knowledge concerning the situation in Czech R&D and thus contribute to the formulation of a new scientific policy of the Czech government. A total of 124 people took part in the poll (each of them formulated their opinions about the three largest problems and three opportunities for development), out of which thus far only two reacted to the decreasing numbers of human resources in the Czech R&D, presenting the opinion that the greatest existing problem of Czech R&D is insufficient numbers of female researchers. In comparison to the dominant problems, such as a lack of financial evaluation of work in R&D and a small number of young scientists and middle-aged scientists in the R&D structures (consequence of a certain „brain-drain“), this is very minor support. If we, however, consider how many concurrent and complicated problems Czech R&D is facing at the end of the 20th century, even this result is an interesting indication of perceptiveness to the issue.
present, over four thousand Czech citizens study abroad, mostly in Western universities, and women constitute a slight majority. Some of them are motivated to develop an academic career.

The Czech Steering Committee for women in science considers ETAN analyses, conclusions and practical recommendations to be very useful and applicable for the execution of a national strategy for the improvement of the position of women in science and will use them in its own work. This is, however, contingent upon acquiring funds for a comprehensive research of the position of women in science and the enforcement of state monitoring of a number of gender segregated statistical indices in the form of a state order for the Czech Statistics Office. Undoubtedly, political will and a political decision are required for such an order. In this connection, the Czech Steering Committee would welcome the execution of binding recommendations for governments of the associated countries concerning some sort of „mandatory monitoring“ of certain indices pertaining to the situation of women in science. These indices should be carefully selected in view of the possibility of an international comparison. Such requirements pertaining to the selection and this order, however, exceed the option of a national committee.

The Czech party – especially the appointed potential initiator of a discussion on the role of women in science, i.e., gender scholars and gender-aware officers, play an irreplaceable role in the field of information and education concerning the role of women’s leadership in general and the role of women in science in particular. In our opinion, a support program for girls at the level of elementary and high-school education to develop interests in traditionally male professions and scientific areas seems to be a grave task, which must be systematically connected to the issue of women in science. The Czech Steering Committee would therefore welcome if the articulation of the necessity of these programs became part of a permanent program of the Helsinki group and pressure was also placed on the governments of the associated countries in this respect.

If we are to summarise the general situation, we estimate that within the spectrum of the ETAN recommendations it will be easiest in the Czech Republic to enforce steps that may be performed within „state feminism“ on a bureaucratic level, such as gender desegregated statistics, i.e., steps that do not require any greater public support. It will be much more difficult, however, to implement transparent practices in the field of selection of research projects and recruitment. We can expect resistance not only from old-boy clubs but also from women in influential positions of the scientific system.

The Czech Steering Committee will therefore follow two basic lines of action:

In the first, discovery of the widest possible range of steps that may be realised in a semi-directive, bureaucratic manner (as part of the educational system, science control bodies etc.).

In the second, searching for support as efficient as possible of gender education and enlightenment at universities and outside them, which seem to be an unconditional presupposition of mainstreaming (at present, there are practically no trained educators) and of professional work of media, which will make the adoption of European standards by Czech society easier, that is, it will minimise the danger of them being counterproductive. The gender education system must be related to research, enabling self-knowledge and reflection of the social context. In the field of gender research and gender education, the Czech Republic can’t do without the support of the European Union.

The Czech Steering Committee now co-operates with the newly established National Contact Centre – Women in Science, financed by the Ministry of Education, Youth and Sports with the framework of the EUPRO programme. The Centre provides institutional support to women in science, organises seminars and conferences and disseminates information received from the EU
and specifically from the Women in Science Unit. The Centre also seeks to help in the development of contacts between Czech women scientists and with the international scientific community. The National Contact Centre seeks to compensate for the shortage of special grants and programs for female students and mentoring programs for young women scientists, and aims to raise awareness of equal opportunities measures and gender mainstreaming in research. To support research institutions in finding women for leadership positions, panels and research projects, the Centre maintains a database of Czech female researchers.

Helsinki Group on women and science
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Czech national report by
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