

Fact Sheet 3: Safe Energy

Radiation protection: Equal rights for women and men? - Experiences from Germany □

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Radiation protection: Equal rights for women and men?

The perception of equal rights with regards to radiation protection is quite different. Some see it as equal job opportunities for women and men working in nuclear research and technology and others see it as equal protection from radiation for women and men.

Radiation protection in Germany

In 2001, Germany amended its Radiation Protection Regulation (Strahlenschutzverordnung) (1). Now, pregnant women are “allowed” to work within the radioactive control area – all in the spirit of equal rights. A working ban or working restrictions as a protection for the unborn child have been scrapped with the argument that these restrictions discriminate against women in these jobs. Pregnant women can be exposed to 1 mSv through their occupational work from the first mention of their pregnancy to its end. If the woman works for 1000 hours in a radioactive area, then the child will also be exposed to 1 mSv during this time. The exposure is equivalent to roughly 10 times the amount of the average background radiation.

A number of academic research has shown that the effects of low level radiation on a foetus can be terminal. After the accident in Chernobyl, Germany witnessed a highly significant correlation between the caesium exposure of pregnant women and prenatal mortality seven months later (2). A local connection between caesium soil exposure in Bavarian districts and the increase in still birth rates in 1987 was reported (3). In an area of Bavaria with a 0.5 mSv per year increased background radiation the infant mortality is significantly higher (15.7 %) than in the rest of Bavaria (4). As a consequence of the above ground nuclear tests, West Germany showed a marked increase in prenatal mortality around the year 1970 against an otherwise steady downwards trend. The deviation from the trend correlates with the calculated strontium concentration process in the pregnant women (5). The cancer rate in small children under five years of age near to nuclear power plants (0 – 5 km) is significantly high at 53 %. Leukemia rates are also significantly higher (6,7).

New insights into radiation protection

On the 19th of June 2007 in Berlin, Germany, the International Commission for Radiation Protection (ICRP) presented the new basic recommendations and the latest academic research results into radiation induced cancer and connections to radiation sensitivity.

The German Environment Minister, Sigmar Gabriel, demanded the rapid implementation of the new knowledge within the radiation protection law.

The focus lays on these aspects:

- Cancer development in nuclear plant workers
The effect of low exposure is double underestimated. Already, the life span working dose, that are within the current threshold limits, lead to increased cancer rates.
- Lung cancer through radioactive radon gas in houses
The radon induced lung cancer risk increases by roughly 8 % per 100 Bq/m³. An increase between 100 and 200 Bq/m³ shows additional cancer illnesses.
- Sensitivity to radiation
The radiation sensitivity depends on the age and sex. It is especially high for the unborn child. The sensitivity of women is about double as high as for men with regards to the relative risk. The same goes for all female organs.

Radiation is believed to be stronger than previously thought and can be dangerous even in low doses. Official radiation protectors have played down the significance of serious evidence in this direction. Especially the ICRP has been slow to adopt new

evidence and their recommendations are years behind current academic research.



The latest research clearly show that the current radiation protection is insufficient to protect the unborn child effectively. Even though the relative biological effectiveness has not been determined yet. Radiation-biological research focuses mainly on deformities that may occur during the organ formation weeks three to seven (8); mental retarding, which usually occurs during week 8 to 15 or in a weaker form during week 16 to 25 (9) and cancer in children, especially leukemia, that may occur during the entire pregnancy and is induced by low radiation doses (6,7). The higher sensitivity of women is a result of, among others, hormones and cell growth in certain tissue, for example in breasts or sex related oncogene.

The current radiation protection does not consider that women are relatively twice as much at risk than men. Instead, an “average” sensitivity is calculated and is equally applicable to men and women. Women are afforded less protection than men. Seeing that averaging the risk does not make sense from a scientific point of view, a sensible approach would be to differentiate within the calculation basis.

During the conference, the ICRP chairman, Lars Holm, saw a difficulty in respecting the higher radiation risk of women and unborn children within the current radiation protection. If women were subject to different threshold limits they would be discriminated against in their profession. The right to equal opportunity would be breached. The Umweltinstitut München (Environmental Institute Munich) has protested vehemently against this absurd interpretation of equal rights. Correctly interpreted equal rights can only mean equal risk – and this can only be achieved through better protection of women. They are discriminated against, if the variation in radiation sensitivity is not included in radiation protection.

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Sources:

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