REAL AND MYTHICAL CONSEQUENCES OF CHERNOBYL ACCIDENT

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1. Public Unacceptance of Nuclear Power as a consequence of Chernobyl Accident.

An accident on 26 April 1986 at Unit 4 of the Chernobyl NPP was a severest event in the history of the nuclear industry. After increase of the power level up to one hundred times above the nominal a core and reactor buildings have been destroyed, large amounts of fuel particles and fission products were dispersed in the atmosphere and many territories have been contaminated.

It was a shock for everybody, who has been involved in nuclear power programs. But nobody could expect that it was also the end romantic page in the nuclear story.

The scale of the detriment was a great, and it could be compared with other big technological man-made catastrophes. But immediately after an accident mass media and news agencies started to transmit an information with a great exaggerations of the consequences of the event.

In a report on the Seminar " The lessons of the Chernobyl " [1] in 1996

Dr. Abel Gonzalez from IAEA has reproduced the examples of such incorrect information. Particularly, in the mass media it was declared that consequences of the accident could be compared with a results of the second world war, the number of victims were more than hundred thousand people, more than 1 million of children have the serious health detriments. Such and other cases of the misconstruction have been called as myths.

The real consequences of Chernobyl disaster have been summed on the International Conference "One decade after Chernobyl" [2] in Vienna, in April 1996. More than 800 experts from 71 countries and 20 organizations together with two hundreds of the journalists discussed actual and future consequences of Chernobyl accident.

In opening remarks, Dr. Hans Blix, the Director General of the IAEA said:

« The nuclear accident at Chernobyl on 26 April 1986 had a heavy impact on life, health and the environment. It caused agony to people in Ukraine, Byelorus and Russia and anxiety far away from these countries. The economic losses and social dislocation were severe in a region already under strain...

Our reaction should be a demand for rigorous scientific analysis. The errors in technology, organization and management, which caused the accident, must be identified to prevent any repetition and the damages caused by the accident must be accurately assessed and diagnosed so that rational remedies may be applied...».

A very important result of the Chernobyl accident was a dissemination of stable unacceptance of the everything connected with "the atom". A mystic horror from invisible mortal radiation has been inspired in the masses.

And from such public attitude the Nuclear Power Programs in many countries have changed dramatically. A new more pragmatic and more careful atomic era started with a slogan: "Kernkraftwerk ? Nein, danke".

But in spite of discordance in the society the most experts are confident in advantages of nuclear technologies, that a nuclear power can compete with fossil one not only in the cost power production but also on levels of safety, effects on environments. Last ENS'98 has clearly shown the positive role of nuclear energy in solution of mankind energy problems in the future, in particular in the decreasing of global warming in particular. In declaration of Global Foundation, Inc. in 1997 it was announced :» Although technological innovation may eventually provide non-polluting alternatives, at present only nuclear power is a cost effective non-fossil source of electric power» .

But to ensure the approval of nuclear power in the society it needs to spread the dates about the safety of nuclear power, about safe disposal of radioactive wastes and particularly to disperse the myths of Chernobyl.

2. Unwarranted Countermeasures after an accident.

No doubt, a Chernobyl accident was a serious technical catastrophe in atomic industry. The scale of detriment is connected with a number of involved peoples, not with a number of real victims. In comparison with Bhopal case, earthquakes, crashes of the airplanes, floods, traffic accidents and other risky events of our life- the Chernobyl is not a most hazard ones. But... It is known that 116000 people were evacuated from the exclusion zone near Chernobyl immediately after an accident in 1986.

A great role in the dissemination of the negative image of safety of the nuclear power has played the unqualified and noneffective activities of the authorities during and after accident.

After acceptance a very low level contamination of the ground equals 1 Cu/km^2 (with dose rate practically as from cosmic radiation) for the intervention a unwarranted relocation of the huge masses of the population has been arranged. 210000 people were relocated from the «contaminated» zone in 1990-1994 . It has created very serious social problems. After a loss of habitual stile of the life, a lot of people have felt a discomfort, anxiety, unreasoning fear. Under press of life difficulties most of them have felt themselves diseased, some have became the patients with diagnosis «an after traumatic stress».

In the report of Chernobyl project and later on the Vienna Conference in 1996 it was confirmed, that there were significant psychological health disorders and various psychosomatic disorders attributable to mental distress.

Such psychological effects of the Chernobyl accident resulted from the lack of public information, the stress of relocation and the fear that any radiation exposures are damaging. Those affected people are believing that illnesses of all kinds are due to radiation. The spreading of such mistaken did influence on general public disapproval of Nuclear Power.

3. Real consequences for the health of concerned population.

Now, 13 year after an accident, it is possible to reassess the consequences of the event. In particular a comparison of mortality data for contaminated and uncontaminated areas can be compared.

From the 116000 people who were evacuated in 1986 fewer than 10 % had received doses of radiation more than 50 mSv that can be received during some years of living in the areas with high level of natural radioactive background.

It is known that roughly 200000 men participated during 1986-1987 in the «liquidation» of the consequences of the accident. They received average doses of the order of 100 mSv. Approximately 20000 men from them received ~250 mSv. If we use risk coefficient $5,6\ 10^{-2}$ 1/men.Sv as a probability to die after the irradiation of doses 1 Sv, number of dead in the groups equals 280 men.

A total of 237 occupationally exposed persons were hospitalized and suggested to be suffering from clinical radiation syndromes. Of these 28 died as a consequence of radiation injuries within first three months.14 additional patients have died over past ten years -in some cases are not directly attributable to radiation exposure.

One of the important conclusions that an increase in the incidence of thyroid tumour could be expected. The number of reported cases up to the end of 1995 is about 800 in children under 15 years old, more than half cases were in Byelorus .

The myths of the Chernobyl disaster can and has to be dispersed.

Literature

1. A. Gonsales (IAEA), International Seminar "The lessons of the Chernobyl" , Desnogorsk, Byelorus, 19 April 1996,
2. EC/IAEA/WHO International Conference "One Decade after Chernobyl", Vienna, Austria, 8-12 April 1996.