Agence internationale de l'énergie atomique

CIRCULAIRE D'INFORMATION

INF

INFCIRC/511
11 juin 1996

Distr. GENERALE

FRANÇAIS
Original : ANGLAIS et RUSSE

DOCUMENTS RELATIFS A L'ACCIDENT DE TCHERNOBYL PRESENTES PAR LE BELARUS

Les documents reproduits dans les appendices 1 à 4*/ ont été communiqués par le représentant permanent du Bélarus auprès de l'Agence internationale de l'énergie atomique, qui a demandé qu'ils soient distribués aux États Membres à la suite de la première Conférence internationale de la Commission européenne, du Bélarus, de la Fédération de Russie et de l'Ukraine sur les conséquences de l'accident de Tchernobyl, qui s'est tenue à Minsk, du 18 au 22 mars 1996.

*/ En anglais.

Declaration

of participants of the First International Conference of the European
Commission, Belarus, Russian Federation and Ukraine on the Radiological Consequences of the Chernobyl Accident

It has been 10 years since the accident at the Chernobyl NPP happend biggest technology-related accident of the 20th century which has affected vast territories and millions of people.

This accident has caused an alarm of the whole world community. The world-wide character of its aftermath has forced the world to have a new look on the problem of national and global safety.

The Chernobyl accident has become a national tragedy for Belarus, the Ukraine and Russia. The catastrophe has resulted in a large-scale contamination of the environment. It has caused social and psychological tensions and has become the most powerful destructive factor as for sustainable development of the affected regions.

Participants of the Conference express their concern about the worsening state of health of the affected people as a result of impact of a number of factors, including economic, psychological and social ones.

An obvious consequence of the Chernobyl accident is a significant increase in incidence of thyroid cancer in children and adolescents. Among the groups of increased risk are liquidators of 1986-1987, the evacuated population and children and adolescents living in the contaminated territories.

The consequences of the Chernobyl accident can not be eliminated in a few years. In one way or another, they will be experienced by many generations to come.

International bilateral and multilateral co-operation, mutual exchange of gained experience and information on alleviation of the consequences of the Chernobyl accident is of great significance.

Collaborative work of scientists from EU countries, Belarus, Russia and the
Ukraine under the quadripartite "Agreement for International Collaboration on the Consequences of the Chernobyl Accident" has been an integral part of the established interaction. The obtained results have made a considerable contribution to studies of radioecological, medical and biological, social and economic issues resulted from the large-scale contamination. An important step has been made towards setting up a system of nuclear and radiation safety of Europe.
There is no such a thing as a guarantee against an accidents like the Chernobyl one. The mankind must have in hand knowledge and expertise requied for minimizing negative effects of such accident, should they occur.

The participants of the Conference are convinced thet the attention to the post-Chernobyl situation should not be reduced. They urge to expand mutually beneficial scientific and technical collaboration in this area. Application of the collaboration results and analysis of the lessons learnt in mitigation of the accident will make it possible to make a considerable step forward increased radiation safety of the European countries.

The Conference concludes that in the near future efforts should be focused on the
following problems of priority

- rehabilitation of the contaminated territories;

- monitoring of health status and development of optimum methods for diagnosis, treatment and prevention of diseases for liquidators and other affected population groups;

- development of early diagnostics and therapeutic methods for thyroid and other cancers;

- development of a system to minimize social-psychological consequences of the accident;

- development of methods and computerized decision-making support systems to protect population in case of a radiation accident.

The experience of dealing with the nuclear disaster gained over the latest decade must belong to the whole mankind. Setting up reliable safeguards of radiation safety would benefit each inhabitant of the Earth.

From the CIS participants

Statement of the Ministries for
Emergency Situations of
Belarus, the Russian Federation
and Ukraine

**On the Post-Chernobyl Situation
in Belarus, Russian Federation and the Ukraine**

On April 26, 1986 the largest accident on the 4 unit of the Chernobyl NPP took place in the USSR. The accident of such a type was considered to be practically impossible and is referred to as beyond-design. As a result of the accident the reactor was destructed and during two weeks about 2 EBq of radionuclides were released in the environment. The fire in the reactor core led to dispersion of radioactive materials on vast territories of Belarus, Russia and Ukraine as well as some countries of Europe.

The composition of the radioactive releases included different radionuclides of iodine, caesium and strontium. This determined exposure of the population to short-lived radionuclides, first of all to isotopes of radioiodine and subsequent exposure due to long-lived radionuclides.

Neither the Soviet Union, nor other countries of the world were ready to eliminate the accident of such a magnitude.

Non-uniform character of the radionuclides release from the destroyed reactor, the complex path of the contaminated air, atmospheric precipitation during that period, difference in terrain-geochemical and microclimatic conditions on the territories, exposed to radioactive contamination, have resulted in formation of the extremely patchy contamination of the territory of Belarus, Ukraine and Russia with a various radionuclides ratio.

As of 01.01.95 the total area of these three states, contaminated by radiocaesium exceeding 37 kBq/m^2 (1 Ci/km^2) makes about 145 thousands km^2, on which more than 7 mln. of people lived.

At the initial stage of the accident isotopes with short and medium half-lives were prevailing in fall outs, of them belong to ^{131}I being of the highest radiobiological significance.

Given the sevirity of the accident, a lot of people were involved in its liquidation - primarily non-professionals (about 800 000 people). From April 27 to mid-August 1986 116 000 residents were evacuated, which has turned out to be a justified and effective counter-measure. From 1990 to 1995 due to the formed radiation conditions, and because of social-psychological factors and political conditions, 52 500 people in Ukraine, 106 500 people in Belarus, about 47 500 people in Russia were aditionally resettled.

Of the total number of the liquidators 237 people were taken to hospital under the assumption of overexposure. Of them 134 had diagnosis of acute radiation sindrom (ARS). 56 people got radiation burns, two of them, in addition had thermal skin injuries. 28 patients died soon as a result of the exposure, two others were lost due to initial explosions and fires. One died of prospective coronary thrombosis.

For the period from 1987 to 1990 five patients died and from 1992 to 01.03.96 nine more people died with the confirmed diagnosis ARS.

The health of other involved in elimination of the Chernobyl accident consequences was steadily worsening for 9 years after the accident. The proportion of healthy people decreased from 78% in 1988 to 20% in 1995.

The main contribution to these negative indicators was made by non-tumour pathology (disorders of the nervous, cardio-vascular, respiratory, digestive, urine and osteo-muscular systems). Higher levels of morbidity are detected in the liquidators, of 1986-1987 first of all.

A trend for the increase in cases of leukaemia, limphomas and thyroid cancers has been seen in the liquidators of 1986 only.

Total mortality in the cohort of liquidators of 1986-1987 does not exceed that of the reference group of the population.

Serious concern is caused by the significant growth of complete or partial disability rate among the liquidators of the Chernobyl accident, especially in the group of the 1986 liquidators.

According to the data of the specialized medical records of the evacuated population and population inhabiting the contaminated territories in comparison with the referent healthy indices decreased significantly. The share of healthy people among the evacuated decreased from 59% to 21%; among the population of the controlled territories from 52% to 24%; among the children born from the exposed parents from 81% up to 32%. A particular concern is children, born from the liquidators of 1986.

The significant growth of thyroid cancer morbidity is observed in children and adolescents of Belarus, Ukraine and Russia. Total number of those who became ill, aged at the time of the accident from 0 to 18 years, amounts to 1000 in three specified countries. The performed radiation-epidemiological studies show that the overwhelming number of the identified types of thyroid cancer is due to radiation effect of the Chernobyl catastrophe.

Results, received so far, have shown, that in all three countries the excess of morbidity of solid cancers and leukosis is not yet registered among the population, dwelling in the contaminated territories.

Any accidental factors, which can influence health indices of the population during the acute period were mainly including radiation exposure. They, however, were later added by effects associated with the accident. In this complicated situation reliable predictions and epidemiological survey it was impossible to make became especially important.

The information base of research relies on the existing system of registration of desease and the death causes as well as on specially created all-union and then national Registers of three countries. Besides in each of the three countries specialized epidemiological projects are being carried out with regard to the radiation induced diseases. It is important to note compatibility of information bases, in principle enabling one to analyze accumulated data of three countries to be analysed as a file.

The depth and the magnitude of social-psychological consequences of the Chernobyl accident were most graphic. The accident has transformed the mentality of the population on the three affected countries involved, has changed a system of social and cultural values, has affected life of large groups of people. The accident has caused high distress, psychological discomfort and had other implications with particular features in various groups. Stress tends to be transformed into psycho-somatic illnesses, which will determine a further decrease in life quality and a health state, including that in generations to come.

About 4300 km^2 of the most contaminated areas in the Ukraine, Belarus and Russia is separated as an alienation zone. Acute radiobiological effects occurred in a close vicinity of the wrecked reactor. They resulted in death of woods on the area of 30 km^2 and in varying radiation damage to plants and animals as well as in degradation of biocenosis. A permanent danger of contaminating rivers Dnieper and Pripyat to levels above sanitary norms is posed by the presence of highly contaminated sites including more than 800 radioactive waste repositories, the "Shelter" installation, pool-cooler etc. in the alienation zone. That demands measures to rectify a radioecological situation.

One of the consequences of the accidents determining its catastrophic character is contamination of extensive agricaltural lands with long-lived radionuclides. In Belarus, Russia and Ukraine the arable lands with the ^{137}Cs contamination density of more than 37 KBq/m^2 make 94 000 km^2. The environmental conditions of the contaminated areas have led to intense incorporation of the radionuclides in the biological chains. The major radiation factor on the contaminated areas is internal exposure associated with consumption of local foodstuffs.

In the three countries countermeasures have been carried out on extensive areas which has allowed contamination of the produce to be reduced by a factor of 2-5.

Though the concentration of radiocesium in produce on the contaminated areas in most cases does not exceed the levels recommended as threshould by WHO and FAO it is still 1 to 2 orders of magnitude higher that on the other territories of CIS and Europe.

Particularly high concentrations of Cs-137 (up to 100 Kbq/kg and more) are observed in mushrooms and berries which have been traditionally consumed by the local population.

Concern is caused by production of food on private farms where milk contaminaton is as high or even higher the standards in 10-20% cases. Solution of these problems calls for long-term works on rehabilitation of the areas.

In the countries of Europe (Sweden, UK and others) where the environmental conditions are similar to those in Polesye high contamination of mushrooms and berries, meat of wild animals and lake fish has been reported.

The accident has led to huge losses in economy.

Direct losses alone including the costs of basic and working assets, facilities of social infrastructure , dwellings and natural resourses taken out of use have added up to dosens of billions of US dollars.

Indirect losses, lost profits and costs related to elimination of the consequences were also very significant.

The Chernobyl disaster had a major destuctive effect on development of the affected areas and caused growth in socio-psycological tensions.

The accident has revealed imperfections in provision of nuclear and radiation safety. In the Soviet Union there was no comprehensive legislation on nuclear power and the organizations running nuclear facilities were not independent of the authorities involved in regulating nuclear and radiation safety and inspection of nuclear facilities operation .

Many conclusions have been drawn : in the affected CIS countries special authorities responsible for control of nuclear and radiation safety and inspection of nuclear facilities operation have been set up which are independent of the organizations running these facilities. A variety of measures have been implemented to improve the stucture of nuclear plants, enhance nuclear, radiation and fire safety. This has made it possible to increase the reliability and safety of nuclear facilities in general .

At present there are a number of complicated problems calling for long-term efforts.

A problem of medical care for the liquidators and exposed population will not lose its actuality in many years to come. In the first instance one should distinguish effects related to the damage to thyroid gland.

Radiation and hygienic conditions in many regions of Belarus, Russia and the Ukraine demand measures aimed at radiation medical and social protection for the population and rehabilitation of territories to be continued.

It is necessary to keep on scientific research programmes in key areas that are important for overcoming the consequences of the Chernobyl accident and hereafter setting up a radiation safety system in Europe. The natural decontamination of the contaminated territories proceeds slowly with speed close to or considerably smaller than that of caesium -137 radioactive decay. Radiation conditions formed in 10 years after the accident will be preserved long time. It set forth a necessity of long-term radioecological and radiation-hygienic monitoring health of the population and environment.

The implementation of counter-measures in agriculture is still needed on a significant part of the contaminated territories. Under the current economic situation a decrease in scales of work on agricultural regions' rehabilitation is observed in CIS countries. That has been already displayed in a tendency of increasing food products contamination and more intensive use of contaminated products of half-natural ecosystems.

Statement of the Ministries of Health
of Belarus, Russia and Ukraine

One of the most serious radiation accidents in the history of the nuclear industry occurred on 26 April 1986 at the Chernobyl NPP. Almost five million people were living in areas where the radionuclide contamination exceeded 37 kBq/m^2, and 278 000 were living in areas where it exceeded 555 kBq/m^2. About 800 000 people (liquidators) took part in emergency and recovery operations in the accident zone.

Among the medical consequences of the Chernobyl accident, the greatest concern is aroused by the steady growth in the incidence of thyroid cancer among children living in the monitored areas of Belarus, Russia and Ukraine.

Analysis of the data accumulated in the three Republics points to unfavourable trends as regards various classes of diseases in the populations living in contaminated areas and among the liquidators.

The incidence of haemoblastosis, which has a close etiological connection with radiation, has remained virtually unchanged since the accident.

The accident cost the lives and damaged the health of Chernobyl NPP workers and created a potential threat to the health of many other people - for example, those who participated in recovery operations after the accident and people living in areas contaminated by radionuclides. Besides all the consequences due to radiation, these people have also suffered from stress and shock, which has had a negative impact on their physical and psychological state of health.

Many countries and international organizations (the EEC, the UN, WHO, the IAEA, UNESCO, the International Red Cross and Red Crescent Movement, the Council of Europe, etc.) have helped Belarus, Russia and Ukraine to mitigate the consequences of the Chernobyl accident.

Minimizing the medical consequences of the Chernobyl accident is an extremely complex, long-term task. It would help if there were a further expansion of activities under national programmes directed towards international collaboration within the framework of EC projects.

It is necessary to further intensify the co-operation of the EC and Belarus, Russia, Ukraine and other interested countries in assessing and minimizing the medical consequences of the Chernobyl accident on the basis of a uniform scientific methodology.

The most promising lines of future work are:

1. Further careful monitoring of the health of the unprecedentedly large number of people who have been exposed to low radiation doses;

2. Expansion and intensification of the epidemiological studies of thyroid cancer (especially in children) and other neoplasms and of genetic disorders - diagnosis, treatment and rehabilitation;

3. Epidemiological cohort and case-control studies of the 1986-87 liquidators in order to determine the incidence of leukaemia and solid malignant tumours;

4. Analysis of morbidity, mortality and invalidity associated with somatic, nervous and psychological diseases in the exposed population and among the liquidators - isolation of the influence of non-radiation factors;

5. Development of biological dosimetry methods, including retrospective dose assessment.

It is extremely important to investigate the molecular, cellular and biological characteristics of radiation-induced thyroid cancer.

Concluding address of I.A. Kenik, Belarus Minister for Emergency Situations and for Protection of the Population from the Consequences of the Chernobyl Accident

Distinguished participants, ladies and gentlemen,

We are today completing the work undertaken by us jointly within the framework of the First International Conference of the European Union, Belarus, the Russian Federation and Ukraine on the Consequences of the Chernobyl Accident.

During the past five days, at plenary and topical sessions, important and interesting scientific reports have been presented, there have been fruitful and constructive discussions, exhibitions have been organized and press conferences have been held.

The importance of this conference cannot be overemphasized. It touched on the most diverse aspects of the problems associated with the Chernobyl accident.

I believe that the main achievement of this conference was a thorough and objective analysis of the situation which has undoubtedly been useful for Western countries and will be useful to the affected Republics as they formulate scientifically well-founded proposals for further minimizing the consequences of the accident.

During this conference, every participant had the opportunity of holding additional meetings and discussions with colleagues from Belarus, Russia and Ukraine, and the intensification of contacts at the personal level is a good stimulus of fruitful international scientific collaboration.

The strengthening of mutual understanding among States in many respects depends not only on the results of the interaction of politicians with politicians but also on those of meetings of politicians with scientists and the representatives of public societies and social movements and on contacts with ordinary citizens. Thus, the significance of our common endeavours here goes beyond the bounds of scientific collaboration. These endeavours are especially important in the context of strengthening the co-operation of our three countries - Belarus, Russia and Ukraine - on one hand with European international institutions on the other, and particularly with the European Union and the Council of Europe.

One of the serious problems caused by the Chernobyl accident is "Chernobyl stress" - a complex psychological phenomenon giving rise to psychological tensions in society. The holding of a conference like this one, however, has a positive effect in reducing such tensions.

I believe that the extensive discussions of medical problems which took place during this conference served not only the interests of scientific truth. It is to be hoped that they will lead to the formulation of specific recommendations whose implementation will result in timely and effective medical assistance designed to safeguard and improve the health of those who were involved in the Chernobyl accident.

In my view, the results of this conference - its final documents - constitute above all official recognition by the international scientific community of the true scale of the Chernobyl accident.

In addition, the final documents adopted by the conference point to the future and offer a firm basis for the development of international "Chernobyl" co-operation.

I am confident that the agreed position of the scientists of Belarus, Russia, Ukraine and the European Commission which was expressed during this conference will be duly noted by the international scientific community. The results of this conference and the opinion of those participating in it should, I believe, be taken into account at the international conference "One decade after Chernobyl: Summing up the consequences of the accident" which is to take place in Vienna from 8 to 12 April.

History would have it that the world associates the Republic of Belarus, a newly independent State, with the word "Chernobyl". It is a tragedy for Belarus, Russia and Ukraine. We feel the concern that the subject of this conference is arousing in the international community. It manifests itself in extensive international co-operation with prominent organizations like the European Union, the United Nations and various of its agencies, the International Federation of Red Cross and Red Crescent Societies and a number of other organizations represented at this conference. At the same time, I would emphasize once more that for Belarus, Russia and Ukraine "Chernobyl" is not just a subject for scientific research - it is a reality in which millions of our people are living and working. That is why we are so interested in the consequences of a radiation accident on such a scale being reliably assessed and predicted. That is why we welcome the efforts of the international scientific community and are grateful to all of you who have participated in this conference.

I hope that, with the help of the European Commission, our collaboration in dealing with the most acute and most alarming problems resulting from the Chernobyl accident will continue. I hope that we shall all participate in the second such conference.

I should like to thank the European Parliament and all the other international bodies for their active participation in the work of this conference. I should also like to express my sincere gratitude to the immediate conference organizers Mr. Jaak Sinnaeve and Ms. Anna Karaoglou and through them to the entire European Commission. In addition, a heartfelt "thank you" should go to my fellow Ministers Sergei Kuzhugetovich Shoigu of Russia and Vladimir Ivanovich Kholosha of Ukraine.

To all of you I wish good health and further scientific successes. Also, I wish you the most important things that scientists can expect from their work - the joy of discovery and the gratitude of those in need of their findings.

Once more - thank you. We shall always be pleased to see you again in our hospitable country.