Memo : Meeting at the World Health Organisation, July 18, 2002

WHO : Dr. David Nabarro, Executive Director, and two staff of the Dept. of Protection of Human Environment, Dr. Richard Helmer Director and Dr. Michaël Repacholi, just back from Belarus.

PSR/IPPNW Switzerland and WILPF : PD Dr. Jean-Luc Riond, President IPPNW (Engaged in the prevention of nuclear war, and of nuclear accidents like Chernobyl), Prof. Michel Fernex, Board member of PSR, the Swiss affiliate of IPPNW (15 years active in WHO Scientific Working Groups (SWG) of Tropical Diseases Research, T.D.R.; former member of the Steering Committee for Malaria, and later for Filariasis), and Ms. Solange Fernex, President of WILPF France (Women International for Peace and Freedom : engaged since half a century in the prevention of nuclear risks).

It became clear that WHO would have welcomed the participation of a representative of CONTRATOM at this meeting. PSR/IPPNW Switzerland and WILPF are supporting the same demands as CONTRATOM, regarding transparency and independence for medical research in the field of ionizing radiation, especially following Chernobyl.

The demand to amend the Agreement between the WHO and the IAEA (Res. WHA. 12.40), as a step to achieve independence in research and publication, is supported by WILPF, IPPNW, CONTRATOM, and many other NGO's. All these NGO's act also to obtain the liberation of Prof. Yuri Bandazhevsky, prisoner of conscience in Belarus. In close collaboration in this field, they will continue their fight in favour of Bandazhevsky and other physicians, prisoners of conscience in Belarus.

NGO's consider that after Chernobyl, the WHO teams should have visited the Medical Faculty established in the region with the highest radiocontamination with Caesium, Strontium, Uranium and Plutonium. The Medical State Institute of Gomel was created and directed by Prof. Yuri Bandazhevsky. The medical research team of Prof. Bandazhevsky completed over 20 theses on the dysfunction of organs or systems as a consequence of the chronic accumulation of ^{137}Cs in the given organs : pancreas, endocrine glands, thymus, heart or placenta. We have the impression that the WHO delegations had no permission to visit this Medical Faculty, working under the Health Ministry of Belarus.

Dr. Nabarro does not think that the WHO was actually absent in the field in Chernobyl until 1992, and the Legal Department of the organisation does not consider that the Agreement (WHA 12.40) is an obstacle for independence and transparency.

PSR/IPPNW is prepared to discuss this issue. Of course, we are aware of the work undertaken by the WHO Regional Office, essentially through the Helsinki Project Office for Nuclear Emergencies and Public Health, with the remarkable findings of the team of Dr. Keith Baverstock in the early nineties, confirming the epidemic of thyroid cancers in children. Unfortunately, this stochastic effect following Chernobyl was only "accepted" 5 years later by the IAEA and the UNSCEAR, this delay having negative consequences for the therapeutic help to the patients. We also very much appreciate the "Guidelines for Iodine Prophylaxis following Nuclear Accident" (WHO, 1999).

However, the 700 participants at the WHO Conference of November 1995, organized by Dr. Hiroshi Nakajima, received an information sheet (1), indicating that the plans for the IPHECA

project were finalized by the IAEA in May 1991. The author of this project was not the WHO but the IAEA, possibly due to Article I point 3 of the Agreement with the IAEA,which says :
"*Whenever either organisation proposes to initiate a programme or activity in which the other organisation has or may have a substantial interest, the first party shall consult the other with a view to adjusting the matter by mutual agreement".*

IPPNW, WILPF and other NGOs are asking since years to amend and shorten this sentence in the following way : "... *the first party shall inform the other.* " (full stop)

Other modifications of the Agreement were proposed in a letter to the Ministers of Health of all WHO member states present at the WHA 2001 and 2002 (See attachment 2 : letter signed by Prof. Abraham Behar former President of IPPNW France and President of IPPNW Europe, P.D. Dr. Riond, and Prof. Fernex, and the document distributed in 2001). We consider that the wording of the Agreement may explain e.g. why the genetic consequences were not included in the IPHECA research project of May 1991, whereas dental caries in children had to be studied by the WHO.

Dr. Repacholi informed us on his recent trip to Belarus. The demonstration that breast cancer is also linked to radiation in the Chernobyl context is alarming. A lot of basic research is still progressing. The 2 million US$ provided by Japan are spent in Gomel, and should provide further knowledge on thyroid cancer (carcinogenesis).

When trying to discuss the liberation of Prof. Bandazhevsky, Dr. Repacholi was met with a frosty response, as the personalities he met in Minsk were precisely those mentioned in the critical report of Bandazhevsky (Attachment 3). Amnesty International considers that this report on the work performed in 1998, with a grant of 17 billion BY roubles, provided mainly by WHO, IAEA, OCHA, UK and Germany, by the Clinical Research Institute of Radiation Medicine and Endocrinology (including non-independent scientists), was the actual reason for the sudden imprisonnment of Bandazhevsky, soon after he delivered his report, ordered by the Government.

We would like to know whether the WHO agrees or not with the scientific critics of Bandazhevsky on the work done in the above-mentioned Institute, with tax-payers money.

Dr. Nabarro asked us what we would suggest as projects for the most affected part of the population : the children.

A classical approach for the WHO is to convene Scientific Working Groups (SWG) on most relevant pathologies expected in a region. We may therefore make following suggestions :

1. One SWG could be a counterpart of the 1956 meeting on "Effets génétiques des radiations chez l'homme". (Rapport d'un groupe d'étude réuni par l'OMS, published in Geneva, 1957). Instead of H.J. Muller, Nobel prize holder for genetics, A.J. Jeffreys, professor for Genetics could be asked to select the best specialists in this field. In fact, papers by Dubrova could only be published in NATURE, due to the fact that Jeffreys was co-author. The methods discovered by Jeffreys were also used in Chernobyl by the Swedish team of Ellegren et al., and others in Israel for families of liquidators.

Other approaches by the group of Prof. Rose Goncharova in Minsk, should be considered : the continuous increase in the chromosomic alterations in rodents, living in more or less caesium-contaminated regions between Chernobyl and Minsk, after over 20 generations, is striking. In the mean time, the radiological contamination in the environment was progressively decreasing. The

reduction of the chemical pollution in Belarus is also marked, since Chernobyl, as the industrial activities diminished, and the use of pesticides in agriculture is reduced or stopped, due to the deteriorating economical situation. Studies in fishes by this group are important, as except for the presence of a little over 1 Ci/km2 of ^{137}Cs in the mud, there was no chemical nor any other source of pollution in the water of the ponds, where carps are still being studied by this team.

The WHO published in 1996 a Technical Report on "Control of Hereditary Diseases". There, the lack of genetic effects of radiation on the genome after Hiroshima and Nagasaki was again stated, but Chernobyl has to be considered as a fundamentally different problem as the atomic bomb. Facts seem to confirm this difference in all fields of pathology : there is a major difference between the biological effects of an enormous irradiation lasting for a few seconds, and a very chronic low-level irradiation of cells, from inside of the corresponding tissue, e.g. : an endocrine gland or a gonad. This irradiation persists for years.

Geneticists must study actual data, after 10 to 17 year chronic internal irradiation, 10% of the radiation from this isotope being beta rays, more harmful than gamma rays, because they act locally. Scientists must find new ways to calculate the risk per units of dose over years. Calculations based on a homogeneous distribution of Caesium in the orgaism, and only on its activity as a gamma emitter, is wrong. Caesium may concentrate 100 times more in one specific tissue (pancreas, thymus, endocrine glands, heart) than in others (bone, fat tissue, liver).

2. Another SWG could focus on the effect of ^{137}Cs incorporation on the cardiovascular system. There Prof. Bandazhevsky, a pathologist, would be a key figure. Dr. Galina Bandazhevskaya, cardiologist and paediatrician could also make contributions. In areas contaminated by 5 to 15 Ci of ^{137}Cs/km2, up to 80% of the children suffer from cardiac symptoms. The disease is due to degenerative changes of the myocardium (The caesium cardiomyopathy was also observed in rats receiving caesium, with the same degenerative changes in the cardiomyocytes of rats, as those found in caesium-contaminated children with sudden death).

As the caesium cardiomyopathy is reversible for a rather long time, it appears urgent that these most common diseases are studied, prevented or treated with the contribution of the WHO. Vascular diseases, especially hypertension in children, also increase significantly with increasing contamination by caesium, complications are cerebral or myocardial infarction.

3. Radiocaesium and reproduction would be an essential subject for a third SWG. The caesium accumulation in the endocrine glands, the gonads and the placenta may explain spontaneous abortion, fragility of newborns, and the increase of congenital malformations, as well as sterility. (The papers of Y. Bandazhevsky and those of G. Lazjuk. unfortunately were not published in Western journals).

During the IAEA Conference in Vienna (1996), because he was sitting in the audience wearing a yellow tag (with no speaking rights), instead of the official red tag, Prof. Laziuk was not allowed to protest when the official rapporteur said (if Michel Fernex remembers correctly the wording) : "The proof that there is no increase of malformations after Chernobyl, is the absence of a register".

First, this is not a scientific proof, and, on the contrary, Belarus was the only country around Chernobyl with a well functioning national register installed 5 years before Chernobyl. It is worrying that experts from Western countries (financed by the French Commissariat à l'Energie Atomique, CEA) are now "improving" and "correcting" the Belarus Register. The NGO's consider that the sources of financing for "experts" should be examined. If a particular lobby, the

tobacco or the nuclear lobby, finances research in the corresponding field, the risks for biased findings are increasing.

4. Chernobyl and the immune system would be a further subject for a SWG. Again, one should concentrate on findings in children. The IAEA specialists claim that stress and vodka are far more important than radiation. This assertion is less convincing for diseases of children. At school in contaminated areas, children receive 2 to 3 meals of "clean" food daily. The follow-up of immunological parameters were started in children immediately after the explosion e.g. by Prof. Titov. in children, and by Prof. Goncharova in wild rodents.

The clinical long-term consequences are allergies, increased incidence ofasthma bronchiale, food allergy, and auto-immune diseases. The epidemic of Hashimoto's thyroiditis correlates statistically with the caesium contamination of the soil. Even more dramatic is the increase of the incidence of diabetes mellitus type 1. Diabetes occurs at an earlier age than before : in 1996, it started already in some cases below the age of four; in 2000, it may now occur already in infants of 6 to 10 months of age. This disease, due to an autoimmune ilotitis is not increasing "because doctors are looking for it", as representatives of the lobby usually say : as a rule, children are comatous when entering into the hospital for the first time.

It would be essential to recognise early signs of ilotitis. Bandazhevskaya found a tendency towards hypoglycaemia in highly radio-contaminated children. This could reflect early alterations of beta cells. Prevention of diabetes before the complete destruction of the Langerhans islets would be an important subject to be studied with the WHO.

5. The neuropsychic damages, especially due to the uptake of different uranium or plutonium isotopes by liquidators, may be a subject for a SWG. The Minister of Health of Ukraine stated in Geneva, November 1995, that 10% of the liquidators of his country were already invalid. At the WHO congress of Kiev in June 2001, it appeared in most of the republics of the former Soviet Union, that the proportion of invalids among the liquidators was over 30% !

The deterioration of the neurological status of liquidators is dramatic since 1998, and may lead to the early death of these young and healthy adults, which were aged 33-34 years when mobilized to clean the Chernobyl area. Using different methods, neurologists describe the topography of the lesions, predominantly localized in the left hemisphere, leading to the dramatic deterioration of the mental status of these subjects (they were 600.000, according to data presented in 1995).
Prof. Pierre Flor-Henry from the University of Alberta in Edmonton, finds a destruction of neurones selectively in the left hemisphere of such patients. Children irradiated in utero also seem to have brain damages predominantly in the left hemisphere. Flor-Henry who studied the neuro-psychic findings in veterans of the Gulf war, found lesions similar to those of liquidators. E.g. : the so called "chronic fatigue syndrome" is occurring in both groups.

It may be too late to help the victims of the dust contaminated with heavy atoms releasing alpha radiation around Chernobyl. However, for the WHO a study of the effect of particles or heavy atoms chronically producing alpha particles in surrounding tissues, may be relevant : a preventive measure could be the decision to use no more uranium 238 in ammunitions, tanks and planes.

6. Other subjects :

A. The role of a cancer register in case of environmental catastrophes, using Chernobyl as an example, could be taken up by a SWG. After Chernobyl, most of the cancers are still in a latency

stage. Studying one or two types of cancers may mask the real problem. Brain tumors in children exposed to radiation were an important subject some years ago, in the Ukraine and in Minsk.

IPPNW regrets that the Cancer Register of Belarus was dismantled, soon after the Vienna Conference of 1996. Researchers, very close to the IAEA, took over the management of the most important part. Many persons think that Okeanov was not dismissed because he spoke too clearly during the Geneva Conference in November 1995, but because he answered questions, after the official presentation at the IAEA meeting, in Vienna 1996, saying the contrary of what the official rapporteur just had stated (absence of any cancer except that of the thyroid, in children exclusively).

Prof. Okeanov lost the direction of his former institute (with accusations similar of those which were used to imprison Prof. Bandazhevsky), and was put aside for some years, the register being dismantled into three pieces.

As he has recently been rehabilitated, some observers think that it would be possible to restore the National Cancer Register. However, Okeanov may still be very fragile. One of his own collaborators, politically much stronger than him, being very close or very supportive of the IAEA policy, is in charge of an important part of the Register since 1996.

B. The consequences of Chernobyl on gastrointestinal functions seem to be important, although we did not collect many documents on this subject. There the stress as a component will be difficult to separate from the radiotoxic effect of caesium. The kidney, the liver and other organs should be studied, as well as wound healing. The difficulty would be to find a correlation with the accumulation of caesium, as most of the hospitals have no anthropogammameters. Where no valid data are available for epidemiologists, experimental work seems to be indicated.

7. All findings by Bandazhevsky's team on radiocaesium incorporation have to be confirmed, e.g. studied again, and his experimental work must be repeated. This would require an international coordination. A SWG could set up such a project.

In hundreds of autopsies of adults, children and foetuses, Bandazhevsky studied the comparative distribution of this radionuclide. The distribution of 137Cs depends on the species (human, animals), but also on age, activity, sex etc.. Under Bandazhevsky's direction, members of the Institute of Medicine of Gomel studied metabolic changes produced by radiocaesium in rodents (and human). Bandazhevsky published findings on different endocrine and haematological disorders induced by radiocaesium, comparing animals and human living in more or less contaminated areas, the similarity between experimetal and clinical findings being impressive.

Congenital defects depending on the ^{137}Cs accumulation in the placenta of Hamster are similar to those observed in foetuses or children of Caesium-contaminated mothers. The ^{137}Cs concentration in the placenta appears to be the most important parameter for the correlation with malformations in human. All experimental work has to be repeated in several species, and in different laboratories. Again the WHO could play a key role in the coordination.

The correlation is often based on the ^{137}Cs contamination of the soil, or on the emission of gamma rays measured in human or animal. Bandazhevsky has shown that these measurements are not sufficient, as ^{137}Cs concentration varies in given organs: The highest values were found in the pancreas, adrenals, thyroid and thymus in infants, the Caesium load being 100 time higher than in bone or fatty tissue, 50 times higher than in the liver. Dosimetry based on speculations, mean values and and mathematics, should be replaced by precise and direct radiametric measurements.

Experimental work could help to design preventive or therapeutic measures for the exposed population. Bandazhevsky already showed that natural apple pectin was able to reduce the uptake of radiocaesium in rats (the same was found with strontium), and to prevent the cardiomyopathy in animal, (and also in children as preliminary findings of Bandazhevskaya tend to show).

Pectin accelerates the elimination of caesium from the organism. The mechanisms still are not well studied. Other absorbents could be tested. Simple pectin extracts from apples, with a purity of 12 to 16% are cheap and capable of mobilizing caesium from the organism of children. it was widely used to protect children in contaminated regions in the Ukraine and recently also in Belarus (see attachment 4 : manuscript of Nesterenko et al.).

Dr. Nabarro asked us if we would be in favour of the publication of the proceedings of the WHO Conference of 1995.

The Proceedings, which were to be payed for by the participants, would have been a bestseller in March 1996, the date foreseen and promised by the organizers of the WHO Conference of 1995. In 2002 or 2003. This publication would hold some historical interest, but would no more bring scientific revelations as over 70% of the papers were published elsewhere. Controversies expressed in the discussions would be interesting.

The full presentation of Prof. Okeanov in 1995, may still be important. The presentation of the Minister of Health of Ukraine has not been published, where he indicated that already 10% of the liquidators were invalid (now one third of them are invalid, which is a problem for all former republics of the Soviet Union), and that diabetes mellitus was sharply increasing in his country (not due to excessive food intake, the population becoming rapidly poorer). The speech of Claude Haegy, from the Government of Geneva was also very stimulating.

Other papers would be worthwhile being published, but the number of readers would be 100 time smaller than for the full proceedings published in in March 1996. In the meantime, the knowledge increasedDiscussions would have been interesting. Remarks such as that of Prof. Yarmonenko, saying : “Should in a congress any paper mention effects of low-level radiation, the organizers should immediately exclude the author !" We know now that the genome can be altered by very low-level radiation, and that these changes may persist over generations. This cannot however justify the efforts and cost of publishing the full proceedings of the 1995 WHO Conference, after a delay of seven years.

Dr. Nabarro stated very clearly that he wishes that scientists remain independent in all WHO projects. He demands objectivity and transparency and refuses interference from outside, even from the IAEA. The offer to further allowing us to communicate by telephone or e-mail, was also a very constructive conclusion expressed by Dr. Nabarro.

We are very thankful for the commitment and the concern expressed for the affected population, especially for the children of the Chernobyl area. A message of the Secretary General of the UN, Kofi Annan, states that 9 millions of adults, i.e. two millions of children, suffer from the consequences of Chernobyl, and the tragedy is only beginning. "The legacy of Chernobyl will be with us and our descendants for generations to come".

Michel Fernex - Professeur émérite, Faculté de Médecine de Bâle,
ex-membre de Comités Directeurs de TDR
(Programme spécial de Recherche pour les Maladies Tropicales), OMS.