RESOLUTION
of the International Conference
"HEALTH CONSEQUENCES OF THE CHORNOBYL CATASTROPHE. THE STRATEGY OF RECOVERY"
(May 29th–June 3rd 2006, Kiev, Ukraine)

INTRODUCTION

It is twenty years that have passed since the greatest tragedy of the 20th century – the Chernobyl catastrophe occurred. Three most affected countries – Republic of Belarus, Russian Federation and Ukraine – remain experiencing burden of unexampled socio-economic, medico-biological and ecological consequences. All these years the governments of the affected countries were forced to take urgent measures to overcome the humanitarian effects of the catastrophe, such as allocating a significant part of their budgets to the problem despite major economic hardships.

Twenty years after the Chornobyl accident, which happened in the 20th century but the effects of which continue already in the 21st century, there is a great need for a new strategy of long-term actions directed towards the improvement of the lives of the people continuing to live at risk as well as further study of the effects of chronic exposure to radiation on the health of the people and their environment
The bitter experience of the Republic of Belarus, the Russian Federation, and Ukraine, as well as other countries, that suffered after the catastrophe, has revealed many painful common to all mankind problems:

- disruptive effects of nuclear disasters on human lives and ecology;
- lack of objective and timely information, necessary for making and articulating decisions in urgent situations;
- imbalance between technical opportunities and the spiritual development of the humankind, its understanding of the risks involved in the aggressive pursuit of new technologies as it relates to the environment.

The UN report "**Human Consequences of the Chernobyl Nuclear Accident. A Strategy for Recovery**", delivered during the 58th UN Assembly in 2002, showed the true scope of the tragedy and defined the principles of resolving the effects of Chornobyl disaster for the next 10 years. The new UN strategy stated that the ecological consequences of the Chornobyl catastrophe cannot be separated from the social, economic and institutional aspects of the problem. The world community should be interested not only in the safety of the sarcophagus over the 4th reactor of the Chernobyl NPP, but also in understanding the aftermath of long-term effects of radionuclides and other pollutants on the living human organism and the strategy of rehabilitation. It should be concerned with the assessment of the effects of the disaster as a global problem.

During this 20th anniversary of Chornobyl catastrophe, it is important to remember and adequately assess the significant contribution of the entire world community, and especially the experience of certain humanitarian, citizens' international and national organizations in the relief provided for the affected populations, especially for children. For such people Chornobyl is not only the pain of the past, but also the problem of present day, and a challenge for the future.

Without a doubt, the conferences dedicated to the 20th anniversary of Chornobyl accident offered an important contribution to the objective assessment of the period after the disaster. The IAEA forum in September of 2005 in Vienna initiated the discussion urging the revision of the scale of medical and socio-psychological effects of Chornobyl disaster. The conclusions of this Forum raised great many questions regarding minimization of the negative effects of nuclear disaster on health of people and prognosis for the future. The world community stated that conclusions of the Vienna Forum were completely at odds with the understanding of the problem offered by experts from the former USSR, as well as the rest of the world. Such opinion was voiced at the international conferences in Berlin, Bonn, Kyiv, Moscow and other forums, organized in April of 2006. In the following period international organization Greenpeace composed an alternative report about the Chornobyl catastrophe, based on the reports of the scientists and specialists from the affected countries of the former USSR and other states, which depicts a different point of view regarding scale of the effects of disaster on health of irradiated population. Data contained in this alternative report are in accord with the conclusions of other conferences held in the world on the eve of the 20th anniversary of Chornobyl catastrophe.

Present conference was initiated by the international association "Physicians of Chornobyl" with the support of Ministry of Health of Ukraine in accordance with the new strategy of the United Nations about Chornobyl. Organization of the conference was necessary to assess the conclusions of IAEA Forum. The following famous international organizations took part in the organization of the conference:

World Physicians for Social Responsibility and Prevention of Nuclear War;
International Federation of the Red Cross and Red Crescent Societies;
International Fund UKRAINE 3000;
Children of Chornobyl Relief Fund (USA-Ukraine);
International Union Children of Chornobyl;
International Fund "Spilnota";
International Fund of Children's Relief during Catastrophes and Wars;
International Organization "Zhinocha Hromada";
International organization Greenpeace;
International Humanitarian Fund "REBIRTH, RENEWAL AND HUMAN DEVELOPMENT" that was created on the occasion of the 20th anniversary of the Chornobyl catastrophe in Ukraine.

The following people and organizations took part in the International conference: Scientists and specialists from three most affected countries: Republic Belarus, Russian Federation and Ukraine, CIS countries: Kyrgyzstan, Tajikistan;

and Germany, Great Britain, Cuba, Israel, USA, Japan, Representatives of Chornobyl United Nations Development Program (UNDP) in Ukraine and Russian Federation, Ministry of Health of Ukraine, Ukrainian ministry Emergencies and Affairs of population Protection from consequences of Chernobyl catastrophe, Ministry of Health of Belarus, International organization Green Cross, Other national, international and non-government organizations.

There were 328 participants who took part in the conference. Among them were scientists, doctors and specialists, representatives of humanitarian funds and organizations and mass-media.

The following documents were introduced to the delegates: materials prepared by organizers of IAEA Chernobyl Forum, national reports of Republic Belarus Russian Federation and Ukraine, all published materials from 1999 to 2006 in the International Journal of Radiation Medicine, two reports from the international organization Greenpeace that were prepared for the 20th anniversary of the Chornobyl catastrophe, other monographs and methodical materials. Visiting the exclusion zone, Chornobyl museum etc. was organized.

The participants took part in the ceremony presenting the Manifesto of Responsibility created by the humanitarian forum "REBIRTH, RENEWAL AND HUMAN DEVELOPMENT", which was officially presented on INTERNATIONAL DAY OF CHILDREN PROTECTION.

Goals of the Conference

1. Discussion and appraisal of the research results of medico-biological and socio-psychological consequences of the Chornobyl accident among affected people during the 20 year period.
2. Assessing the main priorities for scientific studies for the future.
3. Strategy development of humanitarian aid to the affected people, giving priority to mothers and children.

The **following problems** were given special attention at the conference:

- appraisal of the results of long-term monitoring of health in affected people after Chornobyl disaster in Republic Belarus, Russian Federation, Ukraine and other countries;
- radiological effects of ionizing radiation on the health of survivors and their manifestation in the 20 year period;
- non-tumor effects of radiation (with consideration of morphological criteria of low-dose radiation effects on the human body);
- pathomorphosis of diseases in victims as one of the leading medical consequences after explosion;
- tumor and non-tumor radiation pathologies of the thyroid gland;

- effects on the psychological health and socio-psychological problems among Chornobyl-affected communities;
- strategy discussion of medical rehabilitation and socio-psychological support to the Chornobyl survivors.

After hearing and discussing of more than 70 scientific reports and presentations at the round tables, the following were established.

BACKROUND

After the Chornobyl accident there was contaminated 23% of the territories of Republic of Belarus, 1.5% of the Russian Federation, 7-10% of Ukraine, which includes more than 150,000 sq. km. Altogether, 8.4 million people were irradiated, 404,000 were relocated. Millions of people are still affected by small doses of radiation due to their place of residence.

Outside the borders of the former Soviet Union many territories of Northern and Eastern Europe received 37-200 kBq/sq.m of fallout of radioactive cesium 137 (hereinafter Cs-137). The square of these regions is 45,000 sq. km or 1/3 of the surface of polluted territories in the former Soviet Union. The greatest part of long-living radionuclides was localized in the exclusion zones of the 3 most affected countries. Return of people to these territories will be impossible for centuries. Long-living radionuclides including cesium, strontium, plutonium, americium in these territories will cause damage to biota and human life for centuries to come. Radionuclides have migrated down into the deltas of the Pripyat and Dnieper rivers. They are also deposited at the bottoms of various lakes. Many forests are polluted as well, which leads to penetration of radionuclides into the biota. No significant decline of concentration of radionuclides in food products is foreseen for many years in the future. This constitutes a major radiological problem among the extremely poor village people who consume these products on a daily basis. It is expected that the doses of radiation received throughout the life of these people are approximately 40% over than those received in the first 10 years after the accident.

The pollution by radioactive iodine (I-131) took place practically over all territories of the Europe. Doses received by the 0-4 yr. old children in 3 most affected countries are much higher than in adults. This proportion is universal due to the age-dependant dose of radiation on the thyroid by radioactive iodine.

A complex of pathogenic factors that influence the state of health of the population emerged after the accident. These include radiation effects, psychological stress, evacuation, and relocation of people, socio-economic changes and others. The most vulnerable part of the population appeared to be children and adolescents, because this group is most sensitive to the effects of the ecological factors.
Long-term screening separated the survivors into the following categories subject for prolonged monitoring:

- liquidators of the accident, especially people who took part in the liquidation of the consequences of the accident in 1986-87 and those who were removed from the highest risk zones of first-priority;
- persons evacuated in 1986 and relocated during the next 20 years from the evacuation zones and the first-priority relocation zones;
- people living on the radioactively polluted territories with significant density of cesium-137, strontium-90, plutonium in the soil;
- people born from irradiated parents (liquidators of the accident, evacuated and relocated people).

Risk groups also include persons irradiated in utero and those with thyroid irradiated by radioisotopes of iodine at the age of 0-18 years at the time of the accident.

Currently the total number of affected people in 3 most affected countries is estimated to be approximately 7 million people. Children constitute roughly 2 million in this list.

During the entire post-catastrophe period the governments of the Republic of Belarus, Russian Federation and Ukraine took measures directed at the health monitoring of these risk groups. The measures included various actions to promote medico-social and psychological protection, improvement of ecological situation in polluted territories, refinement of various systems to deliver medical aid, development and implementation of rehabilitation programs. Significant aid was provided after the catastrophe by the international organizations of the UN system, as well as other government and non-government organizations.

Nonetheless, the problems caused by the catastrophe have not vanished. They still include a serious demographic crisis, worsening of the state of health of many thousands of survivors, lack of economic development or renewal and socio-psychological tension within population in radioactively polluted territories.
Chornobyl accident resulted in unprecedented irradiation of population in Republic of Belarus, Russian Federation and Ukraine. Doses of radiation to which liquidators and emergency clean-up workers were subjected are in the average range and low intensity limits of 50-200 mSv. But due to the absence of effective dosimetric control and because of complicated and uninvestigated radiation conditions many liquidators received doses of over 1Gy during the 1.5 months following nuclear accident. This would include many people, especially nuclear power plant personnel, firemen, military people, miners, construction workers who built the tunnels and shelter around the 4^{th} power unit (reactor) of the Chornobyl NPP and in the later period on the roof of the 3^{rd} unit of the Chernobyl NPP. We can state that among those groups there are people in whom the ARS was never clinically established. As a whole, the information about the dosimetric state of liquidators is incomplete (only 50% of this information about received doses of radiation is available) and unclear (since it is unknown how accurate the available

records about these doses may be). This data in its current state cannot be used to assess radiation risks and to analyze medical effects of the explosion and needs revision.

The risks of oncological diseases induced by doses of 200 mSv or more were proven by direct epidemiological studies of the effects of nuclear bombings in Japan. Nonetheless, methods of risk assessment for exposures to low-dose radiation (more typical for the population exposed to the Chornobyl disaster) are not yet developed. That is why the results of post-Chornobyl epidemiological studies must have first-priority in assessing the scientific and practical significance for the assessment of low-dose radiation influence on people. The results should be obtained from direct monitoring with the same-time usage of all-national cancer studies data and national registry data.

Doses received by the victims in critical period of radioactive iodine pollution are considered high. They measure 50 mGy to 15,000 mGy at thyroid gland. This radioactive fallout contained approximately 12-15 million curies of radioactivity, and more than 40% of this radioactivity fell on countries outside the former USSR.

Value of radiation dose throughout the life of evacuated persons at the period of spring-summer 1986 was accumulated by 60-80% and is also in the middle or low range of intensity levels.

In persons who are being born and living on radioactively contaminated territories the radiation doses will be accumulated throughout the course of their lives, and mainly internally due to the consumption of polluted food products. These doses belong to the low range of radiation but protractedly act on all stages of ontogenesis.

MEDICAL-BIOLOGICAL AND PSYCHO-SOCIAL CONSEQUENCES OF THE CHERNOBYL CATASTROPHE

A. Stochastic Effects

The unprecedented release of radioactive iodine from the Chornobyl reactor led to a dramatic increase in the incidence of thyroid tumors. There is a continuing increase in the radiation-induced cancer of the thyroid in those who were irradiated in childhood or adolescence (more than 6,000 persons to 2004). The increase in thyroid cancer among the adult population which fell under the radioactive cloud is already 5 to 7-fold higher than in the rest population.

There is a reliable increase in malignant tumors of breast gland in women, of lungs, urinary bladder, stomach, kidneys discovered among all groups of affected people. Increase in brain tumors, and tumors in other organs is noticed among children of 0-4 yrs old. The growth of oncological and non-tumor illnesses among all categories of diseases and death rate due to the aging of the population and the onset of the latency period of additional oncological illnesses due to radiation effects are expected to increase in the future as well. Even the most conservative

prognoses have concluded that hundreds of thousands of additional cancers of all organs and systems will emerge in all categories of survivors.

According to Russian and Ukrainian studies of Chornobyl liquidators the incidence of leukemia, especially in the group that received the dose of 150-300 mGy is increasing. Multiple myeloma incidence twofold increase within structure of hemodblastoses is found in liquidators. Trent towards increase in chronic myeloid leukemia, non-Hodgkin's malignant lymphomas in leukemization stage incidence is observed. In 20% of cases the acute leukemia is appearing among liquidators against the backdrop of myelodisplastic syndrome. The question of increasing leukemia cases among adults is still open. Further investigation is necessary.

The question of the disaster's influence on the frequency of leukemia and lymphoma emergence among children is also contradictory due to inadequate diagnosing of separate forms of leukemia forms and the absence of dosimetric data. Nonetheless, other countries have established growth tendencies of leukemia among children irradiated in utero. The question of chronic lymphoid leukemia that wasn't earlier considered as radiation-induced should be revised as well. Research results have established a doubling of the rate of mutation among the families that were irradiated the most. They show a significant correlation between the decay of radionuclides and the rate of mutation. Complex studies of genome instability among children exposed to low-intensity radiation at different stages of ontogenesis show the increased frequency of radiation-induced chromosome aberrations, decrease of "unplanned" synthesis of lymphocyte DNA, specifications of individual heterozygote genes coding for structural and fermentative blood proteins. Chronic disgenomic effects, induction of genome instability in somatic cells is taking place among children. All of this can lead to genome imbalance, cell dysfunctions, malignancies, apoptosis induction and cell death. Their expression is determined by the specifics of the genome of each organism. These abnormalities are mainly discovered among children of irradiated parents and children irradiated in utero. The continued action of radiation after birth and the additional radiation effects and ecological influences increase the mutation levels, further decrease reparative DNA synthesis, strengthen all biochemical, immune, neuro-endocrine, somato-neurological changes. According to government statistics, the frequency of congenital malformations in the affected regions is increasing.

B. Deterministic radiation effects

Non-tumor thyroid pathologies (autoimmune thyroiditis and its complications, hypothyroidism) are currently discovered among 30-40% of survivors. The quality of life with thyroid pathologies is worsening due to the necessity of lifelong treatment, as well as due to the addition of other somatic diseases linked to insufficient hormonal regulation (myocardiopathy, obesity, high blood pressure, as well as pre-term aging and dysfunction of somato-sexual development).

In fact, it is observed that the appearance of radiation-induced cataracts among all groups of survivors, and especially the liquidators, is increasing. Much lower threshold of irradiation doses is set for cataract development compared to earlier assessments.

It was accepted that growth of somatic illnesses among victims wasn't linked to the radiation factor, but to the contrary it is dependant on the dose of radiation and time under risk as well. These illnesses include endocrine system and metabolic diseases, psychological disturbances, diseases of the nervous system, sensory organs and digestive tract organs, cerebral-vascular diseases, essential arterial hypertension, and cataracts.

C. Combination of low-dose radiation effects with socio-psychological factors that affects the survivors' health

Negative demographic tendencies are developed throughout the years in the zones of radioactive contamination. Decreased birth rates, increased death rates, and the decrease of able-bodied population able to work have been observed. Relatively high levels of perinatal losses due to stillbirths and newborn deaths, especially those with birth defects, have been observed and documented

The outflow of youth and emigration of specialists ("brain drain") has worsened the challenge of maintaining the viability and health of population - sometimes to the point of humanitarian catastrophe in the affected regions.

Complex effects of radiation- and non-radiation factors of Chornobyl catastrophe have worsened the state of health of all affected categories of people. They were displayed through increased general non-oncological lung, endocrine, cardiovascular, digestive, excretory, nerve system diseases and through the growth of disabilities due to oncological and somatic diseases.

Progressive atypical course of pathologies with the development of functional abnormalities due to immune deficiency, imbalance of metabolic and hormonal processes is taking place. Very often the presence of circulatory, neuro-endocrine illnesses in conjunction with psychological imbalances (high anxiety, low self esteem and a poor assessment of one's psycho and somatic health, etc.) in the affected people may conceal the main underlying disease and can lead to the low probability of rehabilitation.

It was documented that health of liquidators of 1986-87 period living in the most affected countries as well as other CIS countries, Israel, Estonia, Latvia and Lithuania is deteriorating progressively. Death rates among liquidators are significantly higher than those of similar-aged population, not affected by ionizing radiation due to the Chornobyl disaster. If this tendency continues, we can expect a

statistically significant excess of death rates among liquidators in the coming years as compared to the non-irradiated population.
The key problem for the objective assessment of the Chornobyl catastrophe's effects on population is the necessity to find the integral (critical) index for the detrimental action of ionizing radiation on a multi-cellular organism. The dependency of changes induced by radiation of separate physiological, molecular, genetic and clinical parameters from the basic condition of the organism is well known in radiobiology, however it does not lend itself to proper evaluation using traditional methods of monitoring and it substantively distorts received data. The integral indicator of the damaging effects of ionizing radiation, which may be most important for the affected population, is the disorders of the reproductive function. Issues which demand particular attention relate to reproductive health of the female organism, inasmuch as the limited amount of ovarian cells is originated within the intra-uterine period and the genetic impact on these cells in this period may lead to irreversible loss of fertility.

The analysis of the state of the immune system being one of the most essential integral specialized systems of the organism, has documented the following types of responses among the irradiated population: autoimmune, infectious-allergic, specified secondary immune deficiency and compensatory-adaptive type (due to the reduced function of the thymus).

The most diagnostic and scientifically significant medical-biological research on the impact of the Chornobyl catastrophe (in the range of effects of small doses of low intensity) appears to be the pathomorphosis of various illnesses. Their structural substrata is represented by: topographical changes spread across the entire organ; deeper invasion of micro-organisms in the mucous membranes (in their internal layer): transformation of the kinetics of the inflammatory process; peculiarities of disregenerative changes; systemic destruction of microcirculation and their peculiarities; intensification of involutional processes; the involvement of incorporated radio-nuclides in the development of pathologies.

D. Health of Children

With each year they have noticed an increase in the ***general morbidity in children*** and initially diagnosed pathologies in practically all classes of illnesses. It is important to note an increase and widening of somatic illnesses, especially in the nervous system, endocrine, digestive, respiratory and cardio-vascular systems and psychological disorders. There is a growing number of children-invalids. It has been established that the worsening in the health condition of survived children is tied to radiation factors as well as non-radiation ones and deterioration in quality of life as a result of socio-economic crisis in contaminated territories.

There is a critical need for serious measures to limit the incorporation of radionuclides in parents and children, and also measures for the extraction of such

materials and social-medical practices for strengthening protective-defensive mechanisms among residents of zones under radiation control.

The levels of radioactive contamination of food products consumed by children in contaminated territories of the three most affected countries often exceed national permissible norms. Unfortunately, the levels of radioactive cesium incorporation in children are not decreasing. At that, the ration (diet) of children is characterized by a deficit of dairy and meat products, fruits and vegetables. The content of proteins, vitamins, macro- and micro-elements reaches only 50-60% of daily requirements (norms). There is special concern to the deficit of iodine in children's diet.
There is a continuous increase in the following changes in the state of health of children in various cohorts under observation:
- among children who were born to Chornobyl emergency workers or liquidators there has been an increase in the incidence of illnesses of the central nervous system, congenital birth defects and rare forms of genetic anomalies;
- among children who were exposed during the period of intra-uterine gestation, there is a high risk of developing chronic somatic pathologies, disorders of the thyroid gland, pathologies of bone and cartilage, psychological disorders and the development of tumors;
- among those who were children or adolescents at the time of Chornobyl accident and subjected to combined exposure to cesium and iodine there have been registered the highest risk of tumors and other illnesses of the thyroid gland. Experts predict a further increase in pathologies of the thyroid, which will make a robust contribution to the deterioration of the general health of affected populations, and the disruption of reproductive health of young women;
in the first generation of irradiated persons who continue to live on radioactively contaminated territories, there is also an increasing risk of children born with congenital malformations and hereditary diseases.

E. Psycho-Social Consequences

It has been established that the Chornobyl catastrophe differs fundamentally from other disastrous events and from environmental catastrophes and from technological incidents. The Chornobyl catastrophe combines within itself several essential features of other types of disasters, holds its own specific characteristics and therefore the formulation of standard behavioral models cannot serve as a definitive means of applying lessons learned from disastrous experiences under other conditions. This disaster had a clearly fixed beginning, but has no perceptible end, at least within the timeframe of a human lifespan.

The general interplay of various factors involved in the effect of radioactive exposure as it affects human health appears to be so complex that it is difficult to comprehend not only for ordinary persons, but for the majority of scientific experts as well. The emergence and dynamics of negative effects on human life and health

appear to be uncontrolled and unpredictable, or impossible to distinguish between direct and peripheral negative effects of the accident.
In the first place, it is essential to understand that consequences of the Chornobyl catastrophe have resulted in disruption of the regular lifestyle for individual persons, but for entire integrated communities, as well as for the territories on which they live. Some situations have developed where any return to their previous way of life becomes extraordinarily problematic, and if such a return can even occur, it becomes inadequate in relation to the changed conditions affecting livelihood and the sustainability of life itself.

The post-Chornobyl crisis coincided with the general socio-economic crisis that gave birth to a "poly-modal" crisis situation or "cultural shock". Therefore the analysis of the post-catastrophic situation and in particular of long-term, or remote consequences requires formulation from the point of view of social crisis theory, and not simple "stress" which is present in all communities, but at the present time is relatively insignificant. The crisis is apparent in the fundamental undercurrent of communities that live on the contaminated territories of the three most affected countries. The crisis has encompassed the obvious features of polymodalities when the destructive activity of various extreme factors occurs simultaneously, touching practically all aspects of human life. In such circumstances, the actions of government agencies are seen not only as inadequate or ineffective, but as a factor in the crisis itself.

The most painful crisis affected such groups of the population and in those spheres, which relate to the long-term perspectives of community life. For this reason even in cases of relatively rapid and effective response to the financial-economic crisis, negative socio-psychological effects will substantively influence the life of the community for a long period of time, and at a minimum, for the next 10 to 15 years.

Children from the high-risk groups *are becoming the carriers of a crisis psychology* (mentality) and as a result will spread a crisis relationship in society. Inadequate parental or family environments as well as the circumstances of their immediate surroundings – teachers, doctors will contribute to a heightened level of anxiety, fear and lowered self-esteem. In this way, the Chornobyl catastrophe experienced by adults has engendered an awareness of crisis not only in adults but also in children and adolescents

CONFERENCE RECOMMENDATIONS

1) To continue monitoring of health state of the population exposed to radiation, in accordance with the cohort principle, and accenting attention on illnesses of a genetic and oncological profile.
2) To carry out the verification of doses of radiation and utilize methods of retrospective dosimetry (dose reconstruction) for a credible and well-founded

evaluation of the effects of Chornobyl irradiation in all cohorts, especially in the cohort of liquidators of the accident. Complex approach in problem solution will result in databases forming for verified dose estimates and providing of solid basis for current and perspective studies in epidemiology and clinical epidemiology.

3) To carry out epidemiological research for the evaluation of the health status of various age groups of survivors. To determine the role of the radiation factor in the possible increase of oncological illnesses it is essential to carry out broad-based, long-term radiological-epidemiological research studies in the framework of national specialized registers in the three most affected countries. Only in this way can the obtained results enable government agencies to adopt adequate decisions related to the extent of radiological protection of the affected groups. Scientifically based categorization of groups of heightened radiation risk will allow us to realize in the ensuing years a strategy for targeted assistance and timely medical aid for the population subjected to radioactive exposures in the aftermath of the accident at Chornobyl.

4) To develop investigative and applied scientific research studies for the further understanding of new approaches to diagnosis, prevention, and treatment of illnesses tied to the effects of low doses of ionizing radiation.

5) To devote special attention to the pathomorphological research relying on objective biological effects of low doses of ionizing radiation and other technological pollutants.

6) To study the principles of induced genome instability and genetic particularities of the human organism, their cause-response relationship with clinical-immunological indicators, as well as establishing the symptoms of inheritance of multi-factored illnesses. It is essential to adopt epidemiological approaches to the molecular-genetic and phenotype diagnostics.

7) To take under special surveillance the medical-genetic and medical-social condition of young women who are planning to have children, pregnant women, and their offspring.

8) To change the approaches in the determination of social-psychological problems affecting the survivor population. The concept of “psychological rehabilitation” should be shifted in the direction of the concept of “education and psychological correction”. New principles should be adopted in the work of social-psychological centers and educational institutions. Socio-psychological aid to children should be targeted and specialized. For the determination of the socio-psychological crisis in the affected communities there is a need for the mobilization of national international institutes located in the affected nations in the unification of Institutes of Chornobyl.

9) The strategy of rehabilitation of survived children in the aftermath of the Chornobyl catastrophe calls for the development of long-term, targeted governmental and international programs including research and implementation of a complex set of initiatives of a medical, socio-psychological and cultural-educational nature.

10) To approve and fully support a strategy for the organization of long-term programs of humanitarian assistance to the suffered regions with the design of a differentiated approach to various cohorts of survivors, their social potential and needs. This must take into account children and the aging population comprising 30% of society in need of social support from the side of governmental and humanitarian funds.

11) To refine the mechanisms of the distribution of information related to the Chornobyl catastrophe and its consequences, with the implementation of a differentiated approach and in conjunction with other programs of a humanitarian nature, organizational networks of self-developing humanitarian organizations in every population center. To more widely rely on the experience of various centers of socio-psychological rehabilitation and other humanitarian organizations

CONCLUSION

The contradictory evaluations of the scope of the Chornobyl disaster are tied to the lack of information associated with the influence of various factors of the disaster on the effected population, and also with the disregard for contemporary knowledge relating to the effect of small doses of radiation on biological objects. A better understanding of the consequences of the Chornobyl catastrophe is extremely important for humanity. It will enable us in the near future to examine the practicability of the use of nuclear technologies and to re-evaluate the concept of risk-benefit in decision-making on their further applications on earth.

The materials emerging from this conference, as in the previous four ones conducted in cooperation with the World Health Organization can be used by governments and scientists as priority data for various activities in the field of scientific research and in its informational aspects. Conference materials also can serve as the scientific basis for the adoption of various decisions by international and national organizations in formulating programs for the delivery and administration of long-term medical and social-psychological assistance.

The conference acknowledged the exclusive importance of international cooperation for the effective resolution of Chornobyl-related problems in the three most affected countries. The initiative of the United Nations confirms that international organizations carry a profound responsibility for the minimization of the effects of this massive radiological accident. We are grateful to all

international partners who have responded to the ordeal of Chornobyl. The invaluable assistance offered by international organizations and foreign countries, financial and corporate structures, individual citizens from many corners of the globe who offered their moral and material support to the affected countries throughout the post-accident period, cannot be overestimated. The upheaval caused by Chornobyl still holds and will continue to hold planetary significance as a challenge to the entire world. The resources needed to overcome the consequences of any catastrophe of this magnitude extend well beyond the limits of economic, technological capabilities of a single country and obviously require unified efforts of the entire world community.
These principles found expression in the MANIFEST OF RESPONSIBILITY presented at the International Forum "***Rebirth, Renewal, and Human Development***" which reminded its delegates that we must ***remember the lessons*** learned within overcoming the global catastrophes.

First Lesson – We have a responsibility to speak the truth and to strive to obtain the truth.

Second Lesson – When we address important problems of the present, we have a duty to think of those who live after us.

Third Lesson – We recognize that no one nation or country is capable of resolving all the problems. Therefore efforts of all nations should be unified for the sake of the future children of the Earth. In the countries most affected by Chornobyl, the number of sick children stricken has increased. All countries should acknowledge the critical need for delivering aid to the regions which suffered most from the Chornobyl catastrophe, and most of all to the children.

Conference participants thank the Government of Ukraine and the organizers for their preparatory work and for carrying out such an important forum.

The participants are urged to disseminate the conclusions and recommendations obtained in this resolution.