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Chornobyl's Legacy for the 21st Century

Presented by Ambassador of Ukraine, His Excellency, Dr. Yuri Scherbak

It's a great honour for me to be here, in Winnipeg – the very first city I visited in 1987, following the Chornobyl accident. At that time Winnipeg declared itself a “nuclear free zone” – my home city of Kyiv was unable to declare such a resolution, since it became a “nuclear zone” after the Chornobyl catastrophe.

This year we commemorate the 20th anniversary of Chornobyl.

Twenty years have passed since the explosion at Reactor No. 4 of the Chornobyl Nuclear Power Plant – the event that has become, according to the UN, “the biggest nuclear catastrophe in the history of mankind”. Chornobyl is a global scale event that has affected the destinies of millions of people living on the vast territories of Ukraine, Belarus and Russia. It has left a radioactive trace on the territories of numerous countries in the Northern hemisphere, including Sweden, Poland, Georgia, Germany, Turkey, the United States, Japan and many others. The catastrophe confronted mankind with a number of scientific and technological, legal, medical, cultural, psychological and socio-economic problems, most of which remain in the 21st century.

In the past 20 years, time and history have increased their pace, leading to unprecedented geopolitical and economic changes in the world. While the Chornobyl disaster occurred on a planet divided by the cold war and inter-bloc confrontation, the twentieth anniversary of the accident is commemorated under

new historical circumstances, involving globalization and increased international cooperation, -- in a world, which according to Thomas Friedman, “has become flat”.

Today, in the light of the time span that separates us from April 26, 1986, we should not only pay tribute to the past – investigating the events that took place 20 years ago – but, first of all, try to comprehend the lessons and legacy of Chornobyl for the future, that is, for the 21st century.

In so doing, it is necessary to proceed from the fact that the emotional outbreak of passions around the catastrophe has died down; the psychological shock with which both scientists and numerous groups of the population were stricken has passed, and a large part of Chornobyl’s secrets have already been revealed.

It should be noted, that after 1986 the world underwent many new severe trials that consumed many victims through such disasters as: destructive tsunamis, hurricanes and earthquakes, eruptions of new infectious diseases, terrorist attacks, air crashes and shipwrecks, explosions and fires at industrial facilities. A multitude of tragic events contributed to a gradual disappearance of the emotional memory of Chornobyl, i.e., the prevalence of an indifferent attitude toward the legacy of Chornobyl, and a neglect of the experience of overcoming the catastrophe’s consequences. This is a big mistake, because in the chain of the worst disasters that occurred at the end of 20th century and at the beginning of the 21st century, Chornobyl occupies a very special place. This is an absolutely new phenomenon in the history of the modern technological civilization. Its distinguishing features make the problem of a world nuclear catastrophe, its causes and consequences, not less, but even more important for the 21st century, in comparison with previous times.

There are a number of peculiarities re: Chernobyl that future generations should pay attention to:

1. The mere fact that a catastrophe with such severe unpredictable consequences that went beyond its design, had immediately destroyed the deceitful and optimistically irresponsible statements of scientists and technologists belonging to the nuclear-industry complex of certain countries. Many of these individuals assured humankind for decades, of the secure and conflict-free development of the nuclear-power industry. No matter how cynical this may sound, the important lesson of the Chernobyl catastrophe lies in the fact that it took place, possibly preventing the occurrence of other catastrophes with much more terrible consequences.

After Chernobyl, the one-dimensional rational optimism in the statement, “the onward progress of humankind”, used by technocrats, became completely unacceptable.

2. The peculiarity of Chernobyl as a new phenomenon in the history of civilization, is its threatening anonymity, its so-called “peaceful” nature, its spontaneity and suddenness. While the explosions of the atomic bombs in Hiroshima and Nagasaki in 1945, or the terrorist acts against the USA in 2001 were a result of calculated intentions and planned actions of a group of persons (the military, politicians or terrorists), Chernobyl emerged as if from nothing – from a combination of accidental unpredictable factors, and from an incredible coincidence of incredible circumstances.

However, not only does the element of chance lie behind Chernobyl, but also the threatening regularity – the increasing danger for humankind coming from the TSS – (Technological Super System), which can and do go out of control. Let’s recall the system energy accidents in the USA, for example, mass malfunction of

computer-information networks, air crashes caused by overload of flying control services, etc.

First of all, Chernobyl is not an ordinary accident (similar to a casual fire or a spaceship wreck). Chernobyl became a challenge to the sustainable development of humankind, an alert sent from the future, a warning about possible future failures of complex and vulnerable systems, which may involve numerous victims, material damage and environmental degradation.

One of the challenges of Chernobyl for the 21st century, is the unprecedented scale of engineering, environmental, medical, social and technical related issues necessary to establish reliable safety structures in the place of the destroyed reactors (I mean containment) and build safe places for storing radioactive waste.

3. The Chernobyl nuclear power plant was a nonviable monster of the Soviet military-nuclear complex, because initially the RBMK type reactor was designed to produce plutonium for weapons, and was not intended for energy purposes in civil power engineering. The design, management and safety of the RBMK reactor featured essential drawbacks, which, being combined with actions of unqualified personnel who violated operating instructions, made this object highly explosive.

A comprehensive study of the technical causes of the Chernobyl catastrophe is provided by a Ukrainian nuclear expert, Mykola Karpan -- one of the heroes mentioned in some of my publications. Karpan wrote an outstanding book, "Chernobyl: the revenge of a peaceful atom" (2005). The author showed that in July 1986 the Politburo of the Communist Party, the highest governing body of the USSR, concluded that the failure of the reactor had been the main reason for the explosion. However, the official communiqué of the Politburo did not mention this cause, and blamed only the nuclear power plant's personnel. The reason behind this lie was that the authorities were afraid of the revelation of the Soviet system's

hypocrisy and deception, and of being forced to shut down the superpower's reactors working on its territory.

Unfortunately, conditions of secrecy justified by reasons of national security or trade and technological secrets, are typical for all nuclear subjects even in democratic countries like the USA, the UK, Japan, France and, probably, in Canada.

The world energy crisis will deepen in the 21st century, due to the depletion of hydrocarbon sources that will encourage a number of countries, including those from the Third World, to develop nuclear-power industry in an intensive way. Attempts by certain technologically backward countries (like North Korea), to produce their own nuclear weapons, may lead to catastrophes similar to Chornobyl.

Establishing a regime of strict international control and objective assessment of reactors and maximum transparency in the functioning of nuclear power plants, will contribute to safe operations of such objects in the 21st century.

The Chornobyl disaster combines both features of an unplanned industrial accident with complete destruction of a reactor and an environmental catastrophe with considerable contamination of vast territories. Catastrophes of this type, usually affects many millions of people, with children often being the most affected. It displaces thousands of individuals because of environmental reasons; causes long-term contamination of the soil, water sources and air; and leads to irreversible changes in the environment and numerous ecosystems.

Participants and witnesses of these events experience severe psychological shock; they suffer from the sui generis syndrome of "the end of the world", that is, paralysis of their will to live, loss of all hope and apathy.

Today, around 5 million people live on 145,000 square kilometers of territory encompassing the area of Ukraine, Belarus and Russia, which is contaminated with radioactive nuclides. The area of radioactive contamination equals the territories of Belgium and Austria combined.

The amount of radiation released during the Chornobyl disaster – was over 185 million Curie – equivalent to 270 Hiroshima-sized bombs.

Only in Ukraine did the explosion result in the radioactive contamination of 2,294 villages and small towns located on the territory of 77 administrative districts in 12 regions. As of January 1, 2005, there were 2,246,000 Ukrainian citizens who were given the status of “Victims of Chornobyl”, including 643,000 children. More than 1.56 million persons live in the area of intensive radiological control.

65 villages were destroyed and buried to the ground in the highly contaminated 30 kilometer Zone. About 300 inhabitants returned to the Zone and continue to remain there today.

The Chornobyl catastrophe has led to environmental consequences, upset the ecosystem balance, and changed the flora and fauna in the north of Ukraine (in the region of Polissya).

4.8% of Ukraine’s territory is contaminated by radioactive fallout.

1.5 million hectares of the forests are contaminated by Cesium 137 (more than 1 Ci/sq. km)

157,000 hectares of the best forests were excluded from economic circulation.

Contamination of the Dnipro-river basin still registers radioactivity.

In the wide nature a new phenomenon of flora escaping and ferity of fauna to the level of the 16th-17th century (the so-called nature primitivism) as described by biologists.

About 3,000 wild boars, 2,000 elks and hundreds of wolfs are now concentrated in the Zone, which has become a type of a nature reserve, including more than 30 species of animals from the “Red Book”.

Nature has shown its ability of self-salvation.

The consequences are: first of all, the phenomenon of drastic reductions in birth rates among animals was discovered in the Chornobyl area. Reproduction is a first target of low-dose radiation.

The irreversible loss of the ancient Slavic-Ukrainian civilization of Polissya and the destruction of its numerous cultural and spiritual monuments was a particularly painful aspect of the catastrophe.

Ladies and Gentlemen,

Medical and public opinion in Ukraine and abroad is sharply divided around the question of the estimated number of individuals whose deaths were a result of the accident.

I would like to say, that there are 2 philosophies, 2 approaches on this issue:

- one, represented by the nuclear-medical lobby in certain organizations, which ignores evidence-based facts, and
- second, one which is trying to stay objective.

Please allow me to give you a couple facts:

- as of January 1, 2005, the Ukrainian State Registry of Persons, contained information about 2,246,000 who suffered because of the Chornobyl catastrophe;
- direct radiation consequences of the accident, includes an increase in the occurrence of thyroid gland cancer. During the period from 1986-2004 in Ukraine 3,270 persons whose age at the time of the accident was less than 18 years underwent surgery for this type of cancer. The number of thyroid gland cancers increased during the last 14 years by 10-11 times in Ukraine, and by 20 times in Belarus;
- among the new, previously unknown medical consequences of the Chornobyl catastrophe, special attention is given to the influence of osteotropic radionuclides on children, -- which relates to the incorporation of radioactive strontium and alpha-radionuclides into bone tissue leading to the pathology of the musculoskeletal system.

Researchers have also found strong pathology in urinary tracts – bladder and prostate cancer – as a result of the penetration of radioactive particles into tissues. This pathology increased by 2 times. Many liquidators have chronic fatigue syndrome related to the depression of a certain subclass of lymphocytes, the so-called “killer” cells. These defects of the natural immune system were named “Chornobyl AIDS”. The condition known as “Radioactive cataracts” is well known. The number of invalids among liquidators is now 102,000 persons.

- The estimated number of individuals who have died as a result of the accident is particularly controversial – i.e., a political issue. In Ukraine there are more than 17,000 families who receive welfare payments due to the death of their providers in relation with the catastrophe. According to information

provided by several non-governmental organizations, the number of persons who died as a result of the accident is between 30 and 40 thousand.

The IAEA Chernobyl Forum-2005 calls these figures considerably exaggerated, and suggested that around 4,000 people have died or could die because of exposure to radiation caused by the Chernobyl accident.

I must say, that the most controversial issue is the estimated number of persons who have died as a result of the accident.

In my opinion, it is wrong to think that there is only one kind of cause behind the post-Chernobyl death rate – i.e., acute radiation sickness. In fact, only 187 people fell ill with this sickness and more than 50 of them have died. As a doctor of epidemiology, I can claim that considering only these people as Chernobyl victims is a very narrow approach. Imagine the following situation: there are two groups of healthy men, 1,000 persons in each. The first group is composed of individuals who participated in the liquidation of the aftermath of the accident. The second group is the so-called control group. Twenty years after the accident, the death rate in the first group is substantially higher than in the second one, even though the deaths within the liquidators' group may be caused by "normal" reasons such as strokes, heart attack, pneumonia, etc. Would you deny the causal link between the accident and the increase in the number of deaths only because they are not obviously related to acute radiation sickness?

During a conference in Kyiv, that took place from April 23-25 of this year (2006), entitled "Chernobyl +20: Remembrance for the Future", a scientific report was presented.

The conclusions made by the scientists/ authors of this Report included:

1. about 30,000 to 60,000 excess cancer death are predicted, 7 to 15 times greater than the IAEA/WHO's estimates.
2. an excess number of cases of thyroid gland cancer ranging between 18,000 and 66,000.
3. Ukraine, Belarus and Russia were heavily contaminated, but more than half of Chernobyl's fallout was deposited outside these countries. Fallout from Chernobyl contaminated about 40% of Europe's surface area.
4. the collective dose is estimated to be about 600,000 persons - Sieverts more than 10 times greater than official estimates.

Despite the different approach in estimating the number of victims, it is obvious that Chernobyl became not only technogenic, but also a medical and social catastrophe that will affect the health of several generations of citizens, perhaps stretching as long as 100 years.

Questions re: the objective evaluation of Chernobyl-like catastrophes at local, regional and global levels will be even more acute in the future.

In the first years after the Chernobyl catastrophe, the Ukrainian scientific community accused the central Soviet authorities and the IAEA (a UN international agency), of hiding data because of a biased attitude towards estimating the catastrophe's true risks.

A deep distrust of certain international institutions remains, and is confirmed by a highly negative public opinion in Ukraine regarding the resolutions of the Chernobyl Forum.

According to certain civil society activists, the team leader of the Forum, Dr. Fred Mettler (professor emeritus of the University of New Mexico), was thoroughly

discredited in 1992 after he repeatedly denied any increase in thyroid cancer in Chernobyl children.

Conclusions of the Chernobyl Forum were considered as an attempt to play down the consequences of the catastrophe and raised strong protests on the part of Ukrainian NGOs and international green organizations. Several environmental NGOs have accused the IAEA of a conspiracy with the nuclear lobby with the view of falsifying the real consequences of the catastrophe and minimizing the responsibility for health problems among liquidators and the population in the contaminated areas.

President of the international organization “Physicians of the World for Prevention of Nuclear War” Angelica Klaussen accused the World Health Organization (WHO) of a secret agreement with the IAEA, resulting in the deliberate dissemination of false information.

International and Ukrainian organizations suspect that the IAEA and the WHO are trying to erase the memory of Chernobyl and to compromise efforts of several NGOs in finding the truth about the catastrophe. These organizations are demanding that the Report of the Chernobyl Forum be declared biased, and to inform the international community about the real number of victims of the Chernobyl catastrophe, and the impact made by the disaster on the health of the Ukrainian people.

With a greater role being played by Ukraine’s civil society in the 21st century, it raises the question of trust and cooperation between non-governmental and governmental institutions and international organizations in a new way.

Catastrophes like Chornobyl have a destructive impact on a state as a whole, and in particular on its political and economic system, as the example of the Soviet Union shows.

The accident at the Chornobyl nuclear power plant was a stability and sound test for all state institutions charged with quick decision-making on issues relating to the security of millions of people, and informing the country's own population and the international community.

The command and administrative one-party communist system did not survive the Chornobyl test and completely lost its credibility amongst the people. In fact, the dissolution of the USSR began with Chornobyl. Strong oppositional movements – environmental and political, were established in Ukraine between 1987-1989.

The fact that the authorities ignored the danger of exposing those who had to participate in the political manifestation of May Day (May 1st) to radiation, and that safety measures were applied to the inhabitants of the city of Prypyat (iodine prophylactic treatment, and speedy evacuation of the population) in the absence of any protective measures in respect to neighboring villages in the Chornobyl zone can be considered a special crime.

At the same time, we have to admit that under the coordination of the authoritarian and centralized system, in order to overcome the consequences of the catastrophe, the authorities managed the evacuation of human and material resources and drew upon the economic, military, police, scientific, technological and medical potential of the Soviet Union to carry out large-scale measures:

- more than 600,000 people (soldiers, workers, engineers, scientists, etc.) participated in emergency activities on the contaminated territories, and in the reconstruction of the nuclear power plant and in the cleaning of the area;
- 210 military units of chemical-engineering and air forces were mobilized;
- About 2,500 doctors and 5,000 nurses were employed; approximately 400 special medical units were formed;
- More than 10,000 workers were engaged in the construction of the sarcophagus;
- More than 350,000 citizens were resettled, of them around 120,000 persons were evacuated during the first period, including 50,000 inhabitants of the city of Prypyat on April 27, 1986;
- About 21,000 houses were built and 15,000 new apartments provided for the evacuated population from the Zone (from 1986-2000). Instead of the dead city of Prypyat, a new city Slavutych was built for the personnel of the nuclear power plant.

Direct and indirect damage to Ukraine and expenditures for overcoming the consequences of Chornobyl, amounted to more than 160 billion US dollars.

If a Chornobyl-like catastrophe occurs in a poor country, the latter may degrade into a chaotic state, lose its sovereignty and become a source of international destabilization.

For any country (be it dictatorial or democratic) – a new nuclear or chemical disaster on a scale like Chornobyl, would be confronted with the question of how to inform its citizens about the accident. Any public authority would fear the spreading of mass panic amongst its population as was the case in New Orleans during Hurricane Katrina. Any agency responsible for such an accident would be interested in downgrading its scale.

During the Chernobyl catastrophe and its aftermath, the communist regime carried out an unprecedented information blockade, combined with a propaganda campaign of half-truths and misinformation. For almost 4 years, information about the contamination of territories and foodstuffs with radioactive nuclides was denoted as “classified,” and this constituted a gross violation of fundamental human rights. Social and psychological tensions became aggravated in areas affected by the radioactive contamination, resulting in breeding complete distrust amongst the population towards the actions of the authorities.

One of the issues raised by Chernobyl that is particularly acute and relevant for the 21st century, is the stability of state possessing nuclear power plants in the context of protection of these objects from terrorist attacks. It is not difficult to imagine the dangers countries or regions such as Lebanon, Bosnia and Herzegovina, the Chechen Republic, Iraq and other areas, stricken with civil war or armed conflicts, would face if confronted with a Chernobyl-like nuclear crisis. Any violations on the territory of countries where nuclear power plants or any other powerful and potentially dangerous technological systems are situated, endanger the international peace and pose a considerable threat to the population of these countries. The need to involve UN peacekeeping forces in conflicts threatening to damage nuclear power plants is obvious.

Taking into account the attempts by certain international terrorist organizations to create a “dirty” atomic bomb using highly radioactive nuclear wastes, places of storage and disposal of solid and liquid radioactive wastes, and spent nuclear fuel, - requires special international protection.

These problems lie within the context of the Treaty on Non-Proliferation of Nuclear Weapons: any attempts to join the club of eight nuclear states (the United States, Russia, the United Kingdom, France, China, India, Pakistan and, possibly Israel) on the part of the so-called “rogue states” (Iran, Democratic People’s

Republic of Korea and others) are dangerous and pose a threat to world stability and order in the 21st century.

The countries affected by the Chornobyl disaster and the international community as a whole have faced the necessity to create a new reliable legislative and normative basis that regulates the management of nuclear and radiation safety. Chornobyl has made it necessary for a number of European states, including Ukraine, to toughen its requirements re: safety of nuclear power plants.

Preparing for possible large technogenic catastrophes is a problem of international importance. It is suggested that an emergency response infrastructure be created. This would include setting up of regional crisis and emergency technical centres, so as to insure that an emergency warning and a quick response take place in the event of any large accidents at a national or regional level. The total unpreparedness of the destructive tsunami in Southern Asia, which took the lives of 3,000 thousand persons, confirms the urgency of the problem. The key word here is – IMAGINATION. To imagine – what would happen with some facilities under certain circumstances.

Chornobyl has become a model of possible nuclear extermination of a region or a whole country without a nuclear war being declared. Under conditions of globalization and the ever-increasing interdependence of countries and continents, loosing control over the TSS – nuclear, chemical or informational – can take a heavy toll and bring immense destruction to humankind.

The task of the UN, national governments and civil society in the 21st century is to adequately assess existing risks that take into account the Chornobyl experience.

Dear Friends,

For me personally, the anniversary has a special meaning: being a Chernobyl eyewitness in 1986, I am still alive after all these years later. I've had the chance to visit more than 20 countries (countries where my book has been published – a book documenting the story of Chernobyl), and tell people the truth about Chernobyl. Frankly speaking, in 1986, having existential thoughts about life and death on Earth, I did not dream about the next anniversary of this tragedy.

I marked the 10th anniversary in the White house, with First Lady Hillary Clinton, and Vice-President Al Gore.

Fifteen years after the Chernobyl explosion, on December 15, 2000, I went from Ottawa to Kyiv together with the high representatives of Canada – including former Governor General of Canada, Ramon Hnatyshyn, for the participation in the final closing ceremony of the Chernobyl Nuclear Power Plant.

And today I started commemorating the 20th anniversary of Chernobyl here, in Canada. I went to Japan to discuss the issues of the world energy security and nuclear energy development in the 21st century, and participated in Congressional hearings on Chernobyl at the US Congress.

This confirms the global-scale importance of Chernobyl and its lessons.

But there is also a spiritual dimension of Chernobyl. I remember how in the ancient Ukrainian Cathedral of St. Sofia – we were praying for victims of Chernobyl.

We call upon God.

Give us, oh Lord, understanding of the warning, sent to mankind by Chernobyl.
This message is to all peoples on this Earth: be watchful, remember the diabolic powers of death, created by people themselves.

We pray, oh Lord: let the lessons of Chernobyl be always with us, so that freedom and wisdom, justice and peace, goodness and grace may prevail everywhere on the Globe.

Amen.