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Social and economic impacts: Structural restoration of lives and livelihoods in and around affected areas

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Madame c-chairs, distinguished delegates, ladies and gentlemen.

Thank you for this opportunity to address this conference and thank you to the Government of Norway for its initiative in making this happen. The focus of my presentation is on the social and economic impacts of a nuclear detonation, and on the challenges posed to efforts to restore lives and livelihoods in and around affected areas.

Thankfully, UNDP has not yet had to deal with the consequences of a nuclear weapons detonation, be it deliberate or accidental. So my presentation is not informed by first-hand experience in this regard. UNDP does, however, have experience of addressing the human consequences of nuclear contamination caused by nuclear accidents, in particular the Chernobyl disaster, and from nuclear testing in Central Asia. These can inform our deliberations here today.

And I personally do have first hand experience of the long-term consequences of a nuclear accident, having served as United Nations Resident Coordinator in Belarus from 1999 to 2003. Along with my colleagues from Ukraine and Russia we led the preparation of a report, the Human Consequences from the Chernobyl disaster, which found the disaster had not only had immediate and tragic communities for those working and living close to the plant in the first days after the accident, but had long term and profound consequences on human development for people living in all the affected areas – as I will talk more of later.

Indeed, UNDP's work with many partners, in assisting states and communities affected by radioactive contamination has demonstrated the extent to which nuclear radiation can present long-term obstacles to the restoration of lives and livelihoods, and ultimately human development. It also provides us with some important lessons in addressing the humanitarian dimensions of future nuclear disasters, including nuclear detonations.

Returning to the accident at the Chernobyl nuclear plant in April 1986: the accident and the way it was responded to, caused widespread radioactive contamination in large areas of Belarus, the Russian Federation, and Ukraine. In the spring and summer of that year, 116,000 people were evacuated from the affected areas, with a further 220,000 relocated in later years,[1] and many thousands more who migrated voluntarily to areas they thought safer or which offered a better future. Millions more in the region were left psychologically traumatised by lingering fears about their health, and their prospects for the future.

Among those who left on their own initiative later were a young couple, who moved from Gomel Belarus to Siberia shortly before their daughter was born on 19 April 1987, 51 weeks after the accident. Through hard work, talent and good fortune the story for their daughter Maria Sharapova, has a happy ending, as she is now one of the top women tennis players. But for hundreds of thousand of others who were displaced, the effects from the Chernobyl disaster, were a setback, that was not possible to overcome. She now serves as a goodwill ambassador for UNDP on our work in the areas affected by Chernobyl, helping those who were not as fortunate as her.

[1] T Kirk Sell and K Gilles, 2012, *Radiological Disasters: What's the Difference?* Biosecurity and Bioterrorism: Biodefense, Strategy, Practice and Science. Vol 10, No.4, 2012

The economy, primarily the agricultural sector, was devastated by the accident. More than 784,000 hectares were removed from cultivation.[2] Restrictions on production crippled the market for foodstuffs and other products from the affected areas. Government policies of resettlement and limitations on production - aimed at protecting the population from radiation exposure – also had a negative impact on the economy. Thirty years on, affected areas are still experiencing higher levels of poverty than other neighbouring regions as "Chernobyl" has had long lasting and significant environmental, public health, and developmental impacts --- tragically limiting human and economic potential in large areas of Belarus, Russian and Ukraine.

Equally tragic, although much less widely known, is the impact of decades of nuclear testing at Semipalatinsk in Eastern Kazakhstan. Between 1949 and 1989, the Soviet military detonated more than 456 nuclear bombs at the Semipalatinsk testing ground, an 18 500 Km2 sweep of eastern Kazakhstan known as the Polygon.[3] The extent of contamination caused by the blasts and the consequences for the health of local people remains a topic of intense study. According to Kazakh authorities, up to 1·5 million people were affected by fallout from the blasts at Semipalatinsk. Kazakh and Japanese scientists have observed that the rate of cancer in those living in Eastern Kazakhstan remains 25-30% higher than elsewhere in the country.[4] Nuclear contamination from the tests has had other social, economic, and environmental effects. But I will leave it to the next speaker, Dr Saudabayev, to elaborate on these consequences. Suffice to say that there continues to be profound concern, and

[2] Chernobyl Forum, 2006, Chernobyl's Legacy: Health, Environmental and Socio-economic Impacts. Accessed at http://www.iaea.org/Publications/Booklets/Chernobyl/chernobyl.pdf
[3] T Kassenova, 2009, *The Lasting Toll of Semipalatinsk's Nuclear Testing*. Bulletin of the Atomic Scientists. Accessed at http://www.thebulletin.org/web-edition/features/the-lasting-toll-of-semipalatinsks-nuclear-testing.
[4] Opcit, 2006.

uncertainty, about the negative effects the testing has had on the region's eco system and about the presence of radioactive substances in the soil.

Responding to these disasters, the governments and populations of the affected regions of Europe and the CIS have received support from UN agencies and others, to assist them in their recovery efforts. Spanning three decades, these initiatives include efforts aimed at information dissemination on the risks of nuclear contamination, and the development of action plans and national programmes to address these risks. A particularly strong emphasis has also been placed on the provision of targeted assistance to the most vulnerable groups, as well as supporting the development of income generation and other livelihood opportunities for women and youth.

The implementation of these recovery programmes has highlighted some important lessons[5] in addressing the human dimensions of nuclear emergencies, **some** of which would be applicable in a post-nuclear explosion scenario. First, in the short term, the importance of providing the population with accurate, reliable and credible information on the risks and impact of any accident, as well as psychological support and counselling aimed at easing fears of radiation, anxiety, helplessness and a feeling of abandonment. For instance, information was initially withheld from the population during the first week of the Chernobyl disaster. As a result, mistrust remains a major challenge in the Chernobyl-affected communities to this very day. In addition, a significant part of the population developed an inaccurate perception of radiation risk, which caused socio-psychological problems. As a consequence, a real deterioration in public health, and quality of life has occurred in these communities.

[5] These lessons are drawn from "Recovery from Chernobyl and other Nuclear Emergencies: Experiences and Lessons Learnt." November, 2012, UNDP.

A second lesson concerns the importance of strengthening the capacities of governments and other local institutions so that they are able to play a lead role in planning and implementing recovery plans. Inadequate state response mechanisms, along with the poor management of information during the aftermath of the Chernobyl crisis, further exacerbated the sense of helplessness of citizens. Moreover, it heightened the level of mistrust towards experts and government authorities. Unfortunately, for many developing countries, government capacities for disaster management are still extremely limited. So communities from these countries are going to be much more vulnerable to the pronounced wider and deeper risks posed by nuclear contamination, including from a nuclear detonation.

Thirdly, there is the realisation that the negative impact of nuclear disasters on development is significant and long lasting. Numerous scientific studies from Chernobyl and Semipalatinsk, including the 2006 findings of the Chernobyl Forum[6] (organized by the IAEA, in cooperation with UN agencies and the governments of Belarus, Russia and Ukraine), have highlighted that the vast majority of people living in contaminated areas are still suffering from social and economic hardship. Furthermore, investment is scarce, infrastructure is lacking, and many young people have left the regions to seek better opportunities elsewhere. This necessitates placing a much greater emphasis on generating economic and social opportunities in recovery planning, alongside the more immediate humanitarian support, resettlement and health care programmes. This development approach was adopted very late in response to the Chernobyl and Semipalatinsk disasters. But it has yielded some important results in encouraging economic development in affected regions.

[6] The Chernobyl Forum is an initiative of the IAEA, in cooperation with the WHO, UNDP, FAO, UNEP, UN-OCHA, UNSCEAR, the World Bank and the governments of Belarus, the Russian Federation and Ukraine.

The important issue here, of course, is that the human, social and economic impact of a nuclear detonation would differ from the nuclear accidents I've described, both in magnitude and types of effect. Whether from a nuclear exchange during a regional or international conflict, as a result of a terrorist nuclear devise involving a nuclear detonation, or from an accidental detonation, the immediate devastation caused by a nuclear detonation would be so much greater than that of a nuclear power accident.

In terms of the human impact as shown in the information given this morning on the impact of a nuclear detonation on Oslo and Bern, scientists estimate that a single small nuclear detonation in an urban centre could lead to fatalities in the hundreds of thousands, and at least double the number of casualties, because of the blast, heat and fragmentation effects created by the detonation.[7] The same scientists have calculated that the outcome of a regional nuclear exchange involving 100 15 kiloton explosions (less than 0.1% of the explosive yield of the current global nuclear arsenal), could produce direct fatalities comparable to all of those worldwide in World War II (some 42 million people). They also suggest that large urban centres exposed to atmospheric fallout of long-lived radionuclides and facing significant infrastructural damage would likely be abandoned for decades. This would have severe national and international implications.

Development efforts would also be severely constrained by the destruction to infrastructure and communications networks, the disruption to economic activity in major urban centres and to global food supplies. Scientists predict

[7] O B Toon, R P Turco, A Robock, C Bardeen, L Oman, and G L Stenchikov, 2007, *Atmospheric Effects and Societal Consequences of Regional Scale Nuclear Conflicts and Acts of Individual Nuclear Terrorism*, Atmospheric Chemistry and Physics, Vol. 7, 2007.

that the smoke and soot from urban firestorms in a regional war would rise into the upper atmosphere, and induce significant climatic effects on global scales. So much smoke and soot would be produced that it would cause temperatures to drop and growing seasons to be shortened around the world, causing significant disruption to global food supplies. Indeed, recent research shows that even a relatively limited nuclear exchange, with 100 15 kiloton bombs being detonated as air bursts in urban areas, could cause long-lasting global damage to the world's ecosystems and economic systems and threaten hundreds of millions of already poor people.

Furthermore as the effects from the nuclear accident at Fukushima showed, in a world economy where supply chains are closely intertwined, the economic effects of a break in that supply chain in one place, can have worldwide economic implications, whether in Europe, southeast Asia or Africa. The effects from the detonation of a nuclear device could be much greater on the world economy.

As we will hear later from Dr. Helfand, recent studies predict that production of key staple crops in parts of China and the United States would decline by about 20% for five years, and by 10% for a decade. Resulting increases in food prices would make food inaccessible to hundreds of millions of the world's poorest people. In turn, significant agricultural shortfalls and disruption to global food supplies would undoubtedly increase the risk of conflict between communities as people compete over food and water. Of course, this further complicates the task of trying to rebuild lives and communities.[8]

[8] See, for example, A Robock and O B Toon, 2012, *Self-assured Destruction: The Climate Impacts of Nuclear War*, Bulletin of the Atomic Scientists, Vol. 68, No. 5, and I Helfand, 2012, *Nuclear Famine: A Billion People at Risk – Global Impacts of Limited Nuclear War on Agriculture, Food Supplies, and Human Nutrition*, International Physicians for the Prevention of Nuclear War.

Colleagues, UNDP's experience of programming in countries recovering from the Chernobyl nuclear accident and nuclear testing in Central Asia have demonstrated the extent to which nuclear contamination can present long-term obstacles to the livelihoods of those living in and around affected areas. These will be dwarfed by the likely impact of a nuclear weapons detonation in which even a relatively limited regional exchange has the potential to cause massive human fatalities and global food shortages through environmental effects.

So while there may be some uncertainties among scientists in their predictions on the scale and nature of the effects, if we are concerned about future human development and the future well being of everyone, -one thing is very clear - we need to make sure that a detonation of a nuclear weapon never happens. We hope that this conference gives the impetus to make sure this is the future we have, and not the other one.

Thank you.