



Kiev, Ukraine, 27 July 2007

**Statement  
of the international meeting on  
“Reducing Risk of Disaster from Catastrophic Wildfires in the Chernobyl Irradiated  
Forests”**

The international meeting on “Reducing Risk of Disaster from Catastrophic Wildfires in the Chernobyl Irradiated Forests” was held in the National Agricultural University, Kiev, Ukraine, 26-27 July 2007. The meeting was organized by Yale University School of Forestry and Environmental Studies (Global Institute of Sustainable Forestry) and by the National Agricultural University of Ukraine. The meeting was sponsored by the Chopivsky Family Foundation and held under the auspices of the United Nations International Strategy for Disaster Reduction (UNISDR), Global Fire Monitoring Center (GFMC), and the Government of Ukraine, with participation of the Council of Europe (CoE), the Organization for Security and Cooperation in Europe (OSCE), the World Conservation Union (IUCN), the Ministry of Ukraine of Emergencies and Chernobyl Affairs, and the State Forestry Committee of Ukraine. The meeting brought together more than 80 participants from Belgium, Belarus, France, Germany, Spain, Switzerland, Russia, Ukraine, and USA, representing government and international organizations.

Participants at the meeting were presented with a comprehensive picture of the current wildfire risk situation in the forest still contaminated by radioactive fallout from the 1986 Chernobyl nuclear disaster. Concerns include fire risk assessment ability, potential effectiveness of the currently existing forest fire suppression system, potential of proactive forest thinning to reduce fuel hazard, fire detection ability, and the amount of technical and human resources allocated to fire management. The ecological, social, and economic consequences of potential catastrophic radioactive wildfires were discussed. The critical components of the problem were specified and fire risk forecasts were demonstrated.

A strategic plan for disaster risk reduction with preliminary cost estimates was presented, entitled “First Draft of Proposed Implementation Plan and Budget for Reducing the Risk to Kiev and other Areas of Forest Fires with Radioactive Smoke from Forests impacted by the 1986 Chernobyl Nuclear Disaster.” It is being revised and edited.

Recognizing the high regional and international risks of catastrophic wildfires in the Chernobyl irradiated forests and the potential negative consequences for the environment and population, the participants of the meeting declared the following:

1. A high wildfire hazard has emerged on the area of 260,000 hectares of forests and former agricultural lands of the Exclusion Zone around Chernobyl Nuclear Power Plant. The forests and former agriculture lands are highly contaminated with long-resident radionuclides of the  $^{238}\text{Pu}$ ,  $^{239+240}\text{Pu}$ ,  $^{137}\text{Cs}$  and  $^{90}\text{Sr}$ . The greatest wildfire hazard is found in dying Scotch pine forests on total area of up to 5,000 ha accordingly to different estimations. Despite a general prohibition of access to the Exclusion Zone, human-caused



ignition is common in the area. During long drought periods and extreme wind conditions there is a risk that large, high-intensity crown fires will occur that will lift radionuclides to the atmosphere with the smoke, resulting in uncontrolled radioactive fallout downwind.

2. There are insufficient levels of technical and human resources in proactive wildfire risk reduction and in fire suppression in the Exclusion Zone. Poorly maintained forest roads and water sources and the lack of an early warning and detection system do not allow rapid response and transportation of fire equipment and personnel to the fire. Consequently, the fires will probably not be suppressed at an early stage before they become catastrophic.

3. The radioactive wildfire hazard can be dramatically reduced with proactive management and reactive fire suppression. However, these activities require a continued investment of much more money than is currently being allocated to these efforts.

4. It is highly probable that fallout of significant amounts of radionuclides, carried by wind in wildfire smoke up to hundreds and thousands of kilometres downwind, will affect human populations and result in secondary contamination of lands, according to the current state of scientific knowledge in modelling resuspension and redistribution of radionuclides during wildfires. As a consequence of radioactive smoke inhalation, fire fighters and staff working in the Exclusion Zone and nearby as well as distant populations, even in other countries, are particularly threatened. At present there is no effective regional and national plan of response and risk management in case of a radioactive wildfire disaster.

5. The investment climate and international image of Kiev, the Kiev region, and elsewhere that the radioactive smoke may travel will be negatively affected by a catastrophic, radioactive wildfire in the vicinity of the Exclusion Zone—or even by high awareness of the potential for such a damaging wildfire. The cost of lost investment will probably be much greater than the cost of dramatically reducing the wildfire risk by appropriate investments in proactive forest management and a sufficient fire suppression program.

Taking into consideration risks and relevance of the issues described, the participants of the meeting agreed in defining the need of urgent, coordinated and collective actions for solving the most critical problems related to the radioactive fire problem. In particular, the participants recommended the following:

1. Joint Ukraine and international financing on an ongoing basis must be found to initiate an international project: “Reducing Risk of Disaster from Catastrophic Wildfires in the Chernobyl Irradiated Forests” that would include all components needed to address the problem.
2. Details of the project objectives and operations as well as the critical/priority areas need to be targeted and possible scenarios need to be elaborated. A project office, led by Yale University and National Agricultural University of Ukraine should be established.
3. A multi-stakeholder coordination council (committee) of the Project needs to be established, a leader / coordinator determined, and thematic sub-groups organized.
4. The National Agricultural University of Ukraine should initiate a pan-Ukrainian dialogue on a collaborative (inter-agency and multi-stakeholder) approach and provide coordination of the project towards addressing the issue of reducing the radioactive wildfire risk.
5. Neighbouring countries, notably Russia and Belarus, and other international stakeholders / organizations need to become involved in the process of preparation and implementation of the project.

6. Accurate, transparent information on the current radioactive wildfire risk, progress in implementing the risk reduction, results achieved, and status of the project need to be provided to society and stakeholders on an ongoing basis through mass media and seminars about implementation of the project and results achieved.

#### **TO INTERNATIONAL ORGANISATIONS, CENTRAL AND LOCAL AUTHORITIES**

1. Transboundary / international cooperation in capacity building for proactive forest management and fuel mitigation is needed (e.g., through bilateral or multilateral agreements) as well as reactive fire suppression preparedness and response to address the transboundary risks of radioactive fire emissions.
2. Yale University and National Agricultural University of Ukraine as coordinators of the project should actively cooperate with international organizations, notably ENVSEC (UNEP / OSCE / UNDP / NATO), UNISDR / Global Wildland Fire Network / Wildland Fire Advisory Group, CoE / EUR-OPA, and IUCN during project implementation.
3. Ukraine may consider developing a memorandum of understanding in Cooperation with CoE / EUR-OPA with the aim of attracting more attention and commitment at government levels.
4. Ukraine may consider approaching FAO for cooperation towards utilizing the TCP tool for medium-sized and rapidly implementable project elements.
5. The current radioactive wildfire risk problem and progress toward risk reduction should be presented at the CoE-led conference on “Learning from Chernobyl legacy to make European energy safer: Role of local communities, authorities and central governments in emergency preparedness and management” to be held in Ukraine in September 2008.
6. A remote system for early fire detection should be implemented covering the whole area of the exclusion zone, which will be based on smoke and visual detection; to establish an improved communication system, installing a satellite receiving station for wildfire monitoring should be considered.
7. Advanced fire management training should be conducted for fire services, forestry services and others involved, preferably at the regional level (e.g., in the Chernobyl Zone, jointly for Ukraine, Belarus, Russia, in cooperation with the Global Fire Monitoring Center and the focal Fire Coordination Centre in Ukraine [NAUU]).
8. Terminology should be standardized for protocols and commands of response for radioactive fire management and suppression of fires. The possibility should be investigated of implementing the “Incident Command System” (ICS) under the UN auspices in accordance with the recommendation of 4th International Wildland Fire Conference, Seville, Spain, 2007.
9. Representatives of civil society, notably local communities, should be included in disaster prevention, preparedness and mitigation.

**TO YALE UNIVERSITY GLOBAL INSTITUTE OF SUSTAINABLE FORESTRY,  
INSTITUTE OF FORESTRY AND PARK MANAGEMENT NAUU, RESEARCH  
INSTITUTE OF AGRICULTURAL RADIOLOGY NAUU, ALL UKRAINIAN  
RESEACR INSTITUTE OF CIVIL PROTECTION OF POPULATION AND  
TERRITORIES FROM EMERGENCIES, OTHER RESEARCH ORGANISATIONS**

1. Scientific assessments should be provided of all risks, which potentially can arise during wildfires as a basis for the development of a fire management strategy.
2. A GIS-based decision-support/expert system should be developed that will integrate air quality radiation monitoring systems, spatial peculiarities of contamination, forest inventory data, fire models and fuel accumulation, and other needed data to obtain a clear, quantitative picture of area of the project implementation.
3. Fire dangerous assessment of forest and nonforest lands and its classification, models of fire behaviour should be developed; and radionuclide resuspension and migration should be analyzed relative to fuel loading, contamination level, and weather conditions.
4. The CoE and Yale University should organize an exchange, with the assistance of Global Fire Monitoring Center, between Ukraine, USA and EU for training in innovative and economically feasible methods of forest management, wildfire risk reduction, fire management, and planning.

**STATE DEPARTMENT - THE ADMINISTRATION OF THE EXCLUSION ZONE  
AND ZONE OF UNCONDITIONAL RESETTLEMENT OF THE MINISTRY OF  
UKRAINE OF EMERGENCIES AND CHORNOBYL AFFAIRS, STATE SPECIAL  
ENTERPRISE "CHORNOBYL FOREST"**

1. The draft paper described herein should be reviewed, improved, specified, and integrated into the project for implementation. The draft paper is entitled: "First Draft of Proposed Implementation Plan and Budget for Reducing the Risk to Kiev and other Areas of Forest Fires with Radioactive Smoke from Forests impacted by the 1986 Chernobyl Nuclear Disaster"

The implementation will include proactive and preventive measures, including:

- a. Designing and implementing forest management, fire management and nature conservation plans / strategies;
- b. Completing a fuel inventory (inventory of combustible matter inside forests) and forest inventory on the areas with high fire risk and build digital maps;
- c. Enhancing the fire management infrastructure and safety, including improving placement of strategic fire breaks and other elements of fire management based on risk assessments and upgrading or replacing existing but outdated fire fighting equipment such as radio communication, fire trucks, and water pumps. (Most of the equipment dates back to the 1970's and would not be effective in suppressing any catastrophic fires in the region);
- d. Implementing thinning (removal of some trees in crowded forests) with use of advanced technologies such as "cut-to-length" machine systems with cutting shears, so that the operator sits in a controlled-air cab and is not exposed directly to the radioactive dust. These machine systems should be tested and modified to ensure worker safety in the irradiated forests;
- e. Organizing forest fire monitoring.

2. Strategies and measures should be developed to manage the impacts of radioactive smoke on human health and security both inside and outside of the Exclusion Zone.
3. Endorsement / application of the “Fire Management Voluntary Guidelines” (UN / FAO / UNISDR) should be considered.

The meeting participants thanked the organizers, sponsors and host of the conference for bringing together the international community concerned with the problem of radioactive wildfires. The participants welcomed the offer of organizers and sponsors to hold a second conference, tentatively in 2008, for monitoring the progress toward implementation of this report and for continuing the discussion and strategy development for mitigating radioactive catastrophic fires.

Co-chair of the organisational committee of the Conference  
Rector of the National Agricultural University of Ukraine  
Academician of the National Academy of Science of Ukraine

Dmytro Melnychuk

Co-chair of organisational committee of the Conference  
Director of the Yale University  
Global Institute of Sustainable Forestry, professor

Chadwick Oliver

Secretary  
Associate professor of the Institute of Forestry  
and Park Management of the National  
Agricultural University of Ukraine

Sergiy Zibtsev