

Project Inception Workshop
Conserving, Enhancing and Managing Carbon Stocks and Biodiversity
in the Chernobyl Exclusion Zone

Ministry of Ecology and Natural Resources of Ukraine (MENR)
State Agency of Ukraine on the Exclusion Zone Management
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Project Summary

The project objective is enhanced conservation and management of carbon stocks and biodiversity in forest and non-forest lands in the Chernobyl Exclusion Zone (ChEZ). The project aims to expand current use of the Chernobyl Exclusion Zone to encompass ecosystem values and in so doing provide ecosystem services to the benefit of local, national and international stakeholders. Biodiversity focused management is to be mainstreamed into the public sectors responsible for the use and management of the natural resources of the ChEZ. In order to do this in a sustainable way, project involvement and support of social and stakeholder engaged processes are ensured where science and policy work together to allow for the uptake of the results of the project. The project consists of local, national, regional and international scale activities which will contribute to development and implementation of an expanded protected area network in and around the ChEZ, and accompanying management processes in the context of a governmental commitment to expand current productive uses in the ChEZ to the social, economic and environmental benefit of all stakeholders.

Mainstreaming of project results will be aided by the participation and ownership of stakeholders in this project. In order to facilitate this participation, close communication channels between project managers, governmental ministries, agencies and departments, scientists at national and international levels, and inhabitants around the ChEZ will be established. This communication will inform scientists as they strive to fill important data and information gaps, while communications between scientist and stakeholder will ensure buy-in and ownership. While the central focus of the Project is the ChEZ, officials from Belarus generally, and specifically from the Polesky Nature Reserve (Reserve), were involved during project preparation. Close cooperation and joint activities with the Reserve will continue during project implementation.

The project has three substantive components and two additional components for project management and monitoring and evaluation.

Component 1 is improved monitoring and research for large areas of forests, wetlands, and other habitat types and associated carbon benefits in the ChEZ. It will result in creation of a Research and Environmental Protection Center, which will take the lead in efforts to collect and synthesize existing research, undertake a gap analysis, and develop and implement a research program consistent with

Component 2 is establishment and management of a full protected area network. The new protected area network will enable protection of biodiversity, mitigate land degradation and maintain carbon stocks in large areas of forest and non-forest lands, including wetlands and other habitat within the ChEZ. This component will include a wide reaching dissemination strategy to secure participation, build and strengthen partnerships, and contribute to further understanding and appreciation of the social, economic, and environmental benefits that will accrue to the ChEZ and surrounding area. Civil society engagement will include informal presentations and media communications on the project and its relevance to society at large.

Component 3 captures lessons learned, field-testing and dissemination of results. Component 3 will ensure mainstreaming of project results. The communication process of this Component will include traditional scientific publications to demonstrate the credibility and applicability of project results. The participation of international scientific organizations in project activities will facilitate the communication of results as well as help in ensuring replication in other areas as necessary. Lessons

learned will be made widely available through written reports, the project website, and through training manuals developed and distributed by the Research and Environmental Protection Center.

Background

For the past 30 years up to 80% of the ChEZ has existed in *de facto* reserve status, and impacts on the land have been largely natural in origin. These natural impacts include forest fires, floods, windstorms, and impacts from growing populations of fauna. The result has been a significant increase in biodiversity, particularly in the formation of a complex mosaic of undisturbed forest and non-forested areas, an increase in wetlands area, and a substantial increase in the number of species and species populations.

Current extent of protected status in the ChEZ

A total of 13 Protected Areas were already established within the current ChEZ prior to the accident under the “Nature Reserve Fund” legislation. Another Protected Area (the “Generic Zoological Game Reserve of National Importance” or “Chernobyl Special”) was added in 2007 and enlarged the total conservation area in the ChEZ to 20%.

However, all of these Protected Areas currently fall under a low category of legal protection, and an Environmental/Protected Area Management structure is not in place for any of them. Notwithstanding the limitations in physical scope and low level of legal protection, the above initial steps by the Government of Ukraine demonstrate a commitment to and recognition of the region’s value for biodiversity conservation, and the government commitment to this project, especially work underway to create a Biosphere Reserve for the ChEZ, demonstrates government intention to substantially expand both the size of the extant protected area the level of protection that the zone will have. Additionally, in late 2012, as part of a government reorganization, the Agency for the Management of the Chernobyl Exclusion was placed under the aegis of the Ministry of Ecology and Natural Resources, signaling an intent to integrate the ChEZ into overall government efforts to broaden activities in the ChEZ by incorporating ecological considerations into future planning and management.

The now semi-natural ecosystem within the ChEZ is bio-geographically well connected with all natural ecosystems within and adjacent to its boundaries, including those Protected Areas already having some form of legal protected status. Taken together, these ecosystems total approximately 400,000 ha. In particular, The ChEZ borders with the “Dnieper-Teteriv Forestry and Hunting Reserve” (30,400 ha) to the South, with “Drevlyansky” (30,873 ha) and “Polessky” (20,104 ha) Natural Reserves to the West, with the extensive Polessky State Radiation Ecological Reserve (Belarus, 215,000 ha) to the north, and with the "Mizhrichynskyi" Regional Landscape Park (102,500 ha) to the East. The ChEZ is also situated at the intersection of the Pripyat and the Dnieper corridors within the European Ecological Network. Ukraine has been in the process of developing a biosphere reserve plan for all of ChEZ, but formalization of the plans has been delayed due to political and military unrest. The Belarus portion has not been gazetted, but during preparation of this project, officials from the Polesskiy natural reserve have indicated their interest in coordination with this project

Global significance

The combination of three main factors in the exclusion zone makes this area a unique area in the world for nature conservation and research:

1. Radionuclide contamination as a result of the accident;
2. The potential for what could become the largest area in Europe without anthropogenic impact, and one that contains substantial and increasing species, ecosystem and landscape diversity of global significance; and
3. Provides opportunity for maintaining and achieving substantial levels of carbon sequestration given its substantial forest base and peatland areas.

Radionuclide contamination study

The ChEZ will retain the status of radiation-hazardous area long into the future, and as such it will continue to be subject of a continuous radiation monitoring program to inform other areas of the world that have or in future will suffer nuclear accidents. Continued research and monitoring will provide the necessary basis to improve currently limited understanding the underlying natural recovery process that is taking place in the ChEZ ecosystem, and this research will not only assist in determination of future prospects for the conservation and development of the area, but as a laboratory for informing similar research globally in the future.

Species and general ecosystem diversity

The ChEZ has now become globally significant for reasons other than it having been the site of the first major nuclear accident. As a result the long absence of human influence, expert assessments indicate that flora and fauna diversity and abundance has increased to levels that have not existed in the zone for centuries. In particular:

- Over 320 species of vertebrates (out of the 410 likely to occur in the area) have now been recorded in the ChEZ, of which 55 species (out of 97 possible) are on the "Red List" of Ukraine.
- Populations of ungulates, carnivores, and other game species are currently at the highest level ever recorded. For example, Lynx, Otter, and Beaver populations have significantly increased. The density and abundance of Moose in the ChEZ is the highest in Ukraine, despite a substantial Wolf population. And the Red Deer, Wild Boar, and Roe Deer populations have also substantially increased.
- The White-Tailed Eagle, Spotted Eagle, Black Stork, Gray Crane, Eagle Owl, and many other rare birds are now widespread within ChEZ. Bats (*Chiroptera*) are represented by 14 species, including the Pond Bat, Barbastelle Bat, and Greater Noctule, that are rarely seen in Europe.
- The ChEZ is also located at the intersection of several main flyways for several populations of migratory birds in the African Eurasian Region, thus playing a significant role in supporting these populations of birds in their seasonal migration cycles.
- Over 1500 species of lichens, mosses, and higher plants have been recorded in the ChEZ. Many of these are also red-listed, regionally endemic, or relict.
- The sudden halt of agricultural and forestry activity has contributed to the recovery of all fauna.
- The population of pollinating insects also appears to have been enriched.

As previously stated, local habitat diversity is classified into 23 different terrestrial and 7 aquatic phyto-systems, 12 terrestrial and 8 aquatic zoo-systems, five landscape types and up to 15 soil types.

The current ChEZ (2,600 sq. km.), together with the Polesky State Radiation Ecological Reserve in Belarus, forms a natural and geographical system with a total area of 4,750 sq km. The "Drevlyansky" Nature Reserve (308.73 sq. km.), established in 2008 in the adjoining territory of the Zhytomir region of Ukraine, makes possible consideration of a vast Protected Area Network in and around the ChEZ with a combined area of over 5,000 sq. km.

This vast territory increasingly provides a safe habitat for viable populations of species with a limited range that are sensitive to anthropogenic impacts, as well as for species that require large territorial ranges to survive. For example, the Brown Bear, which had disappeared from this landscape, and requires a large territorial range, has reappeared in the ChEZ. Other examples include the now thriving population of the re-introduced Pretzwalsky Horse and increasing numbers of European Bison in neighboring Belarus.

Carbon sequestration in the ChEZ

Termination of land use in the ChEZ contributed to the formation of permanent vegetation cover, leading to stabilization of the hydrological regime, reduced wind and water erosion, and minimization of the migration of radionuclides with water flows out of initial deposition pools. Thus, the maintenance of reserve status of the area increases the effectiveness of the barrier function of the zone, which corresponds to the requirements of the Law of Ukraine (1991). The Law describes the

legal activities that may take place in all zones of Ukraine, and emphasizes the requirement to maintain the barrier function of the ChEZ as a means of preventing redistribution (disturbance) of existing radionuclides in and outside of the zone.

Increased levels of carbon sequestration by vegetation complexes throughout the area is an important additional positive process in the ChEZ that has global significance. Intensive accumulation and concentration of carbon takes place in an area of more than 60 thousand hectares of former agricultural lands, where stable cover of perennial grasses has now formed. In areas close to massive forests, perennial herbs have been intensively replaced by natural regeneration of pine and birch trees, whose age ranges from 5 to more years. The typical succession process of grasslands in the temperate climatic zone, where the ChEZ is situated, comprises complex, multispecies indigenous forests within a 10-15 year period, with consequent high carbon sequestration. This process of accumulation and concentration is currently underway in the zone as evidenced by substantial increases in pine and birch on former agricultural lands. At present lands within the ChEZ are unmanaged in the national CHG inventory.

Main Threats

Threats	Root Causes	Barrier Analysis
Human induced wildfires in the ChEZ	<p><u>Ultimate Cause:</u> Poverty in areas abutting the ChEZ</p> <p><u>Intermediate Causes:</u> Poor enforcement of existing rules preventing rehabilitation of dwellings within the ChEZ</p> <p>Poor enforcement of existing restrictions on unauthorized tourist access to the ChEZ</p> <p>Illegal logging activities Poaching Illegal “adventure” tourism Absence of integrated resource management for the ChEZ</p>	<p>Lack of knowledge of dangers to exposure (through smoke inhalation and less visible atmospheric deposition) of radioactive material resulting from combustion of organic material</p> <p>Lack of resources, human and financial, to strengthen and enforce existing regulations</p> <p>Lack of resources, human and financial, to strengthen and enforce existing regulations</p>
Naturally occurring wildfires in the ChEZ	<p><u>Ultimate Cause:</u> Lightning strikes and drought conditions (possible climate change effect)</p>	<p>Lack of integrated resource planning in the ChEZ</p> <p>Lack of effective fire monitoring and fire response mechanisms within the ChEZ</p>

<p>Exploitation of natural resources inconsistent with conservation based principles</p>	<p><u>Ultimate Causes:</u> Poor understanding and/or neglect of ecosystem knowledge and practices w/ consequent loss of globally important biodiversity and diminishment of extent of carbon trapping forests and grasslands</p> <p>Exclusive value placed on development to the exclusion of conservation based principles and understanding of ecosystem services</p> <p><u>Intermediate Causes:</u> Failure to incorporate sustainable development and conservation based principles and practices into economic planning and development</p> <p>Failure to include local communities in planning future ChEZ use</p>	<p>Lack of integrated research that can lead to identification and quantification of ecosystem derived benefits and services</p> <p>Poor integration of ministerial responsibilities and effort</p> <p>No existing analysis of benefits that could be derived through employment and other benefits of PA creation</p> <p>Little emphasis on effective stakeholder involvement activities</p> <p>Lack of integration of various relevant activities among ministries and between national ministries and local governments and populations</p> <p>Lack of human and financial resources to create and enforce provisions ensuring integrated resource management (cross-cutting)</p>
<p>Continuing and growing unauthorized human movement into, and illegal use of resources (e.g. illegal logging, poaching) within, the ChEZ</p>	<p><u>Ultimate Cause:</u> Poverty in areas abutting the zone</p> <p><u>Intermediate Causes:</u> Poor enforcement of existing rules preventing re-inhabiting of dwellings within the ChEZ</p> <p>Poor enforcement of existing restrictions on unauthorized tourist access to the ChEZ</p>	<p>Lack of economic opportunity in areas immediately outside of the ChEZ</p> <p>Rules and regulations for access to the ChEZ do not adequately make provision for stakeholder access consistent with clear and understandable access rules of integrated resource management</p>
<p>Exposure to radioactive contamination in the ChEZ and in areas abutting the ChEZ</p>	<p><u>Ultimate Cause:</u> The Chernobyl disaster</p> <p><u>Intermediate Causes:</u> Low level of understanding, or ignoring understood dangers that radioactive contamination released from harvesting of forests poses to workers and inhabitants in, and in the vicinity of, the ChEZ</p> <p>Poor enforcement of existing rules, and the formulation of improved regulations aimed at preventing practices that would increase levels of radioactive contamination</p>	<p>Lack of economic opportunity in areas immediately outside of the ChEZ, leading to illegal burning and poaching</p> <p>Lack of knowledge of dangers to exposure (through smoke inhalation and less visible atmospheric deposition) of radioactive material resulting from combustion of organic material</p> <p>Lack of resources, human and financial, to strengthen and enforce existing and future regulations</p>

Project goal and objective

The project objective is to *Conserve, Enhance and Manage Carbon Stocks and Biodiversity in Forest and non-Forest Lands and Promote Sustainable Development in The Chernobyl Exclusion Zone through the Establishment of a Research and Environmental Protection Center and associated Protected Area within and around the current Chernobyl Exclusion Zone (ChEZ), in Ukraine.*

At present, approximately only 20% of the ChEZ is in low protected status, meaning there have been few government resources, human or financial, to manage current protected areas, including no direct budget allocation. Indeed, at present there is no sustainable management plan for the ChEZ, although there has been some limited and initial forestry planning. The priority within the ChEZ has been the reduction of threat levels from radionuclides with no emphasis on conservation and sustainable use. Further, the current Chernobyl Center is underfunded, under staffed, and its mission has generally not included an environmental emphasis.

Objective level indicators for the project include:

- Evidence of the formal establishment of a large protected area within the ChEZ with formalized links to the Polesky Nature Reserve in Belarus;
- A formally adopted Protected Area Management Plan for the ChEZ; and
- Evidence of sustainable funding for a ChEZ Environmental Protection Center.

Project Components/Outcomes/Outputs

Component 1 is the establishment of a Research and Environmental Protection Center, or REPC. These complex issues described above underscore the importance of an improved and coordinated management approach for the ChEZ. This component will provide GEF incremental support to the GOU in taking the first steps towards the implementation of a set of appropriate environmental monitoring and management measures for the ChEZ through establishment of the dedicated Chernobyl Region Environmental Protection Center. The exact location of the REPC will be determined during project implementation.

The Chernobyl region offers a globally unique opportunity for the ongoing conduct of radioecological and radiobiological research in an otherwise natural setting. Such studies are, except for very small-scale experiments, not possible or difficult to perform elsewhere, and this Component will lead to the collection, synthesis, and distribution of important data and information from a single, major center as envisioned in the project. Outcomes and Outputs for Component 1 include:

Component 1: <i>Establishment of a Virtual Research and Environmental Protection Center</i>	Environmental monitoring systems designed and operational and generating information on state of the ChEZ environment.	1.1 The VREPC established and fully functional 1.2 Comprehensive assessment of the current state and trends of natural ecosystems in the ChEZ. 1.3 The status and potential in terms of ecosystem services, values, enhancement of carbon benefits and meeting LULUCF targets in the ChEZ is assessed.
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Component 2 will result in establishment and management of a full-protected area. Within the ChEZ this will be accomplished by a biosphere reserve designation. The Government is currently working to define the zones within a proposed Biosphere Reserve for the ChEZ. While definition is not complete all indications is that the new protected area will be similar to that depicted in Figure 5. Consistent with the Biosphere Reserve designations, there will be in the ChEZ a combination of core areas, buffer zones, and zones where stakeholders work together to manage and sustainably develop the resources of the ChEZ.

There are areas within the ChEZ that pose dramatic fire risk and dangers of consequent radioactive fallout that would pose significant danger to fire fighting personnel, possible danger to Kiev and other countries, depending on wind direction, and danger of crop contamination. Areas at risk would be part of integrated use settings where necessary thinning and, in some cases, necessary clear-cutting would be employed. It is also planned that discussions will be held with officials from Belarus with regard to appropriate joint planning for fire risk management. Outcomes and Outputs for Component 2 include:

Component	Outcomes	Outputs
Component 2: <i>Establishment and Management of a Full Protected Area Network</i>	Enhanced conservation and sustainable management of natural resources and carbon stocks in large areas of forest and non-forested lands, including wetlands and other habitat types within and around the ChEZ	2.1 The ChEZ is upgraded to the status of Protected Area network to enhance the conservation and management of carbon stocks, including development and implementation of a fire prevention and management plan, and secure the long-term basis for appropriate management, monitoring and research for large areas of forests, wetlands, and other habitat types. 2.2. Ensured financial and institutional sustainability of multi-sector conservation programs.

Component 3 will include learning, field-testing and the dissemination of project results. The key Component 3 indicator will be documentation of the number and extent (national/international) of distribution and use of, and feedback derived from use of project-derived lessons learned and best practices, and recommendations developed and published on habitat rehabilitation, carbon stocks management and biodiversity conservation emerged from prior and ongoing work in the ChEZ, and applicable similar situations. Outcomes and Outputs for Component 3 include:

Component	Outcomes	Outputs
Component 3: <i>Learning, Field Testing and Dissemination</i>	Increased availability and access to critical knowledge needed for decision-making for effective sustainable management of the ChEZ.	3.1 A set of lessons learned and practical recs. developed and published on habitat rehabilitation, carbon stocks management and biodiversity conservation emerged from prior and ongoing work in the ChEZ, and applicable to similar situations. 3.2 The results are widely disseminated nationally and internationally