**Project concept: “Assessment of the impact of the war in Ukraine on protected areas / biosphere reserve using GIS technologies”**

**Project relevance**

The war in Ukraine has a significant impact on natural ecosystems, including protected area and biosphere reserves, which are important areas for biodiversity conservation. As a result of military actions, destruction, population migration and land use change, unique natural complexes are under threat. It is necessary to assess the impact of these factors in order to develop strategies for the preservation and restoration of protected areas and biosphere reserves.

Chornobyl Radiation and Ecological Biosphere Reserve

Holosiivskyi National Nature Park

National Nature Park "Biloberezhya Svyatoslav"

and other biosphere reserves in Ukraine

National Transport University

Kyiv State University named Taras Shevchenko

Zhytomyr Polytechnic State University

Ukrainian aerial geodesic association Dr. Oleksandr Prokhorchuk https://aerogeo.org/

GIS-Cadastre Association of Ukraine Roman Balabanyk https://gisca.com.ua/

**https://www.geo-portal.org.ua/home**

**Project goal**

Study of the impact of the war on the protected area and biosphere reserves of Ukraine using modern GIS technologies for analysis, monitoring and development of recommendations for their preservation and restoration.

Project objectives

1. Mapping damage to protected area and biosphere reserves:

- Collection and processing of satellite data to assess changes within protected area and biosphere reserves.

- Identification of areas destroyed or damaged due to hostilities.

2. Monitoring of the ecological state:

- Analysis of changes in landscapes, flora and fauna of biosphere reserves.

- Identification of areas with critical ecological changes.

3. Study of the impact of anthropogenic factors:

- Analysis of land use change (in particular, illegal logging, construction, agricultural development).

- Study of the impact of population migration and new economic activities on biosphere reserves.

4. Development of an interactive GIS platform:

- Creation of a geoportal for visualization of data on the state of biosphere reserves.

- Providing access to information for scientists, environmental organizations and government agencies.

5. Recommendations for restoration and conservation:

- Development of restoration plans for damaged areas.

- Formulation of adaptation policies to changes in natural ecosystems.

Target audience

- Government authorities.

- Nature protection organizations.

- Civil society organizations.

- International environmental funds.

- Local communities.

Tools and methods

1. Territory monitoring

- Use of high-resolution satellite images (30-40 cm/pixel) to monitor changes in biosphere reserves.

- Use of UAVs for individual studies.

- LIDAR scanning if necessary to obtain more accurate data on forest cover and forest quality.

- Biometric monitoring to collect data on flora and fauna.

2. Data analysis:

- Spatial data analysis using ArcGIS tools.

- Spatial analysis of landscape changes.

- Identification of critical areas requiring restoration.

3. Interactive platform:

- Creation of a geoportal with data integration for public access and analysis based on the ArcGIS software package.

Expected results

1. Cartographic materials with identification of damaged areas of bioreserves.

2. Development of an interactive GIS platform for monitoring the impact of war.

3. Analytical reports on the state of biodiversity in biosphere reserves.

4. Recommendations for state bodies and environmental organizations on the preservation and restoration of ecosystems.

5. Informing the international community about the consequences of the war for the natural heritage of Ukraine.

Project duration

12–18 months.

Budget

The project requires funding for:

1. Purchase of satellite data and equipment.

2. Conducting field research.

3. Conducting analytical research and preparing recommendations.

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This project will contribute to the preservation of Ukraine's natural heritage by providing quality data and solutions for the ecological restoration of biosphere reserves in the post-war period.