Horizon Europe Brokerage Event
Cluster 6 Calls 2025
Warsaw, 27 May 2025

Reconstructing areas affected by conflicts: the role of the bio-based solutions

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This project has received funding from the European Union's Horizon Europe research and innovation programme, under Grant Agreement No 101059839

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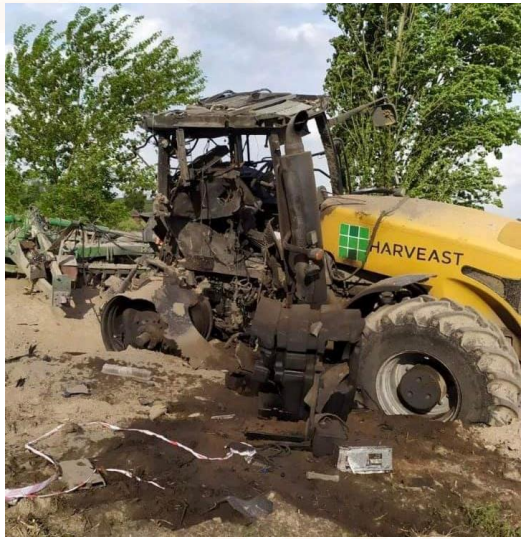
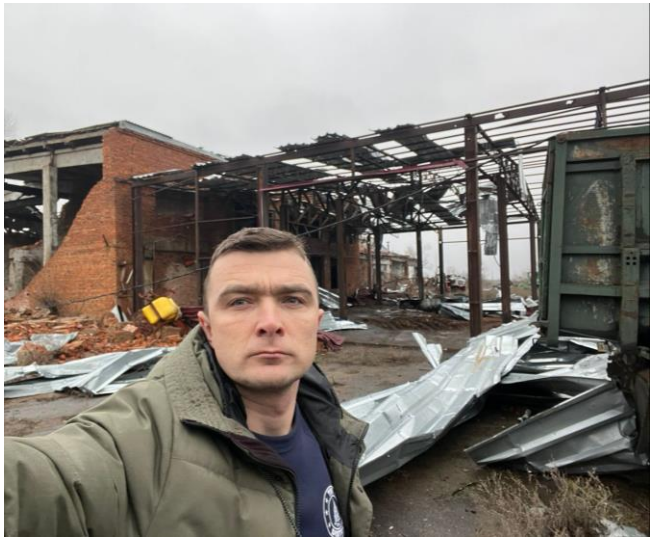
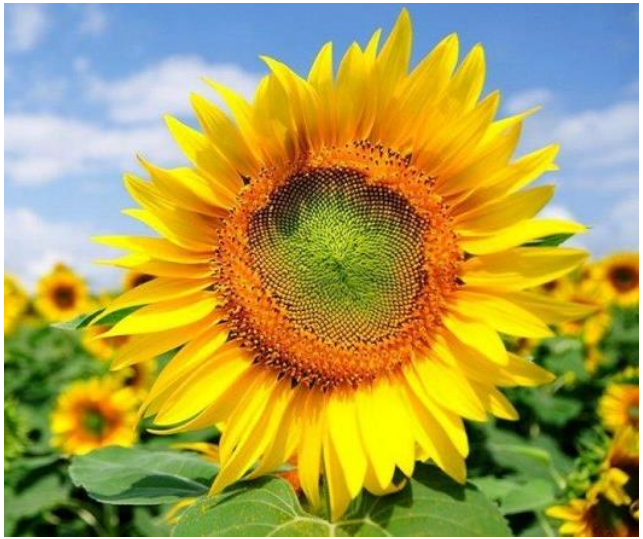
Topic(s) addressed:

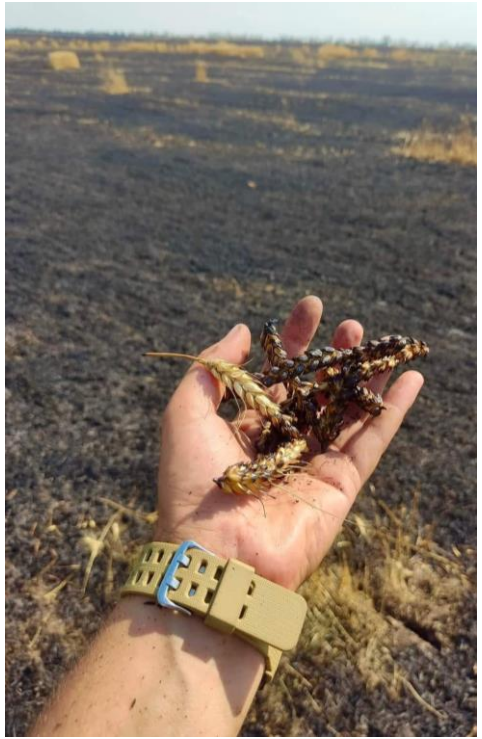
HORIZON-CL6-2025-01-CIRCBIO-14 project “Reconstructing areas affected by conflicts: the role of the bio-based solutions”







War Damage in Ukraine: Challenges for Ecological Recovery



1.Environmental and Land Degradation

1. Over 30% of agricultural land contaminated by mines, chemicals, or military activity
2. Thousands of hectares of forests burned or deforested
3. High risk of soil erosion, water pollution, and ecosystem collapse in affected regions

2.Agricultural Losses

1. Total losses in the sector estimated at $40+ billion (World Bank, 2023)
2. Damaged or inaccessible farmlands - over 6 million hectares
3. Reduced crop yields and disrupted supply chains impacting food security

3.Infrastructure and Livelihoods

1. More than 150,000 infrastructure facilities damaged or destroyed (roads, water systems, silos)
2. Rural economies severely affected: loss of jobs, markets, and access to services
3. Limited access to irrigation, clean water, and waste management

4.Ecological Risks and Climate Impact

1. Emissions from war-related fires and destruction contribute to climate change
2. Loss of biodiversity and natural carbon sinks
3. Increased vulnerability to droughts, floods, and land degradation

5.Urgent Need for Nature-Based Recovery

1. Restoring soil fertility, biodiversity, and climate resilience requires bio-based solutions
2. Green recovery can revive local ecosystems, enhance food security, and build resilience

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Project idea: ***Reconstructing Areas Affected by Conflicts: The Role of Bio-Based Solutions***

Project Overview: Armed conflicts cause severe environmental degradation, especially to land and soil resources that are vital for food security, biodiversity, and climate resilience. In Ukraine, large areas have been contaminated due to war, requiring innovative, sustainable solutions to restore agricultural potential and ecological balance. The project aims to develop and implement bio-based solutions for the ecological, productive, and socio-economic recovery of conflict-affected areas. It combines advanced land monitoring, sustainable biotechnologies, and inclusive policy development to create scalable models for regional and national reconstruction. Special attention is given to restoring local livelihoods, supporting rural communities, and integrating nature-based approaches into long-term recovery planning.

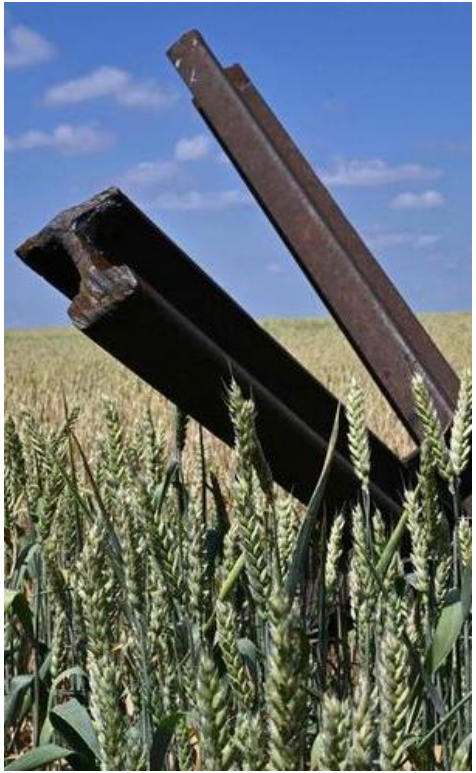
Key Objectives:

Assess the condition of war-damaged lands through mapping and monitoring. Select and pilot bio-based recovery technologies tailored to site-specific challenges (e.g., explosive residues, heavy metals, degraded soils).

Develop **policy recommendations** for integrating these solutions into post-war recovery strategies.

The project will also strengthen the **capacities of local communities** for sustainable land use, ecological adaptation, and economic revitalization.

Consortium Call The consortium of the project is open to organizations with experience in post-conflict recovery, ecological restoration, sustainable land use, and the implementation of bio-based innovations. We are particularly looking for partners actively involved in environmental rehabilitation, agroecology, and nature-based technologies, especially those who work at the community level and have a practical track record in land monitoring, soil remediation, and ecosystem recovery. Priority will be given to institutions with demonstrated ability to foster cross-sectoral cooperation among researchers, local authorities, farmers, environmental experts, and civil society. Experience in developing regional recovery strategies, providing policy recommendations, and scaling sustainable solutions is highly valued.



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Warsaw, 27 May 2025

Project structure

LANDCARE – Land and Nature-based Development for Conflict-Affected Regions and Ecosystems

WP 1. Project management

WP 7. Communication and dissemination

WP 2. Building multidisciplinary pods with stakeholders involved in co-creation and co-validation

- T2.1 Identification and engagement of key stakeholders.
- T.2.2. Conducting surveys and interviews with representatives of local communities, businesses, and authorities.
- T.2.3. Analysis of collected data to identify reconstruction needs.
- T.2.4. Organization of regular consultations and working groups.

WP 3. Development of Classification Criteria and GIS Analysis

- T.3.1. Development of classification criteria for different types of damaged areas (forests, water bodies, agricultural lands, etc.).
- T.3.2. Data collection through satellite imagery, drones, and other technologies.
- T.3.3. Development of a GIS database of damaged areas. Spatial data analysis to prioritize restoration sites.

WP 4.Development of Bio-Solutions for Land Restoration

- T.4.1.Development of bio-remediation solutions for nature ecosystems.
- T.4.2. Development of bio-based solutions for improving soil quality.
- T.4.2. Development of agro-technologies for the restoration of agricultural lands.

WP 5. Eco-Economic Assessment of Bio-Solutions

- T.5.1. Development of a methodology for eco-economic impact assessment.
- T. 5.2. Analysis of the impact of bio-solutions on biodiversity and ecosystem restoration. Evaluation of the economic viability of bio-solutions for local communities.
- T. 5.3. Identification of models for scaling up the implemented solutions.

WP6. Development of Strategies for Integrating Bio-Solutions into Degraded Areas

- T. 6.1.Formulation of scenarios for integrating bio-solutions into local and regional policies.
- T.6.2. Development of strategies for the long-term sustainable management of degraded territories & scaling-up and replication plans for other regions.
- T.6.3. Preparation of recommendations for governmental and international bodies.

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POLISSIA NATIONAL UNIVERSITY

Smart Community Development Center

Supports local recovery through strategic planning and community resilience.

Center for Digital Technologies and Systems Modeling

Creates digital models for agricultural recovery and integrates biotechnologies into sustainable food systems.

Center for Agriculture, Environment and Bioeconomy

Operates research fields, labs, and the "Polissia Organic" center to promote sustainable agriculture and biotechnologies.

RECOVERY STRATEGY DEVELOPMENT

- Post-war recovery plans for communities, cities, and regions
- Priority setting for agricultural restoration and investment
- Integration of green economy and climate resilience
- Collaboration with local authorities and international partners

COOPERATION WITH THE CHORNOBYL RADIATION AND ECOLOGICAL BIOSPHERE RESERVE

- Assessment of technogenically damaged areas
- Limited-use models: monitoring, biodiversity, and conservation
- Bioindication, zoning, and nature-based recovery
- Pilot sites for land preservation
- Training specialists for high-risk environments

EDUCATION AND AWARENESS

- Agro-biotech education (BA, MA, PhD)
- Summer schools and trainings for farmers and communities
- Knowledge transfer in green and digital technologies
- Information support for war-affected areas

CONSULTING AND ANALYTICS

- Decision-making tools for local governments
- Food security consulting
- Soil, water, and crop monitoring in damaged areas
- Impact analysis of the Kakhovka dam destruction
- Minefield mapping and risk assessment
- Bio-based solutions for ecosystem recovery

DIGITAL SOLUTIONS IN AGRICULTURE

- GIS technologies for planning and recovery
- IT and AI for agri-sector resilience
- Drones for mine and damage monitoring
- Digital tools for sustainable land management

POLIDIH
POLISSIA DIGITAL INNOVATION HUB

POLIDIH – Polissia Digital Innovation Hub

Digital and innovation support for war-affected regions: smart solutions for recovery, e-governance, and regional resilience.

Center of Space and Geoinformation Technologies

Monitors and maps war-affected areas using satellite data, GIS, and spatial analysis tools.

Center for Automation, Digitalization and Robotics

Provides drone and navigation technologies for monitoring damaged areas and supporting precise land recovery.

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Implemented Projects in Post-War Recovery Related to Bio-Based Solutions

1. Strategic Recovery Planning for War-Affected Regions (2023–2025)
Within the USAID HOVERLA project, strategies for sustainable recovery were developed for communities in six regions. The university also co-implements the Comprehensive Recovery Program for Zhytomyr Region (2024–2030).

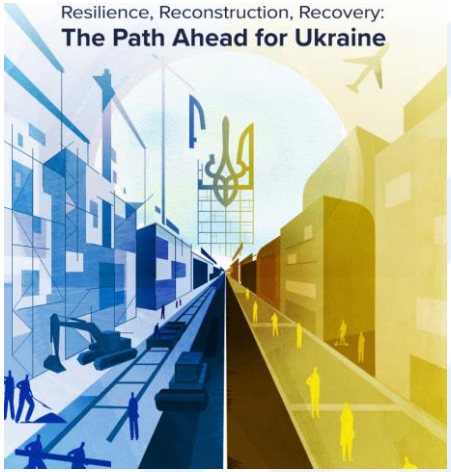
2. Land Monitoring and Restoration with CSIS (Washington, USA)
In partnership with CSIS, a report titled “From the Ground Up” was prepared, focusing on demining, land rehabilitation, and restoring agricultural use of contaminated areas.

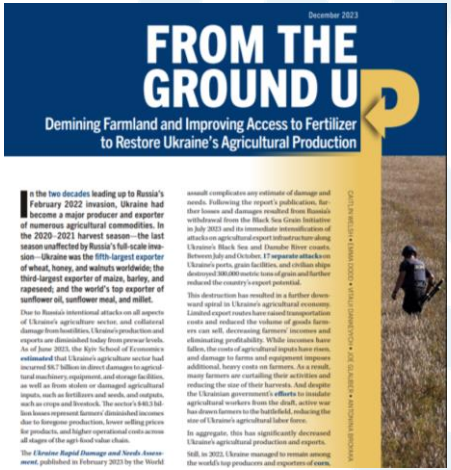
3. Kakhovka Dam Disaster: Ecological Impact Study
Together with EU and U.S. researchers, the report “Kakhovka Dam Breach…” (The Conversation, 2023) analyzed environmental damage and stressed the need for biotech-based recovery of affected lands.

4. Recovery Strategy with CEPA
As part of CEPA collaboration, a national strategy “Resilience, Reconstruction, Recovery” was developed, addressing land, agriculture, and infrastructure recovery.

5. Ukraine Climate Adaptation Scenario Planning
The university co-organizes scenario planning workshops on climate adaptation in agriculture. Events in Washington (2024) and Warsaw (2025) focus on biotech solutions for sustainable recovery.

6. FAO Report “Farming the Black Earth”
Prepared the FAO-commissioned report “Farming the Black Earth,” analyzing Ukraine’s land market development before, during, and after the war, with focus on sustainable land governance in the context of war and post-war reconstruction.





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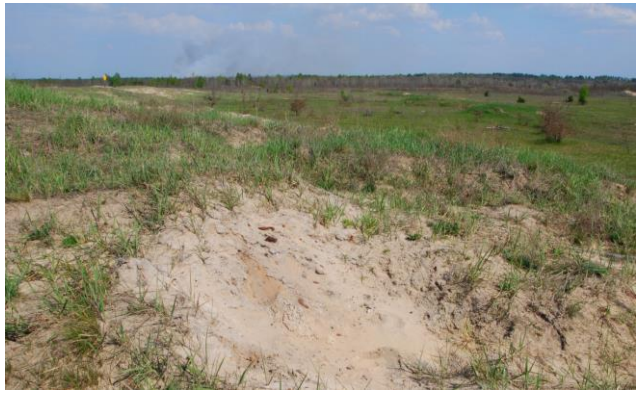
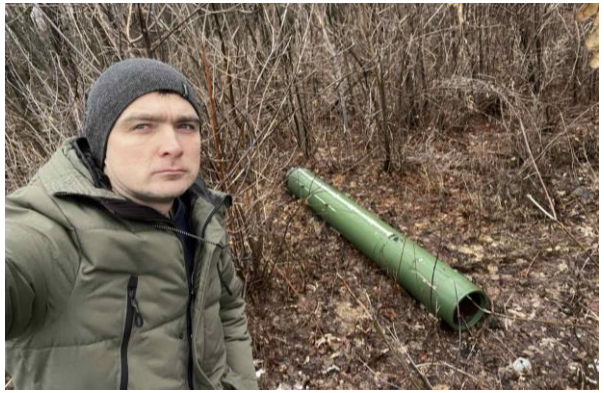
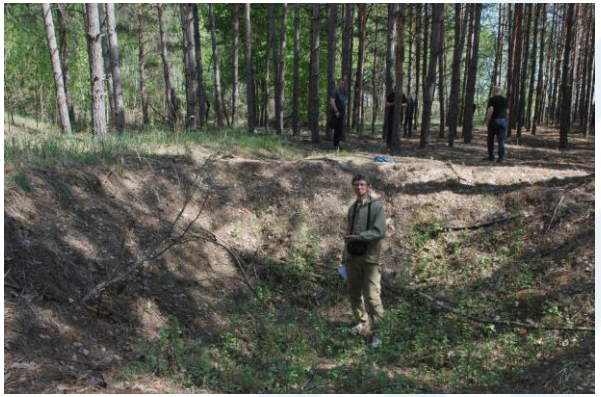
Our research expeditions



Crater from a high-explosive tank shell, Ø3 m

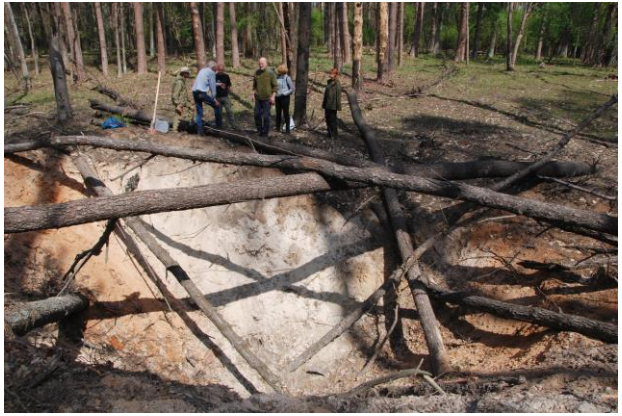


Spent shell casing from a Buk-M missile system

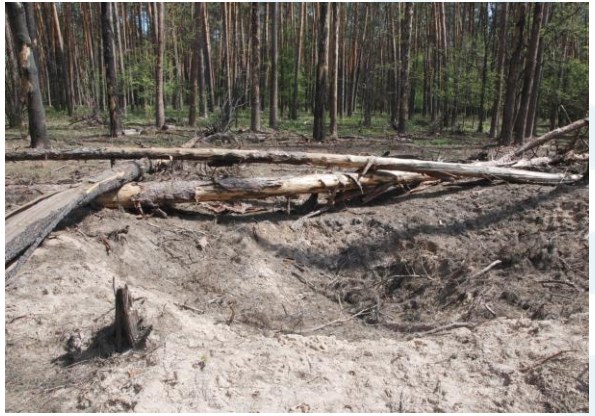


Crater from a Uragan rocket, Ø8 m

Crater from an exploded Shahed drone, Ø3 m



Crater from an Iskander missile, Ø12 m



Crater from a Smerch rocket, Ø8 m

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Involvement in ongoing projects in the area

European Commission | HORIZON EUROPE 2021-2027

AGROSUS

ID: 101084084

AGROSUS AGROecological strategies for SUStainable weed management in key European crops

ACT4CAP27

ID: 101134874

ACT4CAP27 Advancing Capacity and analytical Tools for supporting Common Agricultural Policies post 2027

Erasmus+

ReGrow

ID: 101179755

ReGrow Rebuilding Growth in Agriculture in Post-Conflict Ukraine & Transitioning Georgia

Sust Ed

ID: 101178414

SUSTED Education for sustainable development: synergy of competences for the recovery of Ukraine

ID: 101127011

EGARTU The Experience of the EU in Green Agriculture for the Recovery and Transformation of Ukraine in the Post-War Period

ID 101082258

EACEA European case of inclusive rural development policy: the roadmap for Ukraine

ID: 101082325

EUCP EU Cohesion Policy

DIGITAL EUROPE PROGRAMME

Advanced Digital Skills

POLIDIH

POLISSIA DIGITAL INNOVATION HUB

ID:101191240

POLIDIH Polissia Digital Innovation Hub

Ministry of Science and Education of Ukraine / HORIZON 2020

Geoinformation support of organic agriculture transition processes

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