



ASBESTOS LABORATORY

Presentation - October 2025



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Introduction

The asbestos laboratory project in Kryvyi Rih, initiated by the **Ukraine Resilience Charity**, aims to address asbestos contamination from war-damaged materials. **It will operate as a non-governmental, non-profit organization to ensure the accessibility of services.**

The project is being implemented in partnership with the **State Scientific Research Mining Institute, a key research body within Kryvyi Rih National University**, specializing in mineral extraction and environmental safety. The University will have access to the laboratory's equipment, enabling students and researchers to use it for academic and applied research. Ownership of the laboratory equipment will be transferred to the University after ten years.

Ukraine Resilience Charity will lead and launch the project, overseeing all processes with donors, suppliers, and contractors, including procurement procedures. Operational implementation, documentation and licenses will be carried out by the dedicated charity **EcoLab**.

The project's mission is to ensure **safer asbestos management** in addition to contributing to **Ukraine's overall resilience and recovery by leveraging circular economy principles.**

The asbestos crisis in Ukraine



Source: Pilot project by Neo-Eco Ukraine in the Kyiv regions

- **+70%** of residential and public buildings still contain asbestos-cement materials (roofs, fences, pipelines) from the Soviet era
- Asbestos remains a widespread threat to the environment and public health
- Typical asbestos use includes **roofing materials** with 10-15% chrysotile asbestos, **flat slate panels** used for fencing and **asbestos-cement pipes for water supply**
- **Over 250,000 destroyed buildings** have released millions of tons of **asbestos-contaminated debris**
- Pollution of air, soil, and water in war-affected regions (east, north, and south)
- Increased risk of cancer and respiratory diseases
- **Low public awareness**, insufficient monitoring, and lack of safe disposal methods
- **Limited existing capacity for asbestos detection and analysis**
 - Kryvyi Rih identified as optimal location for a new laboratory:
 - Strategically located in central Ukraine
 - Strong transport infrastructure (rail and highway)
 - Proximity to front-line cities and high-risk areas
- Enables efficient sample collection, rapid response, and support for waste management

Project Overview

Aim: Establish a fully accredited asbestos analytical laboratory in Kryvyi Rih during 2025-2026

Project Phases

Year 1:

- Focus on testing solid materials for asbestos contamination
- Preparation of laboratory premises
- Procurement of essential equipment
- Recruitment and training of personnel to identify asbestos in compliance with European and international standards
- Completion of the accreditation process

Year 2: Expand capabilities to include air testing for asbestos contamination.

Laboratory Equipment Standards

The laboratory will adhere to strict measurement quality control procedures and comply with **international, European, and Ukrainian standards, including those set by ISO, the Ukrainian standard DSTU EN ISO/IEC 10012:2005, identical to international EN ISO/IEC 10012:2003.**

The laboratory's equipment portfolio is designed to meet European and international standards for asbestos detection and analysis. This includes state-of-the-art optical and electron microscopy technologies, ensuring the ability to:

- Accurately detect asbestos in both bulk materials and air samples.
- Identify asbestos types with precision.
- Provide analyses that are recognized and trusted by global authorities.

With this advanced equipment, the laboratory will operate at the highest level of scientific and regulatory compliance, serving as the leading analytical facility in Ukraine.

Project Goals and Programmes:

Main Goals:

- Advancing Circular Economy in Construction
- Reusing Construction Waste in New Infrastructure Projects

Short-term Programmes:

- Establish Laboratory Operations
- Staff Training
- Launch Testing Services
- Community Awareness

Long-term Programmes:

- Expand Testing Capacity
- Develop Partnerships
- Support Policy Implementation
- Sustainability and Growth

Expected Social and Environmental Impact of the Project:

- Reduced Health Risks
- Informed Public and Safer Practices
- Cleaner Environment
- Support for Reconstruction Efforts



Achieving these goals and objectives will enable the project to significantly reduce environmental hazards and serve as a model for effective asbestos management in Ukraine, especially in the context of the uncontrolled accumulation of construction debris resulting from war-related damage and the need for its sorting and recycling.

Laboratory Services

Sample Analysis:

Material Testing:

Analysis of construction debris, insulation materials, and other building components to detect the presence of asbestos.

Microscopy Services:

Use of optical and electronic microscopy techniques to accurately determine the presence, type, and quantity of asbestos fibers in samples.

Air Monitoring:

Air Quality Testing: Collection and analysis of air samples from construction sites, public buildings, and residential areas to measure asbestos fiber concentrations.

Environmental Monitoring:

Continuous monitoring of air quality in high-risk areas, especially during demolition or renovation activities.

Consulting and Training:

Risk Assessment and Consulting:

Expert consultation on asbestos management, including risk assessments for buildings and guidance on safe handling and disposal practices.

Training Programmes: Training courses for construction workers, health and safety officers, and government inspectors on asbestos identification, safe work practices, and regulatory compliance.

Asbestos Detection Methods



Polarized Light Microscopy (PLM) Analysis

This method employs a PLM to detect and identify asbestos fibers in bulk samples. It is particularly effective for initial screening and determining asbestos types by analyzing their unique optical properties, such as refractive index and birefringence. PLM provides a reliable and cost-effective solution for preliminary asbestos detection.



Scanning Electron Microscopy (SEM) Analysis

SEM analysis offers a more advanced and detailed examination of asbestos fibers, using high-resolution imaging and energy-dispersive X-ray spectroscopy (EDS) for precise identification. This method can detect even the smallest fibers and determine their elemental composition, enabling accurate differentiation between asbestos types. SEM is essential for cases where higher precision and detailed analysis are required.

Quality Standards / Compliance with International Norms

The laboratory will adhere to strict quality control procedures and comply with international, European, and Ukrainian standards, including those set by ISO and the Ukrainian standard DSTU EN ISO/IEC 17025:2019, which is identical to international EN ISO/IEC 17025:2017. Additionally, it will ensure compliance with EU Directive 87/217/EEC, which governs asbestos management to protect public health and the environment.

We are part of the UNEP-supported Asbestos Working Group, which addresses asbestos management issues and are open to adapting training and equipment requirements in line with the working group's opinions.

The laboratory welcomes consultations with all interested stakeholders to identify which asbestos detection standards should form the foundation of its operations with solid waste.

Key Quality Management Actions:

- Development and implementation of a quality management system accreditation process
- Regular calibration and validation of methods
- Participation in interlaboratory comparative tests
- Internal audits and continuous improvement

This dynamic approach ensures that the laboratory evolves to meet the highest global standards, while fostering collaboration with stakeholders to create a robust, well-equipped, and credible facility.

Current Project Status

1. The Swiss Agency for Development and Cooperation (SDC) has signed a financing agreement covering 49.7% of the total project cost, and additional funding efforts have commenced.
2. The laboratory premises have been leased for 10 years.
3. Renovation works are currently in progress and are expected to be completed in January 2026.
4. Partial procurement of equipment has been completed.
5. Laboratory staff have been recruited.
6. An agreement on scientific-technical cooperation in the field of creation and functioning of the EcoLab asbestos detection laboratory has been signed with Kryvyi Rih National University.
7. Discussions are ongoing with a French training centre for a specialised training programme.
8. Preparations are underway for accreditation under ISO 17025 and certification under ISO 100012.

The total cost of the project to establish the asbestos laboratory is 860,000 EUR

Additional Funding Requirements:

We require urgent additional funding for the following elements:

#	Expense Category	Description	Amount (€)
1	Laboratory Equipment	Scanning Electron Microscope and coater	230,000
2	Mandatory Fees and Support	Consultancy services for ISO 17025 accreditation and ISO 100012 certification	25,000
3	Training and Travel	Transportation, accommodation, and meals for a group of laboratory specialists for 1.5-month asbestos training program abroad; includes administrative support and technical interpreter during training	22,000
4	Document Translation	Technical and regulatory documentation from French/English to Ukrainian	5,000
5	Additional Specialized Equipment	Procurement of additional specialized laboratory equipment and furniture	45,000
6	Computer and Power Equipment	Workstations, server, stabilizer, inverter, and backup batteries	21,000
7	Website and Software	Development of laboratory website and purchase of licensed software	6,000
8	Public Training & Awareness Programs	Training sessions on asbestos hazards, safe handling, and waste testing for sorting and recycling	25,000
9	Pre-Accreditation Operational Expenses	Day-to-day operational costs of the laboratory until accreditation	13,000
		TOTAL:	392,000

Advantages for Donors

Public health protection: Reducing asbestos exposure risks for workers and communities through reliable testing and certification systems.

Advancement of EU integration and governance reforms: Strengthening Ukraine's institutional capacity to implement EU-aligned environmental monitoring and risk management frameworks. Ensuring that recovery and rebuilding efforts across Ukraine are conducted safely and in full compliance with EU environmental and occupational standards.

Capacity building and technology transfer: Developing national expertise in advanced material analysis through training and knowledge exchange with leading European laboratories.

Long-term sustainability: The laboratory will operate on a cost-recovery model, providing accredited services that ensure its continued operation and financial independence beyond initial donor support.

Contribution to SDG Goals 3.9 and 11.6 : By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination and reduce the adverse per capita environmental impact of cities, including by paying special attention to air quality and municipal and other waste management

Visibility and international partnership recognition: Contributors will be acknowledged as key partners in establishing a first-in-class facility that directly advances Ukraine's environmental resilience and public health infrastructure.



THANK YOU

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